

Air Quality, Greenhouse Gases and Health Risk Assessment

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Construction and Operational Emissions and Greenhouse Gases

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Table 1.1-1 Onroad Emission Factors

Phase 1a - Wharf Construction - Items 1 - 3

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Total Work Days	Miles per RT	Daily RT	Idle Time (Min) per RT	Idle Time (Min)/RT - mitigated	Miles per Day	Vehicle Class
7	Haul Trucks - Pile Deliveries	Onroad	425	2012	1	8	22	130	12	10	5	1,560	Heavy
17	Haul Trucks - Pile Deliveries	Onroad	425	2012	1	8	56	130	12	10	5	1,560	Heavy
24	Haul Truck	Onroad	425	2012	1	8	31	130	40	5	5	5,200	Heavy
25	Concrete Trucks	Onroad	425	2012	1	8	62	100	15	25	20	1,500	Heavy
29	Dump Truck	Onroad	310	2012	2	8	100	40	5	10	5	400	Heavy
31	Flat Bed Truck	Onroad	230	2012	1	8	10	40	5	10	5	200	Heavy
39	Water Truck	Onroad	325	2012	1	8	32	40	5	30	5	200	Heavy

Phase 1b - Backland Construction - Items 9 and 10

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Total Work Days	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Idle Time (Min)/RT - mitigated	Miles per Day	Vehicle Class
5	Dump Truck	Onroad	310	2012	2	8	67	40	5	10	5	400	Heavy
7	Flat Bed Truck	Onroad	230	2012	2	8	147	40	5	10	5	400	Heavy
12	Pickup Truck	Onroad	275	2012	6	8	205	40	5	-	-	1,200	Light
16	Stake Bed Truck	Onroad	300	2012	2	8	120	40	5	10	5	400	Light
19	Water Truck	Onroad	325	2012	3	8	127	40	5	30	5	600	Heavy
21	Haul Truck - Paving	Onroad	425	2012	1	8	12	15	33	5	5	495	Heavy
22	Haul Truck - Base	Onroad	425	2012	1	8	12	15	16	5	5	240	Heavy
23	Semi Truck	Onroad	425	2012	1	8	12	40	16	5	5	640	Heavy

Phase 1c - AMP Installation - Item 5

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Total Work Days	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Idle Time (Min)/RT - mitigated	Miles per Day	Vehicle Class
3	Flat Bed Truck	Onroad	230	2012	2	8	83	40	5	10	5	400	Heavy
7	Haul Truck	Onroad	425	2012	1	8	13	40	5	5	5	200	Heavy

Phase 1d - Demolish Roadability Canopy and Building - Item 6

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Total Work Days	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Idle Time (Min)/RT - mitigated	Miles per Day	Vehicle Class
4	Dump Truck	Onroad	310	2013	2	8	21	40	5	10	5	400	Heavy

Phase 1e - Construct Buildings and Canopies - Items 7 and 8

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Total Work Days	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Idle Time (Min)/RT - mitigated	Miles per Day	Vehicle Class
3	Flat bed Truck	Onroad	300	2012	1	8	180	40	5	10	5	200	Heavy
4	Concrete Truck	Onroad	425	2012	4	8	50	100	1	30	20	400	Heavy
5	Concrete Trucks	Onroad	425	2012	1	8	3	15	14	25	20	210	Heavy
8	Pickup Truck	Onroad	0	2012	3	8	360	40	5	-	-	600	Light
13	Supply Trucks	Onroad	300	2012	1	8	5	40	10	10	5	400	Heavy
16	Dump Truck	Onroad	310	2012	2	8	21	40	5	10	5	400	Heavy

Table 1.1-1 Onroad Emission Factors

Phase 1f - Expand Reefer Area - Item 15

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Total Work Days	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Idle Time (Min)/RT - mitigated	Miles per Day	Vehicle Class
5	5-Ton End Dump	Onroad	310	2012	3	8	30	40	5	10	5	600	Heavy
9	Concrete Truck	Onroad	425	2012	2	8	10	100	1	30	20	200	Heavy

Phase 1g - Utility Infrastructure - Item 16

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Total Work Days	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Idle Time (Min)/RT - mitigated	Miles per Day	Vehicle Class
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Phase 1h - Crane Installation - Item 4

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Total Work Days	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Idle Time (Min)/RT - mitigated	Miles per Day	Vehicle Class
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Phase 2 - Grading, Paving and Striping - Items 11 - 14

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Total Work Days	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Idle Time (Min)/RT - mitigated	Miles per Day	Vehicle Class
5	10-Ton End Dump	Onroad	350	2012	3	8	30	40	5	10	5	600	Heavy
8	Concrete Truck	Onroad	425	2012	5	8	10	100	1	30	20	500	Heavy

All Phases - Worker Commutes

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Total Work Days	Miles per Roundtrip	Daily Roundtrips	Idling Time (Min) per RT	Idle Time (Min)/RT - mitigated	Miles per Day	Vehicle Class
1	Worker Vehicle	Onroad	-	2012	50	8	500	40	1	-	-	2,000	Light

Truck Idle Emission Rates (lb/hr)								
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Heavy Duty	0.029	0.162	0.125	0.000	0.001	0.001	10.869	0.001

Notes:

CH4 idling values calculated by taking the ratio of CH4 and CO2/ gal of diesel fuel listed in Tables 13.1 and 13.6 ("Construction Vehicles") in the Climate Registry's GRP

Table 1.1-1 Onroad Emission Factors

Mitigation Measures Required for Heavy Duty Vehicles >19,500 GVW	NOx (lb/bhp- hr)	PM10 (lb/bhp- hr)
Not Import Haulers or Earth Movers	0.002643	2.2E-05
Import Haulers or Earth Movers	0.004405	0.00022

Import Haulers are defined as all trucks hauling dirt to and from the construction site via public roadways.

Earth Movers are defined as all trucks moving and/or working in dirt within the construction site (i.e. trucks are confined to the construction site and do not regularly enter or exit public roadways).

MM AQ--On-Road Trucks

On-road trucks except for Import Haulers and Earth Movers: 2) From January 1, 2012 on: All on-road heavy-duty diesel trucks with a GVWR of 19,500 pounds or greater used at the Port of Los Angeles will comply with EPA 2007 on-road emission standards for PM10 and NOx (0.01 g/bhp-hr and at least 1.2 g/bhp-hr, respectively).

For Import Hauler Only: From January 1, 2012 on: All on-road heavy-duty diesel trucks with a GVWR of 19,500 pounds or greater used to move dirt to and from the construction site via public roadways at the Port of Los Angeles will comply with EPA 2004 on-road emission standards for PM10 and NOx (0.10 g/bhp-hr and 2.0 g/bhp-hr, respectively).

For Earth Movers Only: 2) From January 1, 2012 on: All heavy-duty diesel trucks with a GVWR of 19,500 pounds or greater used to move dirt within the construction site at the Port of Los Angeles will comply with EPA 2004 on-road emission standards for PM10 and NOx (0.10 g/bhp-hr and 2.0 g/bhp-hr, respectively).

Table 1.1-1 Onroad Emission Factors

2012 Fleet

South Coast Air Basin Vehicle Class	2011 Fleet (VMT/1000)
LDA-TOT	196,612
LDT1-TOT	29,251
LDT2-TOT	88,210
MDV-TOT	40,813
LHDT1-TOT	7,662
LHDT2-TOT	2,295
MHDT-TOT	5,757
HHDT-TOT	10,463

1990-2012 Composite Fleet Basin-Wide

VOC (ton/day)	CO (ton/day)	NOX (ton/day)	SOX (ton/day)	PM10 (ton/day)	PM2.5 (ton/day)	CO2 (ton/day)	CH4 (ton/day)
43.92	457.73	36.88	0.85	7.18	6.64	87870.00	3.85
7.91	79.05	7.33	0.16	1.15	1.06	16130.00	0.57
28.55	288.89	35.54	0.48	4.92	4.55	49400.00	1.73
15.63	156.48	21.74	0.30	2.27	2.10	31050.00	0.23
5.33	31.50	19.21	0.05	0.32	0.30	5650.00	0.04
1.38	7.44	8.65	0.02	0.11	0.10	1590.00	0.01
2.43	26.97	41.87	0.08	1.21	1.12	8750.00	0.03
14.56	64.07	148.98	0.21	6.85	6.34	21480.00	0.06

Vehicle Class	VOC (lb/mi)	CO (lb/mi)	NOX (lb/mi)	SOX (lb/mi)	PM10 (lb/mi)	PM2.5 (lb/mi)	CO2 (lb/mi)	CH4 (lb/mi)
LDA-TOT	4.5E-04	4.7E-03	3.8E-04	8.6E-06	7.3E-05	6.8E-05	8.9E-01	3.9E-05
LDT1-TOT	5.4E-04	5.4E-03	5.0E-04	1.1E-05	7.9E-05	7.3E-05	1.1E+00	3.9E-05
LDT2-TOT	6.5E-04	6.6E-03	8.1E-04	1.1E-05	1.1E-04	1.0E-04	1.1E+00	3.9E-05
MDV-TOT	7.7E-04	7.7E-03	1.1E-03	1.5E-05	1.1E-04	1.0E-04	1.5E+00	1.1E-05
LHDT1-TOT	1.4E-03	8.2E-03	5.0E-03	1.3E-05	8.4E-05	7.7E-05	1.5E+00	1.1E-05
LHDT2-TOT	1.2E-03	6.5E-03	7.5E-03	1.7E-05	9.6E-05	8.9E-05	1.4E+00	1.1E-05
MHDT-TOT	8.4E-04	9.4E-03	1.5E-02	2.8E-05	4.2E-04	3.9E-04	3.0E+00	1.1E-05
HHDT-TOT	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4.1E+00	1.1E-05

2012 Composite Vehicle Class	2012 Fleet (VMT/1000)
Light Duty Autos and Trucks Composite	314073.00
Medium to Heavy Duty Trucks Composite	56527.00
Heavy-Heavy Duty Trucks Composite	10463.00

VOC (ton/day)	CO (ton/day)	NOX (ton/day)	SOX (ton/day)	PM10 (ton/day)	PM2.5 (ton/day)	CO2 (ton/day)	CH4 (ton/day)
80.38	825.67	79.75	1.49	13.25	12.26	153400.00	6.16
24.77	222.39	91.47	0.45	3.91	3.62	47040.00	0.32
14.56	64.07	148.98	0.21	6.85	6.34	21480.00	0.06

2012 Composite Vehicle Class
Light Duty Composite
Medium/Heavy Duty Composite
Heavy-Heavy Duty Composite

VOC (lb/mi)	CO (lb/mi)	NOX (lb/mi)	SOX (lb/mi)	PM10 (lb/mi)	PM2.5 (lb/mi)	CO2 (lb/mi)	CH4 (lb/mi)
5.12E-04	5.26E-03	5.08E-04	9.49E-06	8.44E-05	7.8E-05	9.77E-01	3.92E-05
8.76E-04	7.87E-03	3.24E-03	1.59E-05	1.38E-04	1.3E-04	1.66E+00	1.12E-05
2.78E-03	1.22E-02	2.85E-02	4.01E-05	1.31E-03	1.2E-03	4.11E+00	1.12E-05

Table 1.1-1 Onroad Emission Factors

2013 Fleet

South Coast Air Basin Vehicle Class	2012 Fleet (VMT/1000)
LDA-TOT	193,808
LDT1-TOT	28,740
LDT2-TOT	87,234
MDV-TOT	40,184
LHDT1-TOT	7,635
LHDT2-TOT	2,272
MHDT-TOT	5,710
HHDT-TOT	8,926

1990-2013 Composite Fleet Basin-Wide

VOC (ton/day)	CO (ton/day)	NOX (ton/day)	SOX (ton/day)	PM10 (ton/day)	PM2.5 (ton/day)	CO2 (ton/day)	CH4 (ton/day)
40.88	419.75	33.21	0.84	7.14	6.60	86520.00	3.80
7.57	73.43	6.68	0.15	1.14	1.05	15850.00	0.56
27.57	272.56	32.69	0.47	4.97	4.60	48880.00	1.71
15.07	148.59	20.02	0.30	2.29	2.12	30580.00	0.23
5.27	30.18	18.45	0.05	0.32	0.30	5640.00	0.04
1.36	7.13	8.07	0.02	0.11	0.10	1580.00	0.01
2.34	25.78	37.72	0.08	1.16	1.07	8670.00	0.03
11.76	53.68	114.33	0.18	5.37	4.97	18400.00	0.05

Vehicle Class	VOC (lb/mi)	CO (lb/mi)	NOX (lb/mi)	SOX (lb/mi)	PM10 (lb/mi)	PM2.5 (lb/mi)	CO2 (lb/mi)	CH4 (lb/mi)
LDA-TOT	4.2E-04	4.3E-03	3.4E-04	8.7E-06	7.4E-05	6.8E-05	8.9E-01	3.9E-05
LDT1-TOT	5.3E-04	5.1E-03	4.6E-04	1.0E-05	7.9E-05	7.3E-05	1.1E+00	3.9E-05
LDT2-TOT	6.3E-04	6.2E-03	7.5E-04	1.1E-05	1.1E-04	1.1E-04	1.1E+00	3.9E-05
MDV-TOT	7.5E-04	7.4E-03	1.0E-03	1.5E-05	1.1E-04	1.1E-04	1.5E+00	1.1E-05
LHDT1-TOT	1.4E-03	7.9E-03	4.8E-03	1.3E-05	8.4E-05	7.8E-05	1.5E+00	1.1E-05
LHDT2-TOT	1.2E-03	6.3E-03	7.1E-03	1.8E-05	9.7E-05	9.0E-05	1.4E+00	1.1E-05
MHDT-TOT	8.2E-04	9.0E-03	1.3E-02	2.8E-05	4.1E-04	3.8E-04	3.0E+00	1.1E-05
HHDT-TOT	2.6E-03	1.2E-02	2.6E-02	4.0E-05	1.2E-03	1.1E-03	4.1E+00	1.1E-05

2013 Composite Vehicle Class	2012 Fleet (VMT/1000)
Light Duty Autos and Trucks Composite	309782.00
Medium to Heavy Duty Trucks Composite	55801.00
Heavy-Heavy Duty Trucks Composite	8926.00

VOC (ton/day)	CO (ton/day)	NOX (ton/day)	SOX (ton/day)	PM10 (ton/day)	PM2.5 (ton/day)	CO2 (ton/day)	CH4 (ton/day)
76.02	765.74	72.58	1.46	13.25	12.26	151250.00	6.07
24.04	211.68	84.26	0.45	3.88	3.59	46470.00	0.31
11.76	53.68	114.33	0.18	5.37	4.97	18400.00	0.05

2013 Composite Vehicle Class
Light Duty Composite
Medium/Heavy Duty Composite
Heavy-Heavy Duty Composite

VOC (lb/mi)	CO (lb/mi)	NOX (lb/mi)	SOX (lb/mi)	PM10 (lb/mi)	PM2.5 (lb/mi)	CO2 (lb/mi)	CH4 (lb/mi)
4.9E-04	4.9E-03	4.7E-04	9.4E-06	8.6E-05	7.9E-05	9.8E-01	3.9E-05
8.6E-04	7.6E-03	3.0E-03	1.6E-05	1.4E-04	1.3E-04	1.7E+00	1.1E-05
2.6E-03	1.2E-02	2.6E-02	4.0E-05	1.2E-03	1.1E-03	4.1E+00	1.1E-05

Note:

CH4 lb/mi calculated from Table 13.4 (year 2000) and Table 13.3 (Uncontrolled) in the Climate Registry's GRP

Onroad PM2.5 fraction of PM is 0.925, from Table A in SCAQMD's "Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds" October, 2006

Table 1.1-2 Offroad Emission Factors

SCAB Fleet Average Emission Factors (Diesel)

2012									
Air Basin	SC	ROG	CO	NOX	SOX	PM	PM 2.5	CO2	CH4
Equipment	MaxHP	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Aerial Lifts	15	0.0102	0.0528	0.0642	0.0001	0.0030	0.00273789	8.7	0.0009
	25	0.0175	0.0517	0.0957	0.0001	0.0055	0.00502377	11.0	0.0016
	50	0.0650	0.1822	0.1916	0.0003	0.0169	0.01555914	19.6	0.0059
	120	0.0607	0.2451	0.4012	0.0004	0.0324	0.02979957	38.1	0.0055
	500	0.1276	0.4941	1.6553	0.0021	0.0491	0.04518882	213	0.0115
	750	0.2379	0.8930	3.0795	0.0039	0.0903	0.08305	385	0.0215
Aerial Lifts Composite		0.0576	0.1976	0.3249	0.0004	0.0219	0.0201688	34.7	0.0052
Air Compressors	15	0.0129	0.0494	0.0768	0.0001	0.0052	0.00482956	7.2	0.0012
	25	0.0286	0.0779	0.1337	0.0002	0.0087	0.00798711	14.4	0.0026
	50	0.1010	0.2646	0.2310	0.0003	0.0239	0.02196044	22.3	0.0091
	120	0.0891	0.3287	0.5333	0.0006	0.0492	0.04530702	47.0	0.0080
	175	0.1135	0.5074	0.8954	0.0010	0.0512	0.04711674	88.5	0.0102
	250	0.1066	0.3052	1.2194	0.0015	0.0379	0.03488026	131	0.0096
	500	0.1709	0.5726	1.9077	0.0023	0.0623	0.05731611	232	0.0154
	750	0.2681	0.8849	3.0371	0.0036	0.0980	0.09013646	358	0.0242
	1000	0.4533	1.5617	5.4098	0.0049	0.1589	0.14623208	486	0.0409
Air Compressors Composite		0.0984	0.3445	0.6494	0.0007	0.0469	0.04319094	63.6	0.0089
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0029	0.00267346	10.3	0.0011
	25	0.0194	0.0658	0.1233	0.0002	0.0054	0.00493332	16.0	0.0017
	50	0.0351	0.2335	0.2768	0.0004	0.0149	0.01375027	31.0	0.0032
	120	0.0514	0.4724	0.5026	0.0009	0.0328	0.03021193	77.1	0.0046
	175	0.0750	0.7538	0.7479	0.0016	0.0366	0.03369111	141	0.0068
	250	0.0838	0.3435	0.8722	0.0021	0.0268	0.02466198	188	0.0076
	500	0.1354	0.5526	1.3152	0.0031	0.0437	0.0401996	311	0.0122
	750	0.2685	1.0916	2.6320	0.0062	0.0865	0.07954981	615	0.0242
	1000	0.4491	1.6773	6.6123	0.0093	0.1699	0.15627031	928	0.0405
Bore/Drill Rigs Composite		0.0854	0.5068	0.9013	0.0017	0.0367	0.03377956	165	0.0077
Cement and Mortar	15	0.0075	0.0386	0.0475	0.0001	0.0023	0.00214575	6.3	0.0007
	25	0.0293	0.0852	0.1548	0.0002	0.0091	0.00833335	17.6	0.0026
Cement and Mortar Mixers Composite		0.0093	0.0425	0.0564	0.0001	0.0029	0.00265676	7.2	0.0008
Concrete/Industrial Saws	25	0.0199	0.0678	0.1261	0.0002	0.0050	0.00463199	16.5	0.0018
	50	0.1047	0.3015	0.2972	0.0004	0.0268	0.02464202	30.2	0.0094
	120	0.1155	0.4880	0.7625	0.0009	0.0639	0.05881293	74.1	0.0104
	175	0.1685	0.8723	1.4507	0.0018	0.0767	0.07055489	160	0.0152
Concrete/Industrial Saws Composite		0.1090	0.4148	0.5910	0.0007	0.0491	0.04516023	58.5	0.0098
Cranes	50	0.1101	0.2979	0.2478	0.0003	0.0258	0.02374425	23.2	0.0099
	120	0.0982	0.3650	0.5844	0.0006	0.0533	0.04905658	50.1	0.0089
	175	0.1089	0.4838	0.8259	0.0009	0.0479	0.04411294	80.3	0.0098
	250	0.1103	0.3103	1.0712	0.0013	0.0388	0.03572496	112	0.0100
	500	0.1635	0.5691	1.5327	0.0018	0.0571	0.05252873	180	0.0148
	750	0.2767	0.9554	2.6486	0.0030	0.0974	0.08956856	303	0.0250
	9999	0.9905	3.5715	10.9484	0.0098	0.3384	0.31130888	971	0.0894
Cranes Composite		0.1425	0.4946	1.2753	0.0014	0.0553	0.05085356	129	0.0129
Crawler Tractors	50	0.1262	0.3333	0.2713	0.0003	0.0289	0.02661717	24.9	0.0114
	120	0.1374	0.4906	0.8120	0.0008	0.0729	0.06706625	65.8	0.0124
	175	0.1758	0.7491	1.3245	0.0014	0.0765	0.07039012	121	0.0159
	250	0.1854	0.5225	1.7044	0.0019	0.0667	0.06140572	166	0.0167
	500	0.2659	1.0217	2.3914	0.0025	0.0942	0.08669169	259	0.0240
	750	0.4784	1.8248	4.3817	0.0047	0.1705	0.15686314	465	0.0432
	1000	0.7229	2.8959	7.7626	0.0066	0.2503	0.23028577	658	0.0652
Crawler Tractors Composite		0.1671	0.6051	1.2309	0.0013	0.0752	0.06915993	114	0.0151
Crushing/Proc. Equip	50	0.1927	0.5215	0.4545	0.0006	0.0462	0.04249612	44.0	0.0174
	120	0.1525	0.5829	0.9172	0.0010	0.0851	0.07832833	83.1	0.0138
	175	0.2088	0.9654	1.6343	0.0019	0.0946	0.08703386	167	0.0188
	250	0.1953	0.5592	2.1896	0.0028	0.0682	0.06278363	245	0.0176
	500	0.2733	0.8961	2.9457	0.0037	0.0972	0.08939204	374	0.0247
	750	0.4361	1.3892	4.8387	0.0059	0.1560	0.1435221	589	0.0394
	9999	1.2112	4.0327	14.2648	0.0131	0.4203	0.3867072	1,308	0.1093
Crushing/Proc. Equipment Composite		0.1872	0.6911	1.2633	0.0015	0.0819	0.07531843	132	0.0169
Dumpers/Tenders	25	0.0100	0.0324	0.0614	0.0001	0.0031	0.00287569	7.6	0.0009
Dumpers/Tenders Composite		0.0100	0.0324	0.0614	0.0001	0.0031	0.00287569	7.6	0.0009
Excavators	25	0.0198	0.0677	0.1253	0.0002	0.0048	0.0044016	16.4	0.0018
	50	0.0912	0.2933	0.2568	0.0003	0.0237	0.02177067	25.0	0.0082
	120	0.1183	0.5220	0.7300	0.0009	0.0657	0.06048841	73.6	0.0107
	175	0.1288	0.6678	0.9613	0.0013	0.0569	0.05232568	112	0.0116
	250	0.1301	0.3630	1.2438	0.0018	0.0415	0.03821375	159	0.0117
	500	0.1805	0.5493	1.6112	0.0023	0.0574	0.05281243	234	0.0163
	750	0.3013	0.9096	2.7605	0.0039	0.0969	0.08912044	387	0.0272
Excavators Composite		0.1300	0.5401	0.9817	0.0013	0.0536	0.04926762	120	0.0117

Table 1.1-2 Offroad Emission Factors

SCAB Fleet Average Emission Factors (Diesel)

2012									
Air Basin	SC	ROG	CO	NOX	SOX	PM	PM 2.5	CO2	CH4
Equipment	MaxHP	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Forklifts	50	0.0514	0.1682	0.1488	0.0002	0.0136	0.01255391	14.7	0.0046
	120	0.0489	0.2195	0.3017	0.0004	0.0277	0.02547997	31.2	0.0044
	175	0.0624	0.3304	0.4664	0.0006	0.0278	0.02560317	56.1	0.0056
	250	0.0595	0.1638	0.5872	0.0009	0.0187	0.01717473	77.1	0.0054
	500	0.0806	0.2241	0.7257	0.0011	0.0252	0.02318086	111	0.0073
Forklifts Composite		0.0585	0.2257	0.4330	0.0006	0.0231	0.021206	54.4	0.0053
Generator Sets	15	0.0157	0.0698	0.1063	0.0002	0.0061	0.00564275	10.2	0.0014
	25	0.0276	0.0951	0.1632	0.0002	0.0096	0.00884577	17.6	0.0025
	50	0.0959	0.2734	0.2966	0.0004	0.0255	0.02343122	30.6	0.0087
	120	0.1206	0.4956	0.8099	0.0009	0.0640	0.05892237	77.9	0.0109
	175	0.1460	0.7413	1.3131	0.0016	0.0644	0.05927907	142	0.0132
	250	0.1372	0.4502	1.8047	0.0024	0.0508	0.04671771	213	0.0124
	500	0.1952	0.7617	2.5896	0.0033	0.0756	0.06955863	337	0.0176
	750	0.3257	1.2296	4.3019	0.0055	0.1241	0.11416013	544	0.0294
	9999	0.8673	3.0642	10.8871	0.0105	0.3104	0.28560846	1,049	0.0783
Generator Sets Composite		0.0832	0.3121	0.5779	0.0007	0.0351	0.03231822	61.0	0.0075
Graders	50	0.1182	0.3365	0.2882	0.0004	0.0286	0.0262855	27.5	0.0107
	120	0.1348	0.5355	0.8223	0.0009	0.0740	0.06810071	75.0	0.0122
	175	0.1554	0.7363	1.1931	0.0014	0.0688	0.06325137	124	0.0140
	250	0.1575	0.4508	1.5344	0.0019	0.0547	0.05028547	172	0.0142
	500	0.1947	0.6639	1.8193	0.0023	0.0671	0.06169077	229	0.0176
	750	0.4147	1.4022	3.9602	0.0049	0.1439	0.13243114	486	0.0374
Graders Composite		0.1533	0.6129	1.2503	0.0015	0.0649	0.05973665	133	0.0138
Off-Highway Tractors	120	0.2224	0.7269	1.2964	0.0011	0.1143	0.10516263	93.7	0.0201
	175	0.2135	0.8404	1.6085	0.0015	0.0923	0.08489403	130	0.0193
	250	0.1718	0.4896	1.5282	0.0015	0.0644	0.05928396	130	0.0155
	750	0.6814	3.0883	6.1417	0.0057	0.2515	0.23134764	568	0.0615
	1000	1.0246	4.8137	10.5080	0.0082	0.3620	0.33303771	814	0.0924
Off-Highway Tractors Composite		0.2170	0.7878	1.7969	0.0017	0.0871	0.08015293	151	0.0196
Off-Highway Trucks	175	0.1533	0.7593	1.1072	0.0014	0.0666	0.06126992	125	0.0138
	250	0.1469	0.3944	1.3513	0.0019	0.0461	0.04236687	167	0.0133
	500	0.2263	0.6661	1.9463	0.0027	0.0705	0.06489684	272	0.0204
	750	0.3695	1.0792	3.2612	0.0044	0.1164	0.10709028	442	0.0333
	1000	0.5790	1.7854	6.4025	0.0063	0.1933	0.17782676	625	0.0522
Off-Highway Trucks Composite		0.2241	0.6635	2.0158	0.0027	0.0715	0.06574516	260	0.0202
Other Construction Equipment	15	0.0118	0.0617	0.0737	0.0002	0.0028	0.00261189	10.1	0.0011
	25	0.0160	0.0544	0.1019	0.0002	0.0044	0.00407821	13.2	0.0014
	50	0.0842	0.2740	0.2707	0.0004	0.0228	0.02097542	28.0	0.0076
	120	0.1104	0.5320	0.7540	0.0009	0.0633	0.05825522	80.9	0.0100
	175	0.1008	0.5880	0.8599	0.0012	0.0467	0.04297482	107	0.0091
	500	0.1517	0.5426	1.6573	0.0025	0.0545	0.05015441	254	0.0137
Other Construction Equipment Composite		0.0925	0.3847	0.8599	0.0013	0.0366	0.0336755	123	0.0083
Other General Industrial Equipment	15	0.0066	0.0391	0.0466	0.0001	0.0018	0.00166402	6.4	0.0006
	25	0.0185	0.0632	0.1170	0.0002	0.0045	0.00411787	15.3	0.0017
	50	0.1085	0.2856	0.2332	0.0003	0.0253	0.02331742	21.7	0.0098
	120	0.1274	0.4542	0.7277	0.0007	0.0703	0.06465143	62.0	0.0115
	175	0.1349	0.5757	1.0001	0.0011	0.0599	0.05512964	95.9	0.0122
	250	0.1235	0.3281	1.2983	0.0015	0.0417	0.03832776	136	0.0111
	500	0.2232	0.6772	2.2367	0.0026	0.0758	0.0697749	265	0.0201
	750	0.3707	1.1162	3.8016	0.0044	0.1273	0.11713207	437	0.0334
	1000	0.5621	1.8453	6.4018	0.0056	0.1947	0.17911399	560	0.0507
Other General Industrial Equipment Composite		0.1635	0.5362	1.4520	0.0016	0.0632	0.05817935	152	0.0148
Other Material Handling Equipment	50	0.1506	0.3950	0.3243	0.0004	0.0352	0.03234224	30.3	0.0136
	120	0.1239	0.4423	0.7103	0.0007	0.0684	0.06296948	60.7	0.0112
	175	0.1703	0.7292	1.2706	0.0014	0.0759	0.06979349	122	0.0154
	250	0.1305	0.3496	1.3863	0.0016	0.0443	0.04078283	145	0.0118
	500	0.1590	0.4876	1.6124	0.0019	0.0545	0.05010546	192	0.0143
	9999	0.7467	2.4395	8.4619	0.0073	0.2565	0.23599535	741	0.0674
Other Material Handling Equipment Composite		0.1566	0.5108	1.4125	0.0015	0.0613	0.05635976	141	0.0141
Pavers	25	0.0255	0.0811	0.1531	0.0002	0.0080	0.00739456	18.7	0.0023
	50	0.1451	0.3680	0.3038	0.0004	0.0327	0.03007305	28.0	0.0131
	120	0.1467	0.5107	0.8788	0.0008	0.0776	0.07138052	69.2	0.0132
	175	0.1864	0.7833	1.4495	0.0014	0.0819	0.07531017	128	0.0168
	250	0.2182	0.6365	2.0698	0.0022	0.0818	0.07527629	194	0.0197
	500	0.2383	0.9957	2.2418	0.0023	0.0883	0.08123665	233	0.0215
Pavers Composite		0.1596	0.5445	0.8980	0.0009	0.0642	0.05906391	77.9	0.0144

Table 1.1-2 Offroad Emission Factors

SCAB Fleet Average Emission Factors (Diesel)

2012									
Air Basin	SC	ROG	CO	NOX	SOX	PM	PM 2.5	CO2	CH4
Equipment	MaxHP	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Paving Equipment	25	0.0153	0.0520	0.0974	0.0002	0.0042	0.00389636	12.6	0.0014
	50	0.1239	0.3124	0.2591	0.0003	0.0279	0.02565427	23.9	0.0112
	120	0.1150	0.3997	0.6897	0.0006	0.0610	0.05607793	54.5	0.0104
	175	0.1455	0.6114	1.1384	0.0011	0.0640	0.0588421	101	0.0131
	250	0.1349	0.3946	1.2976	0.0014	0.0507	0.0466238	122	0.0122
Paving Equipment Composite		0.1204	0.4365	0.8114	0.0008	0.0570	0.05248061	68.9	0.0109
Plate Compactors	15	0.0050	0.0263	0.0314	0.0001	0.0013	0.00115496	4.3	0.0005
Plate Compactors Composite		0.0050	0.0263	0.0314	0.0001	0.0013	0.00115496	4.3	0.0005
Pressure Washers	15	0.0075	0.0334	0.0509	0.0001	0.0029	0.00270353	4.9	0.0007
	25	0.0112	0.0385	0.0662	0.0001	0.0039	0.00358612	7.1	0.0010
	50	0.0349	0.1074	0.1339	0.0002	0.0102	0.00941822	14.3	0.0032
	120	0.0332	0.1458	0.2385	0.0003	0.0172	0.01579286	24.1	0.0030
Pressure Washers Composite		0.0173	0.0635	0.0921	0.0001	0.0063	0.00578098	9.4	0.0016
Pumps	15	0.0133	0.0508	0.0790	0.0001	0.0054	0.00496371	7.4	0.0012
	25	0.0386	0.1051	0.1803	0.0002	0.0117	0.01077428	19.5	0.0035
	50	0.1155	0.3229	0.3362	0.0004	0.0299	0.02749912	34.3	0.0104
	120	0.1250	0.5036	0.8226	0.0009	0.0669	0.0615425	77.9	0.0113
	175	0.1498	0.7431	1.3164	0.0016	0.0664	0.06112116	140	0.0135
	250	0.1357	0.4345	1.7375	0.0023	0.0501	0.0460601	201	0.0122
	500	0.2089	0.8032	2.6861	0.0034	0.0803	0.07387233	345	0.0188
	750	0.3557	1.3279	4.5700	0.0057	0.1350	0.12416063	571	0.0321
9999	1.1456	4.0641	14.2305	0.0136	0.4081	0.37543988	1,355	0.1034	
Pumps Composite		0.0813	0.2983	0.4999	0.0006	0.0351	0.03227823	49.6	0.0073
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0018	0.00163324	6.3	0.0007
	25	0.0162	0.0549	0.1029	0.0002	0.0045	0.00411691	13.3	0.0015
	50	0.1105	0.2994	0.2677	0.0003	0.0263	0.02421207	26.0	0.0100
	120	0.1054	0.4098	0.6619	0.0007	0.0574	0.05284208	59.0	0.0095
	175	0.1320	0.6220	1.0725	0.0012	0.0591	0.05436291	108	0.0119
	250	0.1347	0.4083	1.4103	0.0017	0.0498	0.04585334	153	0.0122
500	0.1755	0.6752	1.8093	0.0022	0.0652	0.06001786	219	0.0158	
Rollers Composite		0.1038	0.4107	0.6936	0.0008	0.0488	0.04489898	67.1	0.0094
Rough Terrain Forklif	50	0.1315	0.3910	0.3455	0.0004	0.0330	0.03039342	33.9	0.0119
	120	0.1038	0.4364	0.6425	0.0007	0.0585	0.05382611	62.4	0.0094
	175	0.1444	0.7268	1.1204	0.0014	0.0652	0.05996408	125	0.0130
	250	0.1353	0.3896	1.4082	0.0019	0.0458	0.04214479	171	0.0122
	500	0.1894	0.5985	1.8577	0.0025	0.0642	0.05910727	257	0.0171
Rough Terrain Forklifts Composite		0.1093	0.4680	0.6995	0.0008	0.0587	0.05403143	70.3	0.0099
Rubber Tired Dozers	175	0.2209	0.8528	1.6304	0.0015	0.0945	0.08692962	129	0.0199
	250	0.2545	0.7124	2.1985	0.0021	0.0942	0.08670764	183	0.0230
	500	0.3345	1.5220	2.8822	0.0026	0.1210	0.11134103	265	0.0302
	750	0.5042	2.2809	4.4100	0.0040	0.1832	0.16854927	399	0.0455
1000	0.7807	3.6654	7.7816	0.0060	0.2729	0.25103524	592	0.0704	
Rubber Tired Dozers Composite		0.3114	1.2491	2.6866	0.0025	0.1137	0.10459131	239	0.0281
Rubber Tired Loaders	25	0.0205	0.0697	0.1295	0.0002	0.0052	0.00475889	16.9	0.0018
	50	0.1315	0.3756	0.3242	0.0004	0.0319	0.0293366	31.1	0.0119
	120	0.1045	0.4187	0.6404	0.0007	0.0576	0.05295484	58.9	0.0094
	175	0.1312	0.6288	1.0135	0.0012	0.0583	0.05364616	106	0.0118
	250	0.1330	0.3838	1.3129	0.0017	0.0462	0.04253258	149	0.0120
	500	0.1961	0.6755	1.8555	0.0023	0.0677	0.0623233	237	0.0177
	750	0.4044	1.3812	3.9115	0.0049	0.1408	0.12956634	486	0.0365
1000	0.5480	1.9543	6.3337	0.0060	0.1909	0.17562787	594	0.0494	
Rubber Tired Loaders Composite		0.1272	0.4855	1.0034	0.0012	0.0558	0.05131959	109	0.0115
Scrapers	120	0.1990	0.7011	1.1749	0.0011	0.1054	0.09699904	93.9	0.0180
	175	0.2172	0.9158	1.6429	0.0017	0.0945	0.0869834	148	0.0196
	250	0.2367	0.6699	2.1849	0.0024	0.0859	0.07902219	209	0.0214
	500	0.3333	1.3000	3.0162	0.0032	0.1190	0.10951528	321	0.0301
	750	0.5779	2.2380	5.3231	0.0056	0.2075	0.19092913	555	0.0521
Scrapers Composite		0.2916	1.0984	2.5680	0.0027	0.1087	0.09998657	262	0.0263
Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0017	0.00160558	6.2	0.0006
	50	0.1270	0.3587	0.3564	0.0005	0.0324	0.02978605	36.2	0.0115
	120	0.1284	0.5269	0.8360	0.0009	0.0703	0.06468591	80.2	0.0116
	175	0.1661	0.8370	1.4268	0.0017	0.0750	0.06895747	155	0.0150
	250	0.1746	0.5516	2.1599	0.0029	0.0639	0.05880392	255	0.0158
Signal Boards Composite		0.0203	0.0940	0.1470	0.0002	0.0083	0.00759463	16.7	0.0018
Skid Steer Loaders	25	0.0211	0.0635	0.1189	0.0002	0.0067	0.00615206	13.8	0.0019
	50	0.0596	0.2332	0.2402	0.0003	0.0180	0.01659795	25.5	0.0054
	120	0.0482	0.2769	0.3536	0.0005	0.0286	0.02629711	42.8	0.0043
Skid Steer Loaders Composite		0.0534	0.2360	0.2686	0.0004	0.0207	0.01901995	30.3	0.0048

Table 1.1-2 Offroad Emission Factors

SCAB Fleet Average Emission Factors (Diesel)

2012									
Air Basin	SC	ROG	CO	NOX	SOX	PM	PM 2.5	CO2	CH4
Equipment	MaxHP	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Surfacing Equipment	50	0.0513	0.1441	0.1411	0.0002	0.0128	0.01176679	14.1	0.0046
	120	0.1040	0.4251	0.6895	0.0007	0.0557	0.05128496	63.8	0.0094
	175	0.0950	0.4745	0.8195	0.0010	0.0422	0.03881828	85.8	0.0086
	250	0.1095	0.3526	1.1993	0.0015	0.0413	0.03800015	135	0.0099
	500	0.1631	0.6813	1.7819	0.0022	0.0622	0.05718861	221	0.0147
	750	0.2601	1.0660	2.8642	0.0035	0.0986	0.09069623	347	0.0235
Surfacing Equipment Composite		0.1362	0.5467	1.3678	0.0017	0.0512	0.04713334	166	0.0123
Sweepers/Scrubbers	15	0.0124	0.0729	0.0870	0.0002	0.0034	0.00310616	11.9	0.0011
	25	0.0237	0.0808	0.1501	0.0002	0.0060	0.00553761	19.6	0.0021
	50	0.1195	0.3565	0.3179	0.0004	0.0302	0.02782995	31.6	0.0108
	120	0.1233	0.5204	0.7534	0.0009	0.0706	0.06492237	75.0	0.0111
	175	0.1575	0.8008	1.2212	0.0016	0.0717	0.06597413	139	0.0142
	250	0.1205	0.3447	1.3019	0.0018	0.0402	0.03700304	162	0.0109
Sweepers/Scrubbers Composite		0.1278	0.5215	0.7403	0.0009	0.0576	0.05295115	78.5	0.0115
Tractors/Loaders/Backhoes	25	0.0199	0.0662	0.1250	0.0002	0.0061	0.005622	15.9	0.0018
	50	0.1006	0.3305	0.3030	0.0004	0.0267	0.02453592	30.3	0.0091
	120	0.0760	0.3557	0.4910	0.0006	0.0432	0.03974618	51.7	0.0069
	175	0.1058	0.5866	0.8294	0.0011	0.0478	0.0439678	101	0.0095
	250	0.1264	0.3755	1.2813	0.0019	0.0415	0.03822308	172	0.0114
	500	0.2386	0.7714	2.2621	0.0039	0.0784	0.07215074	345	0.0215
750	0.3611	1.1563	3.5105	0.0058	0.1199	0.11030176	517	0.0326	
Tractors/Loaders/Backhoes Composite		0.0862	0.3824	0.5816	0.0008	0.0435	0.04005147	66.8	0.0078
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0024	0.00220277	8.5	0.0009
	25	0.0398	0.1355	0.2519	0.0004	0.0101	0.0092534	32.9	0.0036
	50	0.1656	0.4176	0.3536	0.0004	0.0374	0.03436595	32.9	0.0149
	120	0.1354	0.4732	0.8257	0.0008	0.0709	0.06522086	64.9	0.0122
	175	0.2050	0.8694	1.6306	0.0016	0.0901	0.0828843	144	0.0185
	250	0.2483	0.7418	2.3854	0.0025	0.0951	0.08745826	223	0.0224
	500	0.3135	1.4011	3.0220	0.0031	0.1190	0.10949531	311	0.0283
750	0.5949	2.6307	5.8034	0.0059	0.2259	0.20782348	587	0.0537	
Trenchers Composite		0.1507	0.4749	0.6995	0.0007	0.0582	0.05357089	58.7	0.0136
Welders	15	0.0111	0.0425	0.0660	0.0001	0.0045	0.0041504	6.2	0.0010
	25	0.0224	0.0609	0.1044	0.0001	0.0068	0.00623993	11.3	0.0020
	50	0.1071	0.2854	0.2637	0.0003	0.0260	0.02388373	26.0	0.0097
	120	0.0708	0.2687	0.4376	0.0005	0.0387	0.03561143	39.5	0.0064
	175	0.1183	0.5475	0.9688	0.0011	0.0531	0.04888053	98.2	0.0107
	250	0.0909	0.2704	1.0791	0.0013	0.0329	0.03027098	119	0.0082
	500	0.1154	0.4072	1.3538	0.0016	0.0431	0.03962804	168	0.0104
Welders Composite		0.0703	0.2150	0.2702	0.0003	0.0243	0.02236014	25.6	0.0063

Note: PM2.5 not part of provided SCAB worksheet. Offroad Diesel PM2.5 fraction of PM is 0.92, from Table A in SCAQMD's "Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds" October, 2006

Table 1.1-2 Offroad Emission Factors

SCAB Fleet Average Emission Factors (Diesel)

2013									
Air Basin	SC	ROG	CO	NOX	SOX	PM	PM 2.5	CO2	CH4
Equipment	MaxHP	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Aerial Lifts	15	0.0101	0.0528	0.0637	0.0001	0.0027	0.00248229	8.7	0.0009
	25	0.0166	0.0503	0.0937	0.0001	0.0051	0.00470606	11.0	0.0015
	50	0.0592	0.1757	0.1840	0.0003	0.0156	0.01430913	19.6	0.0053
	120	0.0558	0.2425	0.3758	0.0004	0.0299	0.02748411	38.1	0.0050
	500	0.1191	0.4671	1.5310	0.0021	0.0448	0.04125555	213	0.0107
750	0.2221	0.8443	2.8534	0.0039	0.0825	0.07593071	385	0.0200	
Aerial Lifts Composite		0.0529	0.1925	0.3059	0.0004	0.0202	0.01856847	34.7	0.0048
Air Compressors	15	0.0122	0.0484	0.0732	0.0001	0.0048	0.00442861	7.2	0.0011
	25	0.0266	0.0744	0.1306	0.0002	0.0081	0.00742585	14.4	0.0024
	50	0.0921	0.2546	0.2221	0.0003	0.0220	0.02025531	22.3	0.0083
	120	0.0825	0.3251	0.4991	0.0006	0.0456	0.04191337	47.0	0.0074
	175	0.1059	0.5054	0.8385	0.0010	0.0472	0.04344679	88.5	0.0096
	250	0.1007	0.2955	1.1320	0.0015	0.0347	0.03190242	131	0.0091
	500	0.1626	0.5399	1.7639	0.0023	0.0570	0.05245908	232	0.0147
	750	0.2547	0.8344	2.8139	0.0036	0.0898	0.08263903	358	0.0230
1000	0.4190	1.4213	5.0841	0.0049	0.1474	0.13559187	486	0.0378	
Air Compressors Composite		0.0913	0.3376	0.6065	0.0007	0.0434	0.03988834	63.6	0.0082
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0029	0.00269192	10.3	0.0011
	25	0.0193	0.0658	0.1226	0.0002	0.0049	0.00451595	16.0	0.0017
	50	0.0289	0.2282	0.2568	0.0004	0.0120	0.01101527	31.0	0.0026
	120	0.0447	0.4698	0.4583	0.0009	0.0257	0.0236581	77.1	0.0040
	175	0.0704	0.7538	0.6931	0.0016	0.0302	0.02774276	141	0.0063
	250	0.0795	0.3429	0.7632	0.0021	0.0221	0.02031344	188	0.0072
	500	0.1295	0.5517	1.1717	0.0031	0.0361	0.03323356	311	0.0117
	750	0.2565	1.0899	2.3376	0.0062	0.0715	0.06575896	615	0.0231
1000	0.4163	1.6675	5.9553	0.0093	0.1544	0.14202894	928	0.0376	
Bore/Drill Rigs Composite		0.0786	0.5044	0.8125	0.0017	0.0302	0.02775514	165	0.0071
Cement and Mortar Mixers	15	0.0074	0.0386	0.0470	0.0001	0.0021	0.00196287	6.3	0.0007
	25	0.0270	0.0813	0.1510	0.0002	0.0083	0.00764871	17.6	0.0024
Cement and Mortar Mixers Composite		0.0091	0.0421	0.0556	0.0001	0.0026	0.00243244	7.2	0.0008
Concrete/Industrial Saws	25	0.0199	0.0678	0.1257	0.0002	0.0049	0.00448443	16.5	0.0018
	50	0.0955	0.2918	0.2858	0.0004	0.0247	0.02268818	30.2	0.0086
	120	0.1065	0.4836	0.7154	0.0009	0.0589	0.05420623	74.1	0.0096
	175	0.1569	0.8701	1.3612	0.0018	0.0706	0.06493624	160	0.0142
Concrete/Industrial Saws Composite		0.1002	0.4088	0.5572	0.0007	0.0452	0.0416216	58.5	0.0090
Cranes	50	0.1015	0.2892	0.2394	0.0003	0.0239	0.02201641	23.2	0.0092
	120	0.0919	0.3618	0.5508	0.0006	0.0493	0.04533824	50.1	0.0083
	175	0.1031	0.4821	0.7769	0.0009	0.0445	0.04095555	80.3	0.0093
	250	0.1040	0.2948	0.9948	0.0013	0.0351	0.03228453	112	0.0094
	500	0.1551	0.5292	1.4230	0.0018	0.0518	0.04768776	180	0.0140
	750	0.2625	0.8887	2.4614	0.0030	0.0885	0.08140341	303	0.0237
	9999	0.9491	3.3249	10.3665	0.0098	0.3189	0.2934298	971	0.0856
Cranes Composite		0.1348	0.4737	1.1934	0.0014	0.0508	0.04675334	129	0.0122
Crawler Tractors	50	0.1176	0.3246	0.2627	0.0003	0.0270	0.02484571	24.9	0.0106
	120	0.1293	0.4858	0.7686	0.0008	0.0677	0.06230639	65.8	0.0117
	175	0.1674	0.7448	1.2529	0.0014	0.0713	0.06561381	121	0.0151
	250	0.1764	0.5000	1.5945	0.0019	0.0613	0.05642313	166	0.0159
	500	0.2542	0.9504	2.2389	0.0025	0.0868	0.07990136	259	0.0229
	750	0.4574	1.6983	4.1042	0.0047	0.1573	0.14467235	465	0.0413
1000	0.6901	2.6950	7.3731	0.0066	0.2361	0.21721893	658	0.0623	
Crawler Tractors Composite		0.1584	0.5900	1.1593	0.0013	0.0697	0.06412621	114	0.0143
Crushing/Processing Equipment	50	0.1741	0.5009	0.4359	0.0006	0.0422	0.03886748	44.0	0.0157
	120	0.1402	0.5764	0.8552	0.0010	0.0779	0.07169687	83.1	0.0127
	175	0.1942	0.9615	1.5237	0.0019	0.0864	0.07950813	167	0.0175
	250	0.1848	0.5425	2.0202	0.0028	0.0620	0.05706326	245	0.0167
	500	0.2608	0.8480	2.7097	0.0037	0.0884	0.08129834	374	0.0235
	750	0.4147	1.3191	4.4498	0.0059	0.1418	0.13048195	589	0.0374
	9999	1.1270	3.6752	13.3218	0.0131	0.3880	0.356937	1,308	0.1017
Crushing/Processing Equipment Composite		0.1733	0.6773	1.1752	0.0015	0.0748	0.06883772	132	0.0156
Dumpers/Tenders	25	0.0097	0.0320	0.0601	0.0001	0.0029	0.00266633	7.6	0.0009
Dumpers/Tenders Composite		0.0097	0.0320	0.0601	0.0001	0.0029	0.00266633	7.6	0.0009
Excavators	25	0.0198	0.0677	0.1253	0.0002	0.0047	0.00431893	16.4	0.0018
	50	0.0816	0.2841	0.2458	0.0003	0.0212	0.01953521	25.0	0.0074
	120	0.1086	0.5177	0.6791	0.0009	0.0586	0.05394189	73.6	0.0098
	175	0.1208	0.6668	0.8932	0.0013	0.0512	0.04712722	112	0.0109
	250	0.1242	0.3541	1.1360	0.0018	0.0372	0.03425409	159	0.0112
	500	0.1735	0.5271	1.4763	0.0023	0.0516	0.04748251	234	0.0157
750	0.2895	0.8731	2.5290	0.0039	0.0871	0.08015864	387	0.0261	
Excavators Composite		0.1220	0.5338	0.9071	0.0013	0.0481	0.04421502	120	0.0110

Table 1.1-2 Offroad Emission Factors

SCAB Fleet Average Emission Factors (Diesel)

2013									
Air Basin	SC	ROG	CO	NOX	SOX	PM	PM 2.5	CO2	CH4
Equipment	MaxHP	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Forklifts	50	0.0445	0.1623	0.1431	0.0002	0.0121	0.01114227	14.7	0.0040
	120	0.0438	0.2176	0.2788	0.0004	0.0241	0.02217972	31.2	0.0040
	175	0.0572	0.3307	0.4261	0.0006	0.0246	0.02259935	56.1	0.0052
	250	0.0570	0.1614	0.5281	0.0009	0.0168	0.01541818	77.1	0.0051
	500	0.0781	0.2208	0.6592	0.0011	0.0228	0.02099467	111	0.0070
Forklifts Composite		0.0541	0.2235	0.3950	0.0006	0.0204	0.0187706	54.4	0.0049
Generator Sets	15	0.0149	0.0684	0.1016	0.0002	0.0058	0.00530888	10.2	0.0013
	25	0.0266	0.0908	0.1594	0.0002	0.0091	0.00833839	17.6	0.0024
	50	0.0872	0.2639	0.2847	0.0004	0.0234	0.0215245	30.6	0.0079
	120	0.1106	0.4905	0.7587	0.0009	0.0590	0.05428601	77.9	0.0100
	175	0.1347	0.7388	1.2314	0.0016	0.0592	0.05443318	142	0.0122
	250	0.1277	0.4365	1.6763	0.0024	0.0464	0.04265894	213	0.0115
	500	0.1818	0.7230	2.3955	0.0033	0.0690	0.06350188	337	0.0164
	750	0.3035	1.1671	3.9863	0.0055	0.1134	0.10436511	544	0.0274
	9999	0.7957	2.8065	10.2314	0.0105	0.2844	0.26163304	1,049	0.0718
Generator Sets Composite		0.0767	0.3045	0.5430	0.0007	0.0324	0.02978163	61.0	0.0069
Graders	50	0.1080	0.3263	0.2772	0.0004	0.0262	0.02410748	27.5	0.0097
	120	0.1254	0.5310	0.7729	0.0009	0.0676	0.06216011	75.0	0.0113
	175	0.1467	0.7345	1.1193	0.0014	0.0631	0.05808857	124	0.0132
	250	0.1492	0.4331	1.4184	0.0019	0.0494	0.04543481	172	0.0135
	500	0.1855	0.6289	1.6842	0.0023	0.0608	0.05593944	229	0.0167
	750	0.3952	1.3289	3.6674	0.0049	0.1306	0.12017794	486	0.0357
Graders Composite		0.1446	0.6053	1.1663	0.0015	0.0593	0.05455701	133	0.0130
Off-Highway Tractors	120	0.2113	0.7191	1.2368	0.0011	0.1078	0.09917279	93.7	0.0191
	175	0.2045	0.8335	1.5337	0.0015	0.0871	0.08013827	130	0.0185
	250	0.1641	0.4691	1.4453	0.0015	0.0601	0.05531535	130	0.0148
	750	0.6538	2.8815	5.8130	0.0057	0.2353	0.21648801	568	0.0590
	1000	0.9818	4.4978	10.0554	0.0082	0.3436	0.31607339	814	0.0886
Off-Highway Tractors Composite		0.2077	0.7649	1.7062	0.0017	0.0818	0.07528982	151	0.0187
Off-Highway Trucks	175	0.1441	0.7580	1.0305	0.0014	0.0602	0.05537921	125	0.0130
	250	0.1400	0.3837	1.2373	0.0019	0.0412	0.03793833	167	0.0126
	500	0.2170	0.6362	1.7865	0.0027	0.0634	0.05828311	272	0.0196
	750	0.3542	1.0311	2.9938	0.0044	0.1046	0.09623968	442	0.0320
	1000	0.5484	1.6691	5.9808	0.0063	0.1796	0.16523095	625	0.0495
Off-Highway Trucks Composite		0.2141	0.6361	1.8543	0.0027	0.0644	0.05926337	260	0.0193
Other Construction Equipment	15	0.0118	0.0617	0.0737	0.0002	0.0029	0.00262992	10.1	0.0011
	25	0.0160	0.0544	0.1013	0.0002	0.0041	0.00373318	13.2	0.0014
	50	0.0753	0.2653	0.2585	0.0004	0.0205	0.01885706	28.0	0.0068
	120	0.1006	0.5277	0.7025	0.0009	0.0567	0.05217173	80.9	0.0091
	175	0.0935	0.5873	0.8011	0.0012	0.0420	0.03862488	107	0.0084
	500	0.1452	0.5234	1.5187	0.0025	0.0491	0.04518705	254	0.0131
Other Construction Equipment Composite		0.0872	0.3765	0.7938	0.0013	0.0330	0.0303535	123	0.0079
Other General Industrial Equipment	15	0.0066	0.0391	0.0466	0.0001	0.0018	0.00167376	6.4	0.0006
	25	0.0185	0.0632	0.1170	0.0002	0.0044	0.00403529	15.3	0.0017
	50	0.0980	0.2738	0.2243	0.0003	0.0232	0.0213818	21.7	0.0088
	120	0.1177	0.4487	0.6789	0.0007	0.0644	0.05925886	62.0	0.0106
	175	0.1261	0.5728	0.9333	0.0011	0.0549	0.05053199	95.9	0.0114
	250	0.1174	0.3177	1.2013	0.0015	0.0380	0.0349908	136	0.0106
	500	0.2135	0.6384	2.0642	0.0026	0.0693	0.06378033	265	0.0193
	750	0.3546	1.0522	3.5146	0.0044	0.1165	0.10720368	437	0.0320
	1000	0.5246	1.6793	6.0067	0.0056	0.1805	0.16602123	560	0.0473
Other General Industrial Equipment Composite		0.1542	0.5159	1.3484	0.0016	0.0580	0.0533275	152	0.0139
Other Material Handling Equipment	50	0.1361	0.3789	0.3119	0.0004	0.0323	0.02967716	30.3	0.0123
	120	0.1144	0.4370	0.6628	0.0007	0.0628	0.05775339	60.7	0.0103
	175	0.1591	0.7257	1.1860	0.0014	0.0696	0.06398706	122	0.0144
	250	0.1241	0.3385	1.2829	0.0016	0.0405	0.03724139	145	0.0112
	500	0.1521	0.4596	1.4883	0.0019	0.0498	0.04581137	192	0.0137
	9999	0.7021	2.2197	7.9424	0.0073	0.2379	0.21884402	741	0.0634
Other Material Handling Equipment Composite		0.1473	0.4951	1.3132	0.0015	0.0562	0.05166044	141	0.0133
Pavers	25	0.0247	0.0799	0.1500	0.0002	0.0075	0.00691626	18.7	0.0022
	50	0.1366	0.3592	0.2948	0.0004	0.0308	0.02834484	28.0	0.0123
	120	0.1387	0.5057	0.8357	0.0008	0.0729	0.06706386	69.2	0.0125
	175	0.1777	0.7784	1.3769	0.0014	0.0769	0.07074442	128	0.0160
	250	0.2072	0.6081	1.9469	0.0022	0.0756	0.0695178	194	0.0187
	500	0.2275	0.9254	2.1080	0.0023	0.0818	0.07522742	233	0.0205
Pavers Composite		0.1511	0.5357	0.8542	0.0009	0.0603	0.05545182	77.9	0.0136

Table 1.1-2 Offroad Emission Factors

SCAB Fleet Average Emission Factors (Diesel)

2013									
Air Basin	SC	ROG	CO	NOX	SOX	PM	PM 2.5	CO2	CH4
Equipment	MaxHP	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Paving Equipme	25	0.0153	0.0520	0.0968	0.0002	0.0039	0.00356671	12.6	0.0014
	50	0.1166	0.3049	0.2514	0.0003	0.0263	0.02419897	23.9	0.0105
	120	0.1087	0.3958	0.6561	0.0006	0.0574	0.05278109	54.5	0.0098
	175	0.1387	0.6079	1.0816	0.0011	0.0602	0.05537093	101	0.0125
250	0.1277	0.3763	1.2206	0.0014	0.0467	0.04297602	122	0.0115	
Paving Equipment Composite		0.1142	0.4316	0.7709	0.0008	0.0536	0.04932025	68.9	0.0103
Plate Compacto	15	0.0050	0.0263	0.0314	0.0001	0.0012	0.00113327	4.3	0.0005
Plate Compactors Composite		0.0050	0.0263	0.0314	0.0001	0.0012	0.00113327	4.3	0.0005
Pressure Wash	15	0.0071	0.0328	0.0487	0.0001	0.0028	0.00254357	4.9	0.0006
	25	0.0108	0.0368	0.0646	0.0001	0.0037	0.00338043	7.1	0.0010
	50	0.0315	0.1037	0.1284	0.0002	0.0094	0.00860686	14.3	0.0028
	120	0.0302	0.1443	0.2235	0.0003	0.0157	0.01448109	24.1	0.0027
Pressure Washers Composite		0.0159	0.0619	0.0878	0.0001	0.0058	0.00533933	9.4	0.0014
Pumps	15	0.0125	0.0497	0.0752	0.0001	0.0049	0.00455163	7.4	0.0011
	25	0.0359	0.1004	0.1761	0.0002	0.0109	0.01001716	19.5	0.0032
	50	0.1052	0.3116	0.3228	0.0004	0.0275	0.02529758	34.3	0.0095
	120	0.1149	0.4984	0.7706	0.0009	0.0617	0.05677495	77.9	0.0104
	175	0.1385	0.7405	1.2344	0.0016	0.0611	0.05619715	140	0.0125
	250	0.1266	0.4210	1.6140	0.0023	0.0457	0.04207679	201	0.0114
	500	0.1952	0.7595	2.4849	0.0034	0.0734	0.06748649	345	0.0176
	750	0.3326	1.2556	4.2353	0.0057	0.1235	0.11358957	571	0.0300
9999	1.0536	3.7127	13.3750	0.0136	0.3744	0.34441011	1,355	0.0951	
Pumps Composite		0.0748	0.2926	0.4705	0.0006	0.0323	0.02974218	49.6	0.0067
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0018	0.00164452	6.3	0.0007
	25	0.0161	0.0549	0.1023	0.0002	0.0041	0.0037686	13.3	0.0015
	50	0.1025	0.2911	0.2583	0.0003	0.0245	0.02250646	26.0	0.0092
	120	0.0986	0.4063	0.6253	0.0007	0.0534	0.04909013	59.0	0.0089
	175	0.1247	0.6199	1.0114	0.0012	0.0550	0.05060084	108	0.0113
	250	0.1262	0.3887	1.3124	0.0017	0.0451	0.0414943	153	0.0114
500	0.1654	0.6313	1.6820	0.0022	0.0593	0.05452064	219	0.0149	
Rollers Composite		0.0973	0.4060	0.6546	0.0008	0.0453	0.0416812	67.1	0.0088
Rough Terrain F	50	0.1181	0.3778	0.3316	0.0004	0.0300	0.02762839	33.9	0.0107
	120	0.0955	0.4327	0.5995	0.0007	0.0529	0.04870787	62.4	0.0086
	175	0.1352	0.7256	1.0448	0.0014	0.0592	0.0544721	125	0.0122
	250	0.1294	0.3798	1.2955	0.0019	0.0416	0.03824481	171	0.0117
	500	0.1824	0.5717	1.7096	0.0025	0.0584	0.05374778	257	0.0165
Rough Terrain Forklifts Comp		0.1009	0.4642	0.6526	0.0008	0.0532	0.0489208	70.3	0.0091
Rubber Tired Dc	175	0.2119	0.8457	1.5561	0.0015	0.0893	0.08212763	129	0.0191
	250	0.2435	0.6833	2.0817	0.0021	0.0881	0.08101398	183	0.0220
	500	0.3211	1.4228	2.7305	0.0026	0.1133	0.10425396	265	0.0290
	750	0.4843	2.1329	4.1797	0.0040	0.1716	0.1579002	399	0.0437
	1000	0.7496	3.4322	7.4509	0.0060	0.2591	0.23836454	592	0.0676
Rubber Tired Dozers Composi		0.2986	1.1749	2.5452	0.0025	0.1064	0.09789203	239	0.0269
Rubber Tired Lo	25	0.0204	0.0697	0.1292	0.0002	0.0050	0.00460729	16.9	0.0018
	50	0.1200	0.3641	0.3118	0.0004	0.0292	0.02688241	31.1	0.0108
	120	0.0971	0.4152	0.6015	0.0007	0.0525	0.04830437	58.9	0.0088
	175	0.1238	0.6274	0.9501	0.0012	0.0535	0.04923363	106	0.0112
	250	0.1259	0.3685	1.2125	0.0017	0.0417	0.03835459	149	0.0114
	500	0.1867	0.6397	1.7158	0.0023	0.0613	0.05641091	237	0.0168
	750	0.3850	1.3084	3.6184	0.0049	0.1276	0.11736917	486	0.0347
1000	0.5190	1.8389	5.9660	0.0060	0.1795	0.16512613	594	0.0468	
Rubber Tired Loaders Compos		0.1195	0.4763	0.9346	0.0012	0.0508	0.04673838	109	0.0108
Scrapers	120	0.1877	0.6943	1.1141	0.0011	0.0983	0.09042015	93.9	0.0169
	175	0.2070	0.9107	1.5564	0.0017	0.0884	0.08131017	148	0.0187
	250	0.2252	0.6408	2.0481	0.0024	0.0791	0.0727449	209	0.0203
	500	0.3186	1.2113	2.8288	0.0032	0.1099	0.10112269	321	0.0287
	750	0.5525	2.0861	4.9949	0.0056	0.1918	0.17641399	555	0.0499
Scrapers Composite		0.2783	1.0395	2.4118	0.0027	0.1005	0.09250504	262	0.0251
Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0018	0.00161477	6.2	0.0006
	50	0.1151	0.3456	0.3415	0.0005	0.0296	0.0272429	36.2	0.0104
	120	0.1176	0.5214	0.7807	0.0009	0.0644	0.05928251	80.2	0.0106
	175	0.1535	0.8341	1.3333	0.0017	0.0685	0.06304437	155	0.0139
250	0.1632	0.5350	1.9963	0.0029	0.0580	0.05338419	255	0.0147	
Signal Boards Composite		0.0192	0.0934	0.1399	0.0002	0.0077	0.00708126	16.7	0.0017
Skid Steer Load	25	0.0202	0.0620	0.1166	0.0002	0.0063	0.00578239	13.8	0.0018
	50	0.0517	0.2263	0.2279	0.0003	0.0157	0.01443738	25.5	0.0047
	120	0.0429	0.2748	0.3267	0.0005	0.0245	0.02249954	42.8	0.0039
Skid Steer Loaders Composite		0.0468	0.2309	0.2522	0.0004	0.0179	0.01645126	30.3	0.0042

Table 1.1-2 Offroad Emission Factors

SCAB Fleet Average Emission Factors (Diesel)

2013									
Air Basin	SC	ROG	CO	NOX	SOX	PM	PM 2.5	CO2	CH4
Equipment	MaxHP	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Surfacing Equip	50	0.0477	0.1403	0.1359	0.0002	0.0119	0.01091783	14.1	0.0043
	120	0.0970	0.4215	0.6523	0.0007	0.0517	0.0475266	63.8	0.0088
	175	0.0894	0.4730	0.7742	0.0010	0.0392	0.03603887	85.8	0.0081
	250	0.1025	0.3374	1.1177	0.0015	0.0376	0.03458752	135	0.0092
	500	0.1532	0.6418	1.6597	0.0022	0.0567	0.05215663	221	0.0138
	750	0.2443	1.0046	2.6697	0.0035	0.0900	0.08280261	347	0.0220
Surfacing Equipment Compos		0.1277	0.5182	1.2760	0.0017	0.0468	0.0430837	166	0.0115
Sweepers/Scrub	15	0.0124	0.0729	0.0870	0.0002	0.0034	0.00312435	11.9	0.0011
	25	0.0237	0.0808	0.1496	0.0002	0.0058	0.00535323	19.6	0.0021
	50	0.1048	0.3425	0.3055	0.0004	0.0271	0.02492553	31.6	0.0095
	120	0.1107	0.5147	0.6989	0.0009	0.0622	0.05725549	75.0	0.0100
	175	0.1439	0.7997	1.1204	0.0016	0.0637	0.058565	139	0.0130
	250	0.1146	0.3382	1.1784	0.0018	0.0362	0.03333473	162	0.0103
Sweepers/Scrubbers Composi		0.1148	0.5145	0.6862	0.0009	0.0510	0.04691563	78.5	0.0104
Tractors/Loader	25	0.0195	0.0657	0.1237	0.0002	0.0056	0.00519658	15.9	0.0018
	50	0.0893	0.3199	0.2893	0.0004	0.0238	0.02192388	30.3	0.0081
	120	0.0694	0.3529	0.4565	0.0006	0.0383	0.03523077	51.7	0.0063
	175	0.0988	0.5861	0.7696	0.0011	0.0428	0.03935902	101	0.0089
	250	0.1204	0.3666	1.1658	0.0019	0.0370	0.03403857	172	0.0109
	500	0.2290	0.7443	2.0659	0.0039	0.0701	0.06447673	345	0.0207
	750	0.3462	1.1159	3.2041	0.0058	0.1072	0.0985952	517	0.0312
Tractors/Loaders/Backhoes C		0.0792	0.3782	0.5392	0.0008	0.0387	0.03556054	66.8	0.0071
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0024	0.00221538	8.5	0.0009
	25	0.0397	0.1355	0.2511	0.0004	0.0097	0.00895861	32.9	0.0036
	50	0.1566	0.4082	0.3432	0.0004	0.0353	0.03249107	32.9	0.0141
	120	0.1281	0.4684	0.7862	0.0008	0.0669	0.06150319	64.9	0.0116
	175	0.1955	0.8632	1.5520	0.0016	0.0849	0.07809541	144	0.0176
	250	0.2354	0.7089	2.2485	0.0025	0.0880	0.08097334	223	0.0212
	500	0.2985	1.3011	2.8470	0.0031	0.1105	0.10164502	311	0.0269
	750	0.5663	2.4440	5.4715	0.0059	0.2099	0.19310034	587	0.0511
Trenchers Composite		0.1427	0.4675	0.6684	0.0007	0.0549	0.05052999	58.7	0.0129
Welders	15	0.0104	0.0416	0.0629	0.0001	0.0041	0.00380584	6.2	0.0009
	25	0.0208	0.0581	0.1020	0.0001	0.0063	0.00580144	11.3	0.0019
	50	0.0979	0.2753	0.2535	0.0003	0.0240	0.02205228	26.0	0.0088
	120	0.0654	0.2659	0.4099	0.0005	0.0358	0.03297511	39.5	0.0059
	175	0.1101	0.5455	0.9083	0.0011	0.0490	0.04511471	98.2	0.0099
	250	0.0855	0.2618	1.0026	0.0013	0.0301	0.02767749	119	0.0077
	500	0.1092	0.3838	1.2526	0.0016	0.0394	0.03626511	168	0.0098
Welders Composite		0.0646	0.2096	0.2564	0.0003	0.0225	0.02067605	25.6	0.0058

Note: PM2.5 not part of provided SCAB worksheet. Offroad Diesel PM2.5 fraction of PM is 0.92, from Table A in SCAQMD's "Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds" October, 2006

Table 1.1-3 Fugitive Dust Emissions

Phase 1a - Wharf Construction - Items 1 - 3

Construction Activity/Equipment Type	EF ID	Miles per Day	Total Work Days	Acres Affected	Acres disturbed per day	Unmitigated Emissions (lb/day)		Mitigated Emissions (lb/day)	
						PM10	PM2.5	PM10	PM2.5
Dump Truck	Fugitive	400	100			3.1	0.7	3.1	0.7
Flat Bed Truck	Fugitive	200	10			1.6	0.3	1.6	0.3
Water Truck	Fugitive	200	32			1.6	0.3	1.6	0.3
Haul Trucks - Pile Deliveries	Fugitive	1560	22			12.1	2.6	12.1	2.6
Haul Trucks - Pile Deliveries	Fugitive	1560	56			12.1	2.6	12.1	2.6
Haul Truck	Fugitive	5200	31			40.3	8.8	40.3	8.8
Concrete Trucks	Fugitive	1500	62			11.6	2.5	11.6	2.5
Fugitive Emissions - Disturbed Acreage	Fugitive			4	0.80	1.1	0.1	0.3	0.0
Total Emissions, Phase 1a						83.6	18.1	82.7	18.1

Phase 1b - Backland Construction - Items 9 and 10

Construction Activity/Equipment Type	EF ID	Miles per Day	Total Work Days	Acres Affected	Acres disturbed per day	Unmitigated Emissions (lb/day)		Mitigated Emissions (lb/day)	
						PM10	PM2.5	PM10	PM2.5
Dump Truck	Fugitive	400	67			3.1	0.7	3.1	0.7
Flat Bed Truck	Fugitive	400	147			3.1	0.7	3.1	0.7
Pickup Truck	Fugitive	1200	205			9.3	2.0	9.3	2.0
Stake Bed Truck	Fugitive	400	120			3.1	0.7	3.1	0.7
Water Truck	Fugitive	600	127			4.7	1.0	4.7	1.0
Haul Truck - Paving	Fugitive	495	12			3.8	0.8	3.8	0.8
Haul Truck - Base	Fugitive	240	12			1.9	0.4	1.9	0.4
Semi Truck	Fugitive	640	12			5.0	1.1	5.0	1.1
Fugitive Emissions - Disturbed Acreage	Fugitive			50	10.00	14.4	1.4	3.6	0.4
Total Emissions, Phase 1b						48.3	8.9	37.5	7.8

Phase 1c - AMP Installation - Item 5

Construction Activity/Equipment Type	EF ID	Miles per Day	Total Work Days	Acres Affected	Acres disturbed per day	Unmitigated Emissions (lb/day)		Mitigated Emissions (lb/day)	
						PM10	PM2.5	PM10	PM2.5
Flat Bed Truck	Fugitive	400	83			3.1	0.7	3.1	0.7
Haul Truck	Fugitive	200	13			1.6	0.3	1.6	0.3
Fugitive Emissions - Disturbed Acreage	Fugitive			0.1	0.02	0.0	0.0	0.0	0.0
Total Emissions, Phase 1c						4.7	1.0	4.7	1.0

Phase 1d - Demolish Roadability Canopy and Building - Item 6

Construction Activity/Equipment Type	EF ID	Miles per Day	Total Work Days	Acres Affected	Acres disturbed per day	Unmitigated Emissions (lb/day)		Mitigated Emissions (lb/day)	
						PM10	PM2.5	PM10	PM2.5
Dump Truck	Fugitive	400	21			3.1	0.7	3.1	0.7
Fugitive Emissions - Disturbed Acreage	Fugitive			1	0.20	0.3	0.0	0.1	0.0
Total Emissions, Phase 1d						3.4	0.7	3.2	0.7

Phase 1e - Construct Buildings and Canopies - Items 7 and 8

Construction Activity/Equipment Type	EF ID	Miles per Day	Total Work Days	Acres Affected	Acres disturbed per day	Unmitigated Emissions (lb/day)		Mitigated Emissions (lb/day)	
						PM10	PM2.5	PM10	PM2.5
Flat bed Truck	Fugitive	200	180			1.6	0.3	1.6	0.3
Concrete Truck	Fugitive	400	50			3.1	0.7	3.1	0.7
Concrete Truck	Fugitive	210	3			1.6	0.4	1.6	0.4
Pickup Truck	Fugitive	600	360			4.7	1.0	4.7	1.0
Supply Trucks	Fugitive	400	5			3.1	0.7	3.1	0.7
Dump Truck	Fugitive	400	21			3.1	0.7	3.1	0.7
Fugitive Emissions - Disturbed Acreage	Fugitive			1	0.20	0.3	0.0	0.1	0.0
Total Emissions, Phase 1e						17.4	3.8	17.2	3.8

Phase 1f - Expand Reefer Area - Item 15

Table 1.1-3 Fugitive Dust Emissions

Construction Activity/Equipment Type	EF ID	Miles per Day	Total Work Days	Acres Affected	Acres disturbed per day	Unmitigated Emissions (lb/day)		Mitigated Emissions (lb/day)	
						PM10	PM2.5	PM10	PM2.5
5-Ton End Dump	Fugitive	600	30			4.7	1.0	4.7	1.0
Concrete Truck	Fugitive	200	10			1.6	0.3	1.6	0.3
Fugitive Emissions - Disturbed Acreage	Fugitive			1	0.20	0.3	0.0	0.1	0.0
Total Emissions, Phase 1f						6.5	1.4	6.3	1.4

Phase 1g - Utility Infrastructure - Item 16

Construction Activity/Equipment Type	EF ID	Miles per Day	Total Work Days	Acres Affected	Acres disturbed per day	Unmitigated Emissions (lb/day)		Mitigated Emissions (lb/day)	
						PM10	PM2.5	PM10	PM2.5
Fugitive Emissions - Disturbed Acreage	Fugitive			1	0.20	0.3	0.0	0.1	0.0
Total Emissions, Phase 1g						0.3	0.0	0.1	0.0

Phase 1h - Crane Installation - Item 4

Construction Activity/Equipment Type	EF ID	Miles per Day	Total Work Days	Acres Affected	Acres disturbed per day	Unmitigated Emissions (lb/day)		Mitigated Emissions (lb/day)	
						PM10	PM2.5	PM10	PM2.5
Fugitive Emissions - Disturbed Acreage	Fugitive			0	0.00	0.0	0.0	0.0	0.0
Total Emissions, Phase 1h						0.0	0.0	0.0	0.0

Phase 2a - Grading, Paving and Striping - Items 11 - 14

Construction Activity/Equipment Type	EF ID	Miles per Day	Total Work Days	Acres Affected	Acres disturbed per day	Unmitigated Emissions (lb/day)		Mitigated Emissions (lb/day)	
						PM10	PM2.5	PM10	PM2.5
10-Ton End Dump	Fugitive	600	30			4.7	1.0	4.7	1.0
Concrete Truck	Fugitive	500	10			3.9	0.8	3.9	0.8
Fugitive Emissions - Disturbed Acreage	Fugitive			2	0.40	0.6	0.1	0.1	0.0
Total Emissions, Phase 2a						9.1	1.9	8.7	1.9

All Phases - Worker Commutes

Construction Activity/Equipment Type	EF ID	Miles per Day	Total Work Days	Acres Affected	Acres disturbed per day	Unmitigated Emissions (lb/day)		Mitigated Emissions (lb/day)	
						PM10	PM2.5	PM10	PM2.5
Worker Vehicles	Fugitive	2,000	500			15.5	3.4	15.5	3.4

Notes and Assumptions

Assume acreage disturbed at any time is 20% of affected acreage

Mitigation Measures will reduce fugitive dust from disturbed acreage by 90%. Unmitigated reduction is 60% for compliance with SCAQMD Rule 403

Table 1.1-3 Fugitive Dust Emissions

Fugitive Dust Mitigation requirements:

- The construction contractor shall reduce fugitive dust emissions by 90 percent from uncontrolled levels. The Project construction contractor shall specify dust-control methods that will achieve this control level in a SCAQMD Rule 403 dust control plan. Their duties shall include holiday and weekend periods when work may not be in progress.
- SCAQMD's Best Available Control Technology (BACT) measures must be followed on all projects. They are outlined on Table 1 in Rule 403.
 - Large construction projects (on a property which contains 50 or more disturbed acres) shall also follow Rule 403 Tables 2 and 3:
 - Active grading sites shall be watered three times per day.
 - Contractors shall apply approved non-toxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas.
 - Contractors shall provide temporary wind fencing around sites being graded or cleared.
 - Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code. ("Spilling Loads on Highways")
 - Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site.
 - The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed.
 - Open storage piles (greater than 3 feet tall and a total surface area of 150 square feet) shall be covered with a plastic tarp or chemical dust suppressant.
 - Stabilize the materials while loading, unloading and transporting to reduce fugitive dust emissions.
 - Belly-dump truck seals should be checked regularly to remove trapped rocks to prevent possible spillage.
 - Comply with track-out regulations and provide water while loading and unloading to reduce visible dust plumes.
 - Waste materials should be hauled off-site immediately.
 - Pave road and road shoulders where available.
 - Traffic speeds on all unpaved roads shall be reduced to 15 mph or less.
 - Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow.
 - Schedule construction activities that affect traffic flow on the arterial system to off-peak hours to the extent practicable.
 - Require the use of clean-fueled sweepers pursuant to SCAQMD Rule 1186 and Rule 1186.1 certified street sweepers. Sweep streets at the end of each day if visible soil is carried onto paved road:
 - on-site or roads adjacent to the site to reduce fugitive dust emissions.
 - Appoint a construction relations officer to act as a community liaison concerning on-site construction activity including resolution of issues related to PM10 generation.
- The grading contractor shall suspend all soil disturbance activity when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed.

Table 1.1-4 Marine Engine Emission Factors

Unmitigated Marine Emission Factors

Ship Description	Main Engine kW	Aux Engine kW	Cruising Speed (knots) ⁴	Maneuver Speed (knots) ⁴	Load Factor, Main	Load Factor, Aux	Emission Units	Emission Factors							
								VOC	CO ⁸	NOx	SOx ⁹	PM10	PM2.5 ¹⁰	CO ₂	CH ₄ ¹¹
Diveboat ¹	112						g/kW-hr	1.50	1.60	10.60	0.01	0.90	0.83	710	0.05
Cargo Ship ²	9300	1776	15.1	5.8			g/kW-hr	1.80	1.60	14.50	1.16	2.40	2.21	682	0.05
Barge Tug ³	1007	67	14.5	5.0	0.31	0.43	g/kW-hr	0.78	2.92	10.14	0.01	0.50	0.46	652	0.016
Assist Tug ³	1442	111	14.5	5.0	0.31	0.43	g/kW-hr	1.10	4.82	18.94	0.01	0.74	0.69	652	0.022
Cargo Ship - Maneuvering ^{5,6}	9300	1776	15.1	5.8	0.047	0.45	lb/hr	4.90	4.36	39.51	3.16	6.54	6.02	1858	0.14
Cargo Ship - Hotel ⁷	9300	1776					lb/hr	1.55	1.38	12.48	1.00	2.07	1.90	587	0.04
Barge Tug operations	1007	67	14.5	5.0	0.31	0.43	lb/hr	0.58	2.19	7.61	0.01	0.37	0.34	490	0.01
Assist Tug operations	1442	111	14.5	5.0	0.31	0.43	lb/hr	1.20	5.25	20.64	0.01	0.81	0.75	711	0.02

Mitigated Marine Emission Factors

Ship Description	Main Engine kW	Engine kW	Speed (knots)	Speed (knots)	Factor, Main	Factor, Aux	Emission Units	Emission Factors							
								VOC	CO	NOx	SOx	PM10	PM2.5	CO ₂	CH ₄
Diveboat ¹²	112						g/kW-hr	0.54	1.60	4.86	0.01	0.12	0.11	710	0.05
Cargo Ship	9300	1776	15.1	5.8			g/kW-hr	1.80	1.60	14.50	1.16	2.40	2.21	682	0.05
Barge Tug ¹²	1007	67	14.5	5.0	0.31	0.43	g/kW-hr	0.58	2.92	5.22	0.01	0.11	0.10	652	0.02
Assist Tug ¹²	1442	111	14.5	5.0	0.31	0.43	g/kW-hr	0.58	4.82	5.22	0.01	0.11	0.10	652	0.02
Cargo Ship - Maneuvering	9300	1776	15.1	5.8	0.047	0.45	lb/hr	4.90	4.36	39.51	3.16	6.54	6.02	1858	0.14
Cargo Ship - Hotel	9300	1776					lb/hr	1.55	1.38	12.48	1.00	2.07	1.90	587	0.04
Barge Tug operations	1007	67	14.5	5.0	0.31	0.43	lb/hr	0.44	2.19	3.92	0.01	0.08	0.08	490	0.01
Assist Tug operations	1442	111	14.5	5.0	0.31	0.43	lb/hr	0.63	5.25	5.69	0.01	0.12	0.11	711	0.02

Notes and Assumptions

- 20-ft diveboat HP chosen from those listed for sale on Boatxchange - <http://www.boatxchange.com>
- Cargo Ship size from Table 3-3 in EPA's "Control of Emissions of Air Pollution from Category 3 Marine Diesel Engines", Dec 2009 (EPA, 2009)
Auxiliary Engine size determined by using Miscellaneous Ship's Auxiliary-to-Propulsion Ratio in Table 3-3 in EPA, 2009
- Barge Tug and Assist Tug load factors and auxiliary engine sizes are average values from 2009 POLA Emission Inventory Report (POLA 2010).
Barge Tug main engine size from Berth 136-147 [TraPac] Container Terminal Project Final EIS/EIR (LAHD 2008). Assist Tug main engine size from 2009 POLA Emission Inventory Report (POLA 2010).
- Cruising and Maneuvering speeds from EPA, 2009 for cargo ships; and from Berth 136-147 [TraPac] Container Terminal Project Final EIS/EIR (LAHD 2008) for tugboats.
- Cargo Ship Main LF from EPA, 2009. Auxiliary Engine LF from Table 3-4 in EPA, 2009
- Maneuvering Emissions from Equation 3-14 in EPA, 2009
- Hoteling Emissions from Equation 3-20 in EPA, 2009
- CO value from Table C.5 in Entec, 2002.
- SOx values calculated by using ratio of sulfur content in marine diesel fuel used in Entec's report (1%) and the sulfur content listed in the table below
- Diesel Ships' PM2.5 fraction of PM is 0.92, from Table A in SCAQMD's "Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds" October, 2006
- CH4 values calculated by taking the ratio of CH4 and CO2 emitted per gallon of diesel fuel listed in Tables 13.1 and 13.6 ("Construction Vehicles") of the Climate Registry's GRP
- Diveboat and Tugboat subject to Tier 3 standards for NOx, PM, and VOC emissions (POLA's mitigation measure MM AQ: Harbor Craft)

Table 1.1-4 Marine Engine Emission Factors

Ship	Sulfur content (%)		Comments
	Unmitigated	Mitigated	
Diveboat	0.0015%	0.0015%	Diveboats assumed to use Ultra Low Sulfur Diesel (ULSD, 0.0015%)
Cargo Ship	0.10%	0.10%	Cargo Ships required to use lower-sulfur fuels (0.1%)*
Tugboat	0.0015%	0.0015%	Tugboats assumed to use Ultra Low Sulfur Diesel (ULSD, 0.0015%)

* Maximum sulfur content for main and auxiliary engines within 24 nautical miles of CA is 0.1%. See 13 CCR, section 2299.2 - <http://www.arb.ca.gov/regact/2008/fuelogv08/fro13.pdf>
 Port of LA CEQA mitigation measures additionally require 0.2% or lower when within 40 nautical miles of Point Fermin.

Beginning 2014, ships cannot operate more than a few hours per Berth visit. See 17 CCR § 93118.3 (d)(1)(D). Emissions will depend on scheduling of crane installation

MM AQ:-Vessels

All ships & barges used primarily to deliver construction-related materials to a LAHD-contractor construction site shall comply with the expanded Vessel Speed Reduction Program (VSRP) of 12 knots between 40 nautical miles (nm) from Point Fermin and the Precautionary Area.

These ships must also use low-sulfur fuel (maximum sulfur content of 0.2 percent) in auxiliary engines, main engines, and boilers within 40 nm of Point Fermin.

MM AQ:-Harbor Craft

From January 1, 2011 on: All harbor craft with C1 or C2 marine engines must utilize a U.S. EPA Tier-3 engine, or cleaner.

Table 1.1-5 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity Without Mitigation

Phase 1a - Subtask: Piledriving - Pinpiles/Indicators

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Derrick Barge Crane Hoist	Offroad	564	2012	1	8	4,512	44	lb/hr	3.0E-01	8.4E-01	2.7E+00	3.2E-03	9.2E-02	8.5E-02	324	2.3E-02
2	Deck Winch	Offroad	238	2012	2	8	3,808	44	lb/hr	1.3E-01	3.2E-01	1.2E+00	1.5E-03	3.9E-02	3.6E-02	130	9.8E-03
3	Generator	Offroad	432	2012	1	8	3,456	44	lb/hr	1.7E-01	6.6E-01	2.2E+00	2.9E-03	6.5E-02	6.0E-02	291	1.5E-02
4	Generator	Offroad	135	2012	1	8	1,080	44	lb/hr	1.1E-01	5.7E-01	1.0E+00	1.2E-03	5.0E-02	4.6E-02	110	1.0E-02
5	Pile Hammer	Offroad	190	2012	1	8	1,520	44	lb/hr	5.8E-02	2.1E-01	6.3E-01	9.5E-04	2.1E-02	1.9E-02	97	5.2E-03
6	Jet Pump	Offroad	290	2012	1	8	2,320	44	lb/hr	1.2E-01	4.7E-01	1.6E+00	2.0E-03	4.7E-02	4.3E-02	200	1.1E-02
7	Haul Trucks - Pile Deliveries	Onroad	425	2012	1	8	3,400	22	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05

Phase 1a - Subtask: Piledriving - Production Pile

8	Main Hoist	Offroad	700	2012	1	8	5,600	49	lb/hr	3.7E-01	1.0E+00	3.4E+00	3.9E-03	1.1E-01	1.1E-01	402	2.8E-02
9	Main Generator	Offroad	485	2012	1	8	3,880	49	lb/hr	1.9E-01	7.4E-01	2.5E+00	3.2E-03	7.3E-02	6.7E-02	327	1.7E-02
10	Boom Hoist	Offroad	700	2012	1	8	5,600	49	lb/hr	3.7E-01	1.0E+00	3.4E+00	3.9E-03	1.1E-01	1.1E-01	402	2.8E-02
11	Anchor Winch	Offroad	305	2012	1	8	2,440	49	lb/hr	1.2E-01	3.4E-01	1.1E+00	1.3E-03	3.7E-02	3.4E-02	132	9.1E-03
12	Breasting Winch	Offroad	210	2012	2	8	3,360	49	lb/hr	1.1E-01	2.8E-01	1.1E+00	1.3E-03	3.5E-02	3.2E-02	114	8.7E-03
13	Emergency Generator	Offroad	210	2012	1	8	1,680	49	lb/hr	1.2E-01	3.8E-01	1.5E+00	2.0E-03	4.3E-02	3.9E-02	179	1.0E-02
14	Pile Hammer	Offroad	190	2012	1	8	1,520	49	lb/hr	5.8E-02	2.1E-01	6.3E-01	9.5E-04	2.1E-02	1.9E-02	97	5.2E-03
15	Jet Pump	Offroad	290	2012	1	8	2,320	49	lb/hr	1.2E-01	4.7E-01	1.6E+00	2.0E-03	4.7E-02	4.3E-02	200	1.1E-02
16	Pile Handler	Offroad	456	2012	1	8	3,648	49	lb/hr	1.4E-01	4.9E-01	1.5E+00	2.3E-03	5.0E-02	4.6E-02	232	1.2E-02
17	Haul Trucks - Pile Deliveries	Onroad	425	2012	1	8	3,400	56	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05

Phase 1a - Subtask: Wharf Construction

18	Crane - 888	Offroad	330	2012	1	8	2,640	92	lb/hr	1.1E-01	3.8E-01	1.0E+00	1.2E-03	3.8E-02	3.5E-02	119	9.7E-03
19	Crane - 4000	Offroad	350	2012	1	8	2,800	92	lb/hr	1.1E-01	4.0E-01	1.1E+00	1.2E-03	4.0E-02	3.7E-02	126	1.0E-02
20	Air Compressor - 100 CFM	Offroad	49	2012	2	8	784	92	lb/hr	9.9E-02	2.6E-01	2.3E-01	2.8E-04	2.3E-02	2.2E-02	22	8.9E-03
21	Air Compressor - 185 CFM	Offroad	62	2012	2	8	992	92	lb/hr	4.6E-02	1.7E-01	2.8E-01	2.8E-04	2.5E-02	2.3E-02	24	4.2E-03
22	Welder - 300 Amp.	Offroad	33	2012	1	8	264	92	lb/hr	7.1E-02	1.9E-01	1.7E-01	2.2E-04	1.7E-02	1.6E-02	17	6.4E-03
23	Welder - 400 Amp.	Offroad	35	2012	1	8	280	92	lb/hr	7.5E-02	2.0E-01	1.8E-01	2.3E-04	1.8E-02	1.7E-02	18	6.8E-03
24	Haul Truck	Onroad	425	2012	1	8	3,400	31	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
25	Concrete Trucks	Onroad	425	2012	1	8	3,400	62	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
26	Backhoe	Offroad	160	2012	1	8	1,280	92	lb/hr	9.7E-02	5.4E-01	7.6E-01	1.0E-03	4.4E-02	4.0E-02	93	8.7E-03
27	Crane (Track)	Offroad	350	2012	2	8	5,600	142	lb/hr	1.1E-01	4.0E-01	1.1E+00	1.2E-03	4.0E-02	3.7E-02	126	1.0E-02
28	Dozer	Offroad	165	2012	1	8	1,320	8	lb/hr	2.1E-01	8.0E-01	1.5E+00	1.4E-03	8.9E-02	8.2E-02	122	1.9E-02
29	Dump Truck	Onroad	310	2012	2	8	4,960	100	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
30	Excavator	Offroad	428	2012	1	8	3,424	30	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	4.9E-02	4.5E-02	200	1.4E-02
31	Flat Bed Truck	Onroad	230	2012	1	8	1,840	10	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
32	Forklift	Offroad	94	2012	1	8	752	10	lb/hr	3.8E-02	1.7E-01	2.4E-01	2.9E-04	2.2E-02	2.0E-02	24	3.5E-03
33	Grader	Offroad	180	2012	1	8	1,440	36	lb/hr	1.1E-01	3.2E-01	1.1E+00	1.4E-03	3.9E-02	3.6E-02	124	1.0E-02
34	Loader	Offroad	215	2012	2	8	3,440	160	lb/hr	1.1E-01	3.3E-01	1.1E+00	1.4E-03	4.0E-02	3.7E-02	128	1.0E-02
35	Paving Machine	Offroad	200	2012	1	8	1,600	13	lb/hr	1.7E-01	5.1E-01	1.7E+00	1.7E-03	6.5E-02	6.0E-02	155	1.6E-02
36	Dive Boat	Marine	112	2012	1	8	895	2	lb/hr	2.8E-01	2.9E-01	1.9E+00	1.2E-03	1.7E-01	1.5E-01	131	9.5E-03
37	Roller	Offroad	165	2012	2	8	2,640	26	lb/hr	1.2E-01	5.9E-01	1.0E+00	1.1E-03	5.6E-02	5.1E-02	102	1.1E-02
38	Scrapper	Offroad	195	2012	1	8	1,560	24	lb/hr	1.8E-01	5.2E-01	1.7E+00	1.8E-03	6.7E-02	6.2E-02	163	1.7E-02
39	Water Truck	Onroad	325	2012	1	8	2,600	32	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
40	Fugitive Emissions	Fugitive		2012					lb/day					83.5551	18.1411		

Table 1.1-5 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity Without Mitigation

No	Daily Emissions Before Mitigation (lb/day)							
1	2.40	6.75	21.74	0.03	0.74	0.68	2591	0.18
2	2.08	5.06	19.08	0.02	0.63	0.58	2073	0.16
3	1.35	5.26	17.90	0.02	0.52	0.48	2328	0.12
4	0.90	4.58	8.10	0.01	0.40	0.37	876	0.08
5	0.46	1.65	5.04	0.01	0.17	0.15	773	0.04
6	0.97	3.73	12.46	0.02	0.37	0.34	1602	0.09
7	4.40	19.43	44.68	0.06	2.05	1.89	6427	0.02
Total Daily Emissions, Phase 1a (Piledriving - Pinpiles/Indicators)								
	12.5652	46.4518	129.0070	0.1676	4.8675	4.4883	16670	0.6894
8	2.98	8.38	26.99	0.03	0.91	0.84	3216	0.23
9	1.51	5.91	20.10	0.03	0.59	0.54	2614	0.14
10	2.98	8.38	26.99	0.03	0.91	0.84	3216	0.23
11	0.97	2.75	8.59	0.01	0.29	0.27	1054	0.07
12	1.84	4.46	16.84	0.02	0.55	0.51	1829	0.14
13	0.92	3.03	12.13	0.02	0.34	0.31	1428	0.08
14	0.46	1.65	5.04	0.01	0.17	0.15	773	0.04
15	0.97	3.73	12.46	0.02	0.37	0.34	1602	0.09
16	1.11	3.96	12.09	0.02	0.40	0.37	1855	0.10
17	4.40	19.43	44.68	0.06	2.05	1.89	6427	0.02
Total Daily Emissions, Phase 1a (Piledriving - Production Pile)								
	18.1403	61.6634	185.8972	0.2401	6.5859	6.0693	24013	1.1294
18	0.86	3.00	8.09	0.01	0.30	0.28	951	0.08
19	0.92	3.19	8.58	0.01	0.32	0.29	1009	0.08
20	1.58	4.15	3.62	0.00	0.37	0.34	349	0.14
21	0.74	2.72	4.41	0.00	0.41	0.37	388	0.07
22	0.57	1.51	1.39	0.00	0.14	0.13	137	0.05
23	0.60	1.60	1.48	0.00	0.15	0.13	145	0.05
24	14.57	64.23	148.50	0.21	6.81	6.30	21387	0.06
25	4.36	19.39	43.50	0.06	1.97	1.82	6227	0.02
26	0.77	4.29	6.07	0.01	0.35	0.32	742	0.07
27	1.83	6.37	17.17	0.02	0.64	0.59	2017	0.17
28	1.67	6.43	12.30	0.01	0.71	0.66	977	0.15
29	1.14	5.03	11.50	0.02	0.52	0.49	1651	0.01
30	1.24	3.76	11.03	0.02	0.39	0.36	1601	0.11
31	0.58	2.58	5.80	0.01	0.26	0.24	830	0.00
32	0.31	1.38	1.89	0.00	0.17	0.16	196	0.03
33	0.91	2.60	8.84	0.01	0.31	0.29	991	0.08
34	1.83	5.28	18.07	0.02	0.64	0.59	2050	0.17
35	1.40	4.07	13.25	0.01	0.52	0.48	1244	0.13
36	2.21	2.35	15.59	0.01	1.32	1.22	1044	0.08
37	1.99	9.38	16.18	0.02	0.89	0.82	1631	0.18
38	1.48	4.18	13.63	0.01	0.54	0.49	1307	0.13
39	0.63	2.86	6.01	0.01	0.26	0.25	848	0.00
40					83.56	18.14		
Total Daily Emissions, Phase 1a (Wharf Construction)								
	42.1607	160.3499	376.8883	0.4828	101.5713	34.7652	47723	1.8544

Notes and Assumptions

Jet pumps are assumed to be part of dredging equipment.

Table 1.1-5 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity Without Mitigation

Phase 1b - Backland Construction

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Backhoe	Offroad	160	2012	3	8	3,840	41	lb/hr	9.7E-02	5.4E-01	7.6E-01	1.0E-03	4.4E-02	4.0E-02	93	8.7E-03
2	Compressor	Offroad	62	2012	1	8	496	65	lb/hr	4.6E-02	1.7E-01	2.8E-01	2.8E-04	2.5E-02	2.3E-02	24	4.2E-03
3	Crane (Tire)	Offroad	350	2012	1	8	2,800	68	lb/hr	1.1E-01	4.0E-01	1.1E+00	1.2E-03	4.0E-02	3.7E-02	126	1.0E-02
4	Dozer	Offroad	165	2012	3	8	3,960	41	lb/hr	2.1E-01	8.0E-01	1.5E+00	1.4E-03	8.9E-02	8.2E-02	122	1.9E-02
5	Dump Truck	Onroad	310	2012	2	8	4,960	67	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
6	Excavator	Offroad	428	2012	1	8	3,424	56	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	4.9E-02	4.5E-02	200	1.4E-02
7	Flat Bed Truck	Onroad	230	2012	2	8	3,680	147	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
8	Forklift	Offroad	94	2012	1	8	752	137	lb/hr	3.8E-02	1.7E-01	2.4E-01	2.9E-04	2.2E-02	2.0E-02	24	3.5E-03
9	Generator	Offroad	300	2012	1	8	2,400	68	lb/hr	1.2E-01	4.6E-01	1.6E+00	2.0E-03	4.5E-02	4.2E-02	202	1.1E-02
10	Grader	Offroad	180	2012	3	8	4,320	58	lb/hr	1.1E-01	3.2E-01	1.1E+00	1.4E-03	3.9E-02	3.6E-02	124	1.0E-02
11	Loader	Offroad	215	2012	3	8	5,160	58	lb/hr	1.1E-01	3.3E-01	1.1E+00	1.4E-03	4.0E-02	3.7E-02	128	1.0E-02
12	Pickup Truck	Onroad	275	2012	6	8	13,200	205	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05	1	3.9E-05
13	Paving Machine	Offroad	200	2012	3	8	4,800	56	lb/hr	1.7E-01	5.1E-01	1.7E+00	1.7E-03	6.5E-02	6.0E-02	155	1.6E-02
14	Roller	Offroad	165	2012	3	8	3,960	56	lb/hr	1.2E-01	5.9E-01	1.0E+00	1.1E-03	5.6E-02	5.1E-02	102	1.1E-02
15	Scraper	Offroad	195	2012	3	8	4,680	50	lb/hr	1.8E-01	5.2E-01	1.7E+00	1.8E-03	6.7E-02	6.2E-02	163	1.7E-02
16	Stake Bed Truck	Onroad	300	2012	2	8	4,800	120	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05	1	3.9E-05
17	Tamper	Offroad	15	2012	1	8	120	62	lb/hr	2.8E-02	1.1E+00	2.0E-02	8.6E-05	1.7E-02	1.6E-02	2	1.6E-03
18	Stripping Equipment	Offroad	5	2012	1	8	38	30	lb/hr	3.8E-03	2.0E-02	2.4E-02	5.0E-05	9.1E-04	8.4E-04	3	3.4E-04
19	Water Truck	Onroad	325	2012	3	8	7,800	127	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
20	Fugitive Emissions	Fugitive		2012					lb/day					48.3	8.9		
21	Haul Truck - Paving	Onroad	425	2012	1	8	3,400	12	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
22	Haul Truck - Base	Onroad	425	2012	1	8	3,400	12	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
23	Semi Truck	Onroad	400	2012	1	8	3,200	12	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
									No	Daily Emissions Before Mitigation (lb/day)							
									1	2.32	12.87	18.20	0.03	1.05	0.96	2225	0.21
									2	0.37	1.36	2.20	0.00	0.20	0.19	194	0.03
									3	0.92	3.19	8.58	0.01	0.32	0.29	1009	0.08
									4	5.00	19.30	36.89	0.03	2.14	1.97	2930	0.45
									5	1.14	5.03	11.50	0.02	0.52	0.49	1651	0.01
									6	1.24	3.76	11.03	0.02	0.39	0.36	1601	0.11
									7	1.14	5.03	11.50	0.02	0.52	0.49	1651	0.01
									8	0.31	1.38	1.89	0.00	0.17	0.16	196	0.03
									9	0.94	3.66	12.43	0.02	0.36	0.33	1617	0.08
									10	2.72	7.79	26.51	0.03	0.94	0.87	2974	0.25
									11	2.75	7.92	27.10	0.03	0.95	0.88	3075	0.25
									12	0.61	6.31	0.61	0.01	0.10	0.09	1172	0.05
									13	4.19	12.22	39.74	0.04	1.57	1.45	3732	0.38
									14	2.99	14.07	24.27	0.03	1.34	1.23	2447	0.27
									15	4.43	12.54	40.90	0.04	1.61	1.48	3921	0.40
									16	0.20	2.10	0.20	0.00	0.03	0.03	391	0.02
									17	0.22	8.72	0.16	0.00	0.14	0.13	17	0.01
									18	0.03	0.16	0.19	0.00	0.01	0.01	26	0.00
									19	1.74	7.75	17.40	0.02	0.79	0.73	2491	0.01
									20					48.30	8.86		
									21	1.46	6.51	14.44	0.02	0.65	0.60	2062	0.01
									22	0.71	3.16	7.00	0.01	0.32	0.29	1000	0.00
									23	1.82	8.05	18.39	0.03	0.84	0.78	2642	0.01
Total Daily Emissions, Backland Construction (Scope Items 9 and 10)										37.23	152.88	331.14	0.41	63.28	22.66	39023	2.66

Notes and Assumptions

Stripping Equipment assumed to be a walk-behind, parking lot striper

Table 1.1-5 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity Without Mitigation

Phase 1c - AMP Installation

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates								
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	
1	Backhoe	Offroad	160	2012	1	8	1,280	83	lb/hr	9.7E-02	5.4E-01	7.6E-01	1.0E-03	4.4E-02	4.0E-02	93	8.7E-03	
2	Crane (Tire)	Offroad	350	2012	1	8	2,800	10	lb/hr	1.1E-01	4.0E-01	1.1E+00	1.2E-03	4.0E-02	3.7E-02	126	1.0E-02	
3	Flat Bed Truck	Onroad	230	2012	2	8	3,680	83	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05	
4	Forklift	Offroad	94	2012	1	8	752	67	lb/hr	3.8E-02	1.7E-01	2.4E-01	2.9E-04	2.2E-02	2.0E-02	24	3.5E-03	
5	Generator	Offroad	300	2012	1	8	2,400	83	lb/hr	1.2E-01	4.6E-01	1.6E+00	2.0E-03	4.5E-02	4.2E-02	202	1.1E-02	
6	Fugitive Emissions	Fugitive		2012					lb/day					4.7	1.0			
7	Haul Truck	Onroad	425	2012	1	8	3,400	13	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05	
										No	Daily Emissions Before Mitigation (lb/day)							
										1	0.77	4.29	6.07	0.01	0.35	0.32	742	0.07
										2	0.92	3.19	8.58	0.01	0.32	0.29	1009	0.08
										3	1.14	5.03	11.50	0.02	0.52	0.49	1651	0.01
										4	0.31	1.38	1.89	0.00	0.17	0.16	196	0.03
										5	0.94	3.66	12.43	0.02	0.36	0.33	1617	0.08
										6					4.68	1.02		
										7	0.57	2.52	5.75	0.01	0.26	0.24	826	0.00
Total Daily Emissions, AMP Installation (Scope Item 5)											4.64	20.06	46.21	0.06	6.68	2.86	6040	0.27

Phase 1d - Demolish Roadability Canopy and Building

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates								
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	
1	Backhoe	Offroad	160	2013	1	8	1,200	21	lb/hr	9.0E-02	5.4E-01	7.0E-01	1.0E-03	3.9E-02	3.6E-02	93	8.1E-03	
2	Excavator	Offroad	428	2013	1	8	3,210	21	lb/hr	1.5E-01	4.5E-01	1.3E+00	2.0E-03	4.4E-02	4.1E-02	200	1.3E-02	
3	Loader	Offroad	215	2013	1	8	1,613	21	lb/hr	1.1E-01	3.2E-01	1.0E+00	1.4E-03	3.6E-02	3.3E-02	128	9.8E-03	
4	Dump Truck	Onroad	310	2013	2	8	4,650	21	lb/mile	2.6E-03	1.2E-02	2.6E-02	4.0E-05	1.2E-03	1.1E-03	4	1.1E-05	
5	Fugitive Emissions	Fugitive		2013					lb/day					3.39	0.71			
										No	Daily Emissions Before Mitigation (lb/day)							
										1	0.68	4.02	5.28	0.01	0.29	0.27	695	0.06
										2	1.11	3.38	9.48	0.01	0.33	0.30	1501	0.10
										3	0.81	2.38	7.82	0.01	0.27	0.25	961	0.07
										4	1.08	4.95	10.35	0.02	0.48	0.45	1658	0.01
										5					3.39	0.71		
Total Daily Emissions, Demolition (Scope Item 6)											3.68	14.73	32.93	0.05	4.77	1.98	4815	0.24

Notes and Assumptions

Table 1.1-5 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity Without Mitigation

Phase 1e - Construct Buildings and Canopies

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Crane	Offroad	190	2012	1	8	1,520	180	lb/hr	6.2E-02	2.2E-01	5.8E-01	6.7E-04	2.2E-02	2.0E-02	68	5.6E-03
2	Generator	Offroad	300	2012	1	8	2,400	180	lb/hr	1.2E-01	4.6E-01	1.6E+00	2.0E-03	4.5E-02	4.2E-02	202	1.1E-02
3	Flat bed Truck	Onroad	300	2012	1	8	2,400	180	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
4	Concrete Truck	Onroad	425	2012	4	8	13,600	50	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
5	Concrete Trucks	Onroad	425	2012	1	8	3,400	3	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
6	Backhoe	Offroad	160	2012	1	8	1,280	21	lb/hr	9.7E-02	5.4E-01	7.6E-01	1.0E-03	4.4E-02	4.0E-02	93	8.7E-03
7	Lift	Offroad	700	2012	1	8	5,600	180	lb/hr	2.2E-01	8.3E-01	2.9E+00	3.6E-03	8.4E-02	7.8E-02	359	2.0E-02
8	Pickup Truck	Onroad		2012	3	8	-	360	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05	1	3.9E-05
9	Fugitive Emissions	Fugitive		2012					lb/day					17.44	3.78		
10	Concrete/Industrial Saw	Offroad	84	2012	1	8	672	66	lb/hr	8.1E-02	3.4E-01	5.3E-01	6.1E-04	4.5E-02	4.1E-02	52	7.3E-03
11	Rough Terrain Forklift	Offroad	94	2012	1	8	752	66	lb/hr	8.1E-02	3.4E-01	5.0E-01	5.7E-04	4.6E-02	4.2E-02	49	7.3E-03
12	Other Equipment	Offroad	190	2012	1	8	1,520	66	lb/hr	5.8E-02	2.1E-01	6.3E-01	9.5E-04	2.1E-02	1.9E-02	97	5.2E-03
13	Supply Trucks	Onroad	300	2012	1	8	2,400	5	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
14	Excavator	Offroad	428	2012	1	8	3,424	21	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	4.9E-02	4.5E-02	200	1.4E-02
15	Loader	Offroad	215	2012	1	8	1,720	21	lb/hr	1.1E-01	3.3E-01	1.1E+00	1.4E-03	4.0E-02	3.7E-02	128	1.0E-02
16	Dump Truck	Onroad	310	2012	2	8	4,960	21	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
	No									Daily Emissions Before Mitigation (lb/day)							
	1									0.50	1.73	4.66	0.01	0.17	0.16	548	0.04
	2									0.94	3.66	12.43	0.02	0.36	0.33	1617	0.08
	3									0.58	2.58	5.80	0.01	0.26	0.24	830	0.00
	4									1.13	4.98	11.45	0.02	0.52	0.49	1648	0.00
	5									0.75	3.52	6.71	0.01	0.28	0.26	926	0.01
	6									0.77	4.29	6.07	0.01	0.35	0.32	742	0.07
	7									1.78	6.67	22.99	0.03	0.67	0.62	2873	0.16
	8									0.31	3.15	0.30	0.01	0.05	0.05	586	0.02
	9													17.44	3.78		
	10									0.65	2.73	4.27	0.00	0.36	0.33	415	0.06
	11									0.65	2.73	4.03	0.00	0.37	0.34	391	0.06
	12									0.46	1.65	5.04	0.01	0.17	0.15	773	0.04
	13									1.16	5.17	11.60	0.02	0.53	0.49	1660	0.01
	14									1.24	3.76	11.03	0.02	0.39	0.36	1601	0.11
	15									0.92	2.64	9.03	0.01	0.32	0.29	1025	0.08
	16									1.14	5.03	11.50	0.02	0.52	0.49	1651	0.01
Total Daily Emissions, Building Construction (Items 7 and 8)										12.96	54.31	126.91	0.17	22.77	8.70	17286	0.76

Table 1.1-5 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity Without Mitigation

Phase 1f - Expand Reefer Area

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates								
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	
1	Excavator	Offroad	428	2012	1	8	3,424	30	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	4.9E-02	4.5E-02	200	1.4E-02	
2	Paver	Offroad	200	2012	1	8	1,600	20	lb/hr	1.7E-01	5.1E-01	1.7E+00	1.7E-03	6.5E-02	6.0E-02	155	1.6E-02	
3	Roller	Offroad	165	2012	1	8	1,320	20	lb/hr	1.2E-01	5.9E-01	1.0E+00	1.1E-03	5.6E-02	5.1E-02	102	1.1E-02	
4	Loader	Offroad	215	2012	1	8	1,720	30	lb/hr	1.1E-01	3.3E-01	1.1E+00	1.4E-03	4.0E-02	3.7E-02	128	1.0E-02	
5	5-Ton End Dump	Onroad	310	2012	3	8	7,440	30	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05	
6	Striping Equipment	Offroad	5	2012	1	8	40	14	lb/hr	3.9E-03	2.1E-02	2.5E-02	5.2E-05	9.5E-04	8.7E-04	3	3.5E-04	
7	Cold Plane Equipment	Offroad	750	2012	1	8	6,000	14	lb/hr	5.8E-01	2.2E+00	5.3E+00	5.6E-03	2.1E-01	1.9E-01	555	5.2E-02	
8	Backhoe	Offroad	160	2012	2	8	2,560	60	lb/hr	9.7E-02	5.4E-01	7.6E-01	1.0E-03	4.4E-02	4.0E-02	93	8.7E-03	
9	Concrete Truck	Onroad	425	2012	2	8	6,800	10	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05	
10	Fugitive Emissions	Fugitive		2012					lb/day					6.49	1.39			
										Daily Emissions Before Mitigation (lb/day)								
										No								
										1	1.24	3.76	11.03	0.02	0.39	0.36	1601	0.11
										2	1.40	4.07	13.25	0.01	0.52	0.48	1244	0.13
										3	1.00	4.69	8.09	0.01	0.45	0.41	816	0.09
										4	0.92	2.64	9.03	0.01	0.32	0.29	1025	0.08
										5	1.69	7.48	17.19	0.02	0.79	0.73	2473	0.01
										6	0.03	0.16	0.20	0.00	0.01	0.01	27	0.00
										7	4.62	17.90	42.58	0.04	1.66	1.53	4442	0.42
										8	1.55	8.58	12.13	0.02	0.70	0.64	1483	0.14
										9	0.57	2.53	5.76	0.01	0.26	0.24	827	0.00
										10					6.49	1.39		
Total Daily Emissions, Expand Reefer Area (Item 15)										13.01	51.83	119.27	0.14	11.59	6.08	13937	0.98	

Notes and Assumptions

Striping Equipment assumed to be a walk-behind, parking lot striper

Phase 1g - Utility Infrastructure

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates								
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	
1	Excavator	Offroad	428	2012	1	8	3,424	45	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	4.9E-02	4.5E-02	200	1.4E-02	
2	Backhoe	Offroad	160	2012	1	8	1,280	45	lb/hr	9.7E-02	5.4E-01	7.6E-01	1.0E-03	4.4E-02	4.0E-02	93	8.7E-03	
3	Crane	Offroad	350	2012	1	8	2,800	45	lb/hr	1.1E-01	4.0E-01	1.1E+00	1.2E-03	4.0E-02	3.7E-02	126	1.0E-02	
4	Lift	Offroad	700	2012	1	8	5,600	45	lb/hr	2.2E-01	8.3E-01	2.9E+00	3.6E-03	8.4E-02	7.8E-02	359	2.0E-02	
5	Fugitive Emissions	Fugitive		2012					lb/day					0.2871	0.0287			
										Daily Emissions Before Mitigation (lb/day)								
										No								
										1	1.24	3.76	11.03	0.02	0.39	0.36	1601	0.11
										2	0.77	4.29	6.07	0.01	0.35	0.32	742	0.07
										3	0.92	3.19	8.58	0.01	0.32	0.29	1009	0.08
										4	1.78	6.67	22.99	0.03	0.67	0.62	2873	0.16
										5					0.29	0.03		
Total Daily Emissions, Utility Infrastructure (Item 16)										4.70	17.91	48.68	0.06	2.02	1.63	6224	0.42	

Table 1.1-5 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity Without Mitigation

Phase 1h - Crane Installation

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates								
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	
1	Crane - 50 ton	Offroad	330	2012	2	8	5,280	2	lb/hr	1.1E-01	3.8E-01	1.0E+00	1.2E-03	3.8E-02	3.5E-02	119	9.7E-03	
2	Winch	Offroad	305	2012	1	4	1,220	2	lb/hr	1.2E-01	3.4E-01	1.1E+00	1.3E-03	3.7E-02	3.4E-02	132	9.1E-03	
3	General Cargo Ship + Tugboat Assists	Marine		2012	1	4	-	2	lb/hr	7.3	14.9	80.8	3.2	8.2	7.5	3280	0.2	
4	General Cargo Ship - Hotelling	Marine	6,938	2012	1	24	166,507	7	lb/hr	1.5	1.4	12.5	1.0	2.1	1.9	587	0.0	
5	Fugitive Emissions	Fugitive		2012					lb/day					0.0000	0.0000			
Notes and Assumptions										No								
General Cargo Ship maneuvering emissions include 2 tugboat assists.										Daily Emissions Before Mitigation (lb/day)								
Ships and equipment are based on China Shipping project										1	1.73	6.01	16.19	0.02	0.60	0.55	1902	0.16
Arrival and departure occur on separate days for hotelling ship										2	0.48	1.37	4.30	0.01	0.15	0.14	527	0.04
Four new shore-side A-Frame crane will delivered via one ship. Arrival and departure on separate days.										3	29.21	59.48	323.20	12.71	32.65	30.04	13119	0.73
										4	37.18	33.05	299.55	23.96	49.58	45.61	14089	1.03
										5					0.00	0.00		
Total Daily Emissions, Crane Installation (Item 4)										68.60	99.91	643.22	36.70	82.98	76.34	29637	1.95	

Phase 2a - Grading, Paving and Striping

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates								
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	
1	Excavator	Offroad	428	2012	1	8	3,424	30	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	4.9E-02	4.5E-02	200	1.4E-02	
2	Paver	Offroad	200	2012	1	8	1,600	30	lb/hr	1.7E-01	5.1E-01	1.7E+00	1.7E-03	6.5E-02	6.0E-02	155	1.6E-02	
3	Roller	Offroad	165	2012	1	8	1,320	30	lb/hr	1.2E-01	5.9E-01	1.0E+00	1.1E-03	5.6E-02	5.1E-02	102	1.1E-02	
4	Loader	Offroad	215	2012	1	8	1,720	40	lb/hr	1.1E-01	3.3E-01	1.1E+00	1.4E-03	4.0E-02	3.7E-02	128	1.0E-02	
5	10-Ton End Dump	Onroad	350	2012	3	8	8,400	30	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05	
6	Striping Equipment	Offroad	5	2012	1	8	40	10	lb/hr	3.9E-03	2.1E-02	2.5E-02	5.2E-05	9.5E-04	8.7E-04	3	3.5E-04	
7	Cold Plane Equipment	Offroad	750	2012	1	8	6,000	5	lb/hr	5.8E-01	2.2E+00	5.3E+00	5.6E-03	2.1E-01	1.9E-01	555	5.2E-02	
8	Concrete Truck	Onroad	425	2012	5	8	17,000	10	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05	
9	Fugitive Emissions	Fugitive		2012					lb/day					9.11	1.92			
Notes and Assumptions										No								
Striping Equipment assumed to be a walk-behind, parking lot striper										Daily Emissions Before Mitigation (lb/day)								
										1	1.24	3.76	11.03	0.02	0.39	0.36	1601	0.11
										2	1.40	4.07	13.25	0.01	0.52	0.48	1244	0.13
										3	1.00	4.69	8.09	0.01	0.45	0.41	816	0.09
										4	0.92	2.64	9.03	0.01	0.32	0.29	1025	0.08
										5	1.69	7.48	17.19	0.02	0.79	0.73	2473	0.01
										6	0.03	0.16	0.20	0.00	0.01	0.01	27	0.00
										7	4.62	17.90	42.58	0.04	1.66	1.53	4442	0.42
										8	1.41	6.20	14.30	0.02	0.66	0.61	2058	0.01
										9					9.11	1.92		
Total Daily Emissions, Grading, Paving and Striping (Items 11-14)										12.30	46.92	115.68	0.14	13.90	6.34	13685	0.84	

Table 1.1-5 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity Without Mitigation

All Phases - Worker Commutes for the Proposed Project

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Worker Vehicle	Onroad		2012	50	8	-	500	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05	9.8E-01	3.9E-05
2	Fugitive Emissions	Fugitive		2012					lb/day					15.52	3.39		
No										Daily Emissions Before Mitigation (lb/day)							
1										1.02	10.52	1.02	0.02	0.17	0.16	1953.69	0.08
2														15.52	3.39		
Total Daily Emissions, Worker Commutes										1.02	10.52	1.02	0.02	15.69	3.55	1954	0.08

Notes and Assumptions

Equipment list, activity level, project phases and scope items provided by the Port of LA and posted to the CDM eRoom on December 15, 2009 "B306 Equipment List.xls".

These were revised by Port of LA via email "APL DEIR Construction Comments 8-17-2010.xls"

All activities of the phase are assumed to occur simultaneously.

Activities are assumed to be spread evenly over their entire duration.

All Phases - Worker Commutes for the NEPA Baseline

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Worker Vehicle	Onroad		2012	50	8	-	188	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05	9.8E-01	3.9E-05
2	Fugitive Emissions	Fugitive		2012					lb/day					0.00	0.00		
No										Daily Emissions Before Mitigation (lb/day)							
1										1.02	10.52	1.02	0.02	0.17	0.16	1953.69	0.08
2														0.00	0.00		
Total Daily Emissions, Worker Commutes										1.02	10.52	1.02	0.02	0.17	0.16	1954	0.08

(Time = 3 quarters out of 8 for the PP)

Table 1.1-6 Proposed Project Construction Peak Daily Emissions Summaries for NOx Without Mitigation

NOx Maximum Daily Emissions (lb/day)

Project Phase	Construction Schedule	YEAR 1 (2012)				YEAR 2 (2013)			
		QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4
1a	B306 Dredging (20,000cy)	691.79							
1a	B306 New Wharf (1250lf)			691.79	691.79	691.79	691.79	691.79	691.79
1c	B306 AMP								46.21
1h	B302-306 New Cranes (4 total)		643.22						
1b	RB305-306 Backland (40 acres)				331.14	331.14	331.14	331.14	331.14
1b	RB301 Redevelop Backland (9 acres of former LAXT conveyor and bkld)	331.14	331.14	331.14					
2	Modify Earle Street Gate to 6-inbound lanes of full tractor/trailer use	115.68							
1e	Construct Roadability/Gen Set building and canopies (2) (size TBD)	126.91	126.91	126.91	126.91	126.91	126.91		
1e	Construct 2-story expansion to Power Shop Bldg								
2	Main Gate-New Outbound lanes at 2-ac dirt area					115.68			
2	Main Gate - Modify existing outbound lanes to inbound						115.68		
2	Modify Terminal Entrance lanes							115.68	
1g	Various utility infrastructure (LP relocation, etc)	48.68	48.68	48.68					
1f	Expand reefer area	119.27	119.27						
1d	Demolish Roadability Canopy and building							32.93	32.93
All	Worker Commute	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Total		1,434	1,270	1,200	1,151	1,267	1,267	1,173	1,103

Activities are assumed to be spread evenly over their entire duration.

Summaries assume all equipment for a phase is running on the same day.

Peak day construction emissions for Alternatives 5 and 6 are the same as for the proposed Project

Table 1.1-7 Proposed Project Construction Peak Daily Emissions Summaries for PM10 Without Mitigation
 PM10 Maximum Daily Emissions (lb/day)

Project Phase	Construction Schedule	YEAR 1 (2012)				YEAR 2 (2013)			
		QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4
1a	B306 Dredging (20,000cy)	113.02							
1a	B306 New Wharf (1250lf)			113.02	113.02	113.02	113.02	113.02	113.02
1c	B306 AMP								6.68
1h	B302-306 New Cranes (4 total)		82.98						
1b	RB305-306 Backland (40 acres)				63.28	63.28	63.28	63.28	63.28
1b	RB301 Redevelop Backland (9 acres of former LAXT conveyor and bkld)	63.28	63.28	63.28					
2	Modify Earle Street Gate to 6-inbound lanes of full tractor/trailer use	13.90							
1e	Construct Roadability/Gen Set building and canopies (2) (size TBD)	22.77	22.77	22.77	22.77	22.77	22.77		
1e	Construct 2-story expansion to Power Shop Bldg								
2	Main Gate-New Outbound lanes at 2-ac dirt area					13.90			
2	Main Gate - Modify existing outbound lanes to inbound						13.90		
2	Modify Terminal Entrance lanes							13.90	
1g	Various utility infrastructure (LP relocation, etc)	2.02	2.02	2.02					
1f	Expand reefer area	11.59	11.59						
1d	Demolish Roadability Canopy and building							4.77	4.77
All	Worker Commute	15.69	15.69	15.69	15.69	15.69	15.69	15.69	15.69
Total		242	198	217	215	229	229	211	203

Activities are assumed to be spread evenly over their entire duration.

Summaries assume all equipment for a phase is running on the same day.

Peak day construction emissions for Alternatives 5 and 6 are the same as for the proposed Project

Table 1.1-8 Proposed Project Construction Peak Daily Emissions Summaries for PM2.5 Without Mitigation

PM2.5 Maximum Daily Emissions (lb/day)

Project Phase	Construction Schedule	YEAR 1 (2012)				YEAR 2 (2013)			
		QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4
1a	B306 Dredging (20,000cy)	45.32							
1a	B306 New Wharf (1250lf)			45.32	45.32	45.32	45.32	45.32	45.32
1c	B306 AMP								2.86
1h	B302-306 New Cranes (4 total)		76.34						
1b	RB305-306 Backland (40 acres)				22.66	22.66	22.66	22.66	22.66
1b	RB301 Redevelop Backland (9 acres of former LAXT conveyor and bkld)	22.66	22.66	22.66					
2	Modify Earle Street Gate to 6-inbound lanes of full tractor/trailer use	6.34							
1e	Construct Roadability/Gen Set building and canopies (2) (size TBD)	8.70	8.70	8.70	8.70	8.70	8.70		
1e	Construct 2-story expansion to Power Shop Bldg								
2	Main Gate-New Outbound lanes at 2-ac dirt area					6.34			
2	Main Gate - Modify existing outbound lanes to inbound						6.34		
2	Modify Terminal Entrance lanes							6.34	
1g	Various utility infrastructure (LP relocation, etc)	1.63	1.63	1.63					
1f	Expand reefer area	6.08	6.08						
1d	Demolish Roadability Canopy and building							1.98	1.98
All	Worker Commute	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55
Total		94	119	82	80	87	87	80	76

Activities are assumed to be spread evenly over their entire duration.

Summaries assume all equipment for a phase is running on the same day.

Peak day construction emissions for Alternatives 5 and 6 are the same as for the proposed Project

Table 1.1-9 Proposed Project Construction Peak Daily Emissions Summaries for CO Without Mitigation

CO Maximum Daily Emissions (lb/day)

Project Phase	Construction Schedule	YEAR 1 (2012)				YEAR 2 (2013)			
		QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4
1a	B306 Dredging (20,000cy)	268.47							
1a	B306 New Wharf (1250lf)			268.47	268.47	268.47	268.47	268.47	268.47
1c	B306 AMP								20.06
1h	B302-306 New Cranes (4 total)		99.91						
1b	RB305-306 Backland (40 acres)				152.88	152.88	152.88	152.88	152.88
1b	RB301 Redevelop Backland (9 acres of former LAXT conveyor and bkld)	152.88	152.88	152.88					
2	Modify Earle Street Gate to 6-inbound lanes of full tractor/trailer use	46.92							
1e	Construct Roadability/Gen Set building and canopies (2) (size TBD)	54.31	54.31	54.31	54.31	54.31	54.31		
1e	Construct 2-story expansion to Power Shop Bldg								
2	Main Gate-New Outbound lanes at 2-ac dirt area					46.92			
2	Main Gate - Modify existing outbound lanes to inbound						46.92		
2	Modify Terminal Entrance lanes							46.92	
1g	Various utility infrastructure (LP relocation, etc)	17.91	17.91	17.91					
1f	Expand reefer area	51.83	51.83						
1d	Demolish Roadability Canopy and building							14.73	14.73
All	Worker Commute	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52
Total		603	387	504	486	533	533	494	467

Activities are assumed to be spread evenly over their entire duration.

Summaries assume all equipment for a phase is running on the same day.

Peak day construction emissions for Alternatives 5 and 6 are the same as for the proposed Project

Table 1.1-11 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity With Mitigation

Phase 1a - Subtask: Piledriving - Pinpiles/Indicators

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Derrick Barge Crane Hoist	Offroad	564	2012	1	8	4512	44	lb/hr	3.0E-01	8.4E-01	1.9E+00	3.2E-03	6.3E-03	5.8E-03	324	2.3E-02
2	Deck Winch	Offroad	238	2012	2	8	3808	44	lb/hr	1.3E-01	3.2E-01	8.0E-01	1.5E-03	2.7E-03	2.5E-03	130	9.8E-03
3	Generator	Offroad	432	2012	1	8	3456	44	lb/hr	1.7E-01	6.6E-01	2.1E+00	2.9E-03	7.0E-03	6.5E-03	291	1.5E-02
4	Generator	Offroad	135	2012	1	8	1080	44	lb/hr	1.1E-01	5.7E-01	6.6E-01	1.2E-03	2.2E-03	2.0E-03	110	1.0E-02
5	Pile Hammer	Offroad	190	2012	1	8	1520	44	lb/hr	5.8E-02	2.1E-01	6.3E-01	9.5E-04	2.6E-03	2.4E-03	97	5.2E-03
6	Jet Pump	Offroad	290	2012	1	8	2320	44	Electric								
7	Haul Trucks - Pile Deliveries	Onroad	425	2012	1	8	3400	22	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03	4	1.1E-05

Phase 1a - Subtask: Piledriving - Production Pile

8	Main Hoist	Offroad	700	2012	1	8	5600	49	lb/hr	3.7E-01	1.0E+00	2.4E+00	3.9E-03	7.9E-03	7.2E-03	402	2.8E-02
9	Main Generator	Offroad	485	2012	1	8	3880	49	lb/hr	1.9E-01	7.4E-01	2.4E+00	3.2E-03	7.9E-03	7.3E-03	327	1.7E-02
10	Boom Hoist	Offroad	700	2012	1	8	5600	49	lb/hr	3.7E-01	1.0E+00	2.4E+00	3.9E-03	7.9E-03	7.2E-03	402	2.8E-02
11	Anchor Winch	Offroad	305	2012	1	8	2440	49	lb/hr	1.2E-01	3.4E-01	1.0E+00	1.3E-03	3.4E-03	3.2E-03	132	9.1E-03
12	Breasting Winch	Offroad	210	2012	2	8	3360	49	lb/hr	1.1E-01	2.8E-01	7.1E-01	1.3E-03	3.4E-03	2.2E-03	114	8.7E-03
13	Emergency Generator	Offroad	210	2012	1	8	1680	49	lb/hr	1.2E-01	3.8E-01	1.0E+00	2.0E-03	3.4E-03	3.2E-03	179	1.0E-02
14	Pile Hammer	Offroad	190	2012	1	8	1520	49	lb/hr	5.8E-02	2.1E-01	6.3E-01	9.5E-04	2.6E-03	2.4E-03	97	5.2E-03
15	Jet Pump	Offroad	290	2012	1	8	2320	49	Electric								
16	Pile Handler	Offroad	456	2012	1	8	3648	49	lb/hr	1.4E-01	4.9E-01	1.5E+00	2.3E-03	6.2E-03	5.7E-03	232	1.2E-02
17	Haul Trucks - Pile Deliveries	Onroad	425	2012	1	8	3400	56	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03	4	1.1E-05

Phase 1a - Subtask: Wharf Construction

18	Crane - 888	Offroad	330	2012	1	8	2640	92	lb/hr	1.1E-01	3.8E-01	9.4E-01	1.2E-03	3.1E-03	2.9E-03	119	9.7E-03
19	Crane - 4000	Offroad	350	2012	1	8	2800	92	lb/hr	1.1E-01	4.0E-01	1.0E+00	1.2E-03	3.3E-03	3.1E-03	126	1.0E-02
20	Air Compressor - 100 CFM	Offroad	49	2012	2	8	784	92	lb/hr	9.9E-02	2.6E-01	2.3E-01	2.8E-04	2.3E-02	2.2E-02	22	8.9E-03
21	Air Compressor - 185 CFM	Offroad	62	2012	2	8	992	92	lb/hr	4.6E-02	1.7E-01	2.8E-01	2.8E-04	6.6E-04	6.0E-04	24	4.2E-03
22	Welder - 300 Amp.	Offroad	33	2012	1	8	264	92	lb/hr	7.1E-02	1.9E-01	1.7E-01	2.2E-04	1.7E-02	1.6E-02	17	6.4E-03
23	Welder - 400 Amp.	Offroad	35	2012	1	8	280	92	lb/hr	7.5E-02	2.0E-01	1.8E-01	2.3E-04	1.8E-02	1.7E-02	18	6.8E-03
24	Haul Truck	Onroad	425	2012	1	8	3400	31	lb/mile, lb/hr	2.8E-03	1.2E-02	1.9E+00	4.0E-05	9.4E-02	8.6E-02	4	1.1E-05
25	Concrete Trucks	Onroad	425	2012	1	8	3400	62	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03	4	1.1E-05
26	Backhoe	Offroad	160	2012	1	8	1280	92	lb/hr	9.7E-02	5.4E-01	5.8E-01	1.0E-03	1.9E-03	1.8E-03	93	8.7E-03
27	Crane (Track)	Offroad	350	2012	2	8	5600	142	lb/hr	1.1E-01	4.0E-01	1.0E+00	1.2E-03	3.3E-03	3.1E-03	126	1.0E-02
28	Dozer	Offroad	165	2012	1	8	1320	8	lb/hr	2.1E-01	7.9E-01	6.4E-01	1.4E-03	2.1E-03	2.0E-03	122	1.9E-02
29	Dump Truck	Onroad	310	2012	2	8	4960	100	lb/mile, lb/hr	2.8E-03	1.2E-02	1.4E+00	4.0E-05	6.8E-02	6.3E-02	4	1.1E-05
30	Excavator	Offroad	428	2012	1	8	3424	30	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	5.4E-03	4.9E-03	200	1.4E-02
31	Flat Bed Truck	Onroad	230	2012	1	8	1840	10	lb/mile, lb/hr	2.8E-03	1.2E-02	6.1E-01	4.0E-05	5.1E-03	4.7E-03	4	1.1E-05
32	Forklift	Offroad	94	2012	1	8	752	10	lb/hr	3.8E-02	1.7E-01	2.2E-01	2.9E-04	6.2E-04	5.7E-04	24	3.5E-03
33	Grader	Offroad	180	2012	1	8	1440	36	lb/hr	1.1E-01	3.2E-01	7.3E-01	1.4E-03	2.4E-03	2.2E-03	124	1.0E-02
34	Loader	Offroad	215	2012	2	8	3440	160	lb/hr	1.1E-01	3.3E-01	7.8E-01	1.4E-03	2.6E-03	2.4E-03	128	1.0E-02
35	Paving Machine	Offroad	200	2012	1	8	1600	13	lb/hr	1.7E-01	5.1E-01	7.0E-01	1.7E-03	2.3E-03	2.1E-03	155	1.6E-02
36	Dive Boat	Marine	112	2012	1	8	895	2	lb/hr	9.9E-02	2.9E-01	8.9E-01	1.2E-03	2.2E-02	2.0E-02	131	9.5E-03
37	Roller	Offroad	165	2012	2	8	2640	26	lb/hr	1.2E-01	5.9E-01	6.1E-01	1.1E-03	2.0E-03	1.9E-03	102	1.1E-02
38	Scraper	Offroad	195	2012	1	8	1560	24	lb/hr	1.8E-01	5.2E-01	9.3E-01	1.8E-03	3.1E-03	2.8E-03	163	1.7E-02
39	Water Truck	Onroad	325	2012	1	8	2600	32	lb/mile, lb/hr	2.8E-03	1.2E-02	8.6E-01	4.0E-05	7.2E-03	6.6E-03	4	1.1E-05
40	Fugitive Emissions	Fugitive	0	2012	0	0	0	0	lb/day					82.7	18.1		

Table 1.1-11 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity With Mitigation

No	Daily Emissions After Mitigation (lb/day)							
	CO	NOx	PM10	PM2.5	SO2	CH4	CO2	Other
1	2.40	6.75	15.22	0.03	0.05	0.05	2591	0.18
2	2.08	5.06	12.84	0.02	0.04	0.04	2073	0.16
3	1.35	5.26	16.91	0.02	0.06	0.05	2328	0.12
4	0.90	4.58	5.29	0.01	0.02	0.02	876	0.08
5	0.46	1.65	5.04	0.01	0.02	0.02	773	0.04
6	-	-	-	-	-	-	0	-
7	4.37	19.27	8.99	0.06	0.07	0.07	6416	0.02
Total Daily Emissions, Phase 1a (Piledriving - Pinpiles/Indicators)								
	11.5670	42.5624	64.2886	0.1518	0.2632	0.2422	15057	0.6014
8	2.98	8.38	18.89	0.03	0.06	0.06	3216	0.23
9	1.51	5.91	18.99	0.03	0.06	0.06	2614	0.14
10	2.98	8.38	18.89	0.03	0.06	0.06	3216	0.23
11	0.97	2.75	8.23	0.01	0.03	0.03	1054	0.07
12	1.84	4.46	11.33	0.02	0.04	0.03	1829	0.14
13	0.92	3.03	8.22	0.02	0.03	0.03	1428	0.08
14	0.46	1.65	5.04	0.01	0.02	0.02	773	0.04
15	-	-	-	-	-	-	0	-
16	1.11	3.96	12.09	0.02	0.05	0.05	1855	0.10
17	4.37	19.27	8.99	0.06	0.07	0.07	6416	0.02
Total Daily Emissions, Phase 1a (Piledriving - Production Pile)								
	17.1420	57.7740	110.6699	0.2243	0.4274	0.3932	22400	1.0413
18	0.86	3.00	7.51	0.01	0.03	0.02	951	0.08
19	0.92	3.19	7.96	0.01	0.03	0.02	1009	0.08
20	1.58	4.15	3.62	0.00	0.37	0.34	349	0.14
21	0.74	2.72	4.41	0.00	0.01	0.01	388	0.07
22	0.57	1.51	1.39	0.00	0.14	0.13	137	0.05
23	0.60	1.60	1.48	0.00	0.15	0.13	145	0.05
24	14.57	64.23	14.98	0.21	0.75	0.69	21387	0.06
25	4.32	19.18	8.99	0.06	0.07	0.07	6213	0.02
26	0.77	4.29	4.66	0.01	0.02	0.01	742	0.07
27	1.83	6.37	15.93	0.02	0.05	0.05	2017	0.17
28	1.67	6.35	5.15	0.01	0.02	0.02	977	0.15
29	1.13	4.97	11.50	0.02	0.52	0.49	1647	0.00
30	1.24	3.76	11.03	0.02	0.04	0.04	1601	0.11
31	0.57	2.52	4.86	0.01	0.04	0.04	826	0.00
32	0.31	1.38	1.74	0.00	0.00	0.00	196	0.03
33	0.91	2.60	5.81	0.01	0.02	0.02	991	0.08
34	1.83	5.28	12.51	0.02	0.04	0.04	2050	0.17
35	1.40	4.07	5.61	0.01	0.02	0.02	1244	0.13
36	0.79	2.35	7.15	0.01	0.18	0.16	1044	0.08
37	1.99	9.38	9.78	0.02	0.03	0.03	1631	0.18
38	1.48	4.18	7.43	0.01	0.02	0.02	1307	0.13
39	0.57	2.52	6.01	0.01	0.06	0.05	826	0.00
40					82.69	18.06		
Total Daily Emissions, Phase 1a (Wharf Construction)								
	40.63	159.59	159.50	0.48	85.31	20.46	47677	1.85

Notes and Assumptions

Jet pumps are assumed to be part of dredging equipment.
Dredging Equipment is electric (see POLA CEQA Mitigation Measures MM AQ--Dredging Equipment, 11/09)
SCAB/OFFROAD EFs used for VOC, SOx, CO2, CH4. Load factors are included in these EFs.
Offroad equipment >50 HP: Tier 3 EFs apply to CO, Nox; load factors applied. Used if smaller than SCAB factors.
Offroad: PM10/PM2.5: CARB Level 3 DECS applied to equipment >50 HP; load factors applied.
Onroad: vehicles>19,500 GVW subject to PM & NOx reduction.
Columns N, P, and Q for these vehicles are in lb/hr. Remaining columns are in lb/mile

Table 1.1-11 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity With Mitigation

Phase 1b - Backland Construction

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Backhoe	Offroad	160	2012	3	8	3840	41	lb/hr	9.7E-02	5.4E-01	5.8E-01	1.0E-03	1.9E-03	1.8E-03	93	8.7E-03
2	Compressor	Offroad	62	2012	1	8	496	65	lb/hr	4.6E-02	1.7E-01	2.8E-01	2.8E-04	6.6E-04	6.0E-04	24	4.2E-03
3	Crane (Tire)	Offroad	350	2012	1	8	2800	68	lb/hr	1.1E-01	4.0E-01	1.0E+00	1.2E-03	3.3E-03	3.1E-03	126	1.0E-02
4	Dozer	Offroad	165	2012	3	8	3960	41	lb/hr	2.1E-01	7.9E-01	6.4E-01	1.4E-03	2.1E-03	2.0E-03	122	1.9E-02
5	Dump Truck	Onroad	310	2012	2	8	4960	67	lb/mile, lb/hr	2.8E-03	1.2E-02	1.4E+00	4.0E-05	6.8E-02	6.3E-02	4	1.1E-05
6	Excavator	Offroad	428	2012	1	8	3424	56	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	5.4E-03	4.9E-03	200	1.4E-02
7	Flat Bed Truck	Onroad	230	2012	2	8	3680	147	lb/mile, lb/hr	2.8E-03	1.2E-02	6.1E-01	4.0E-05	5.1E-03	4.7E-03	4	1.1E-05
8	Forklift	Offroad	94	2012	1	8	752	137	lb/hr	3.8E-02	1.7E-01	2.2E-01	2.9E-04	6.2E-04	5.7E-04	24	3.5E-03
9	Generator	Offroad	300	2012	1	8	2400	68	lb/hr	1.2E-01	4.6E-01	1.5E+00	2.0E-03	4.9E-03	4.5E-03	202	1.1E-02
10	Grader	Offroad	180	2012	3	8	4320	58	lb/hr	1.1E-01	3.2E-01	7.3E-01	1.4E-03	2.4E-03	2.2E-03	124	1.0E-02
11	Loader	Offroad	215	2012	3	8	5160	58	lb/hr	1.1E-01	3.3E-01	7.8E-01	1.4E-03	2.6E-03	2.4E-03	128	1.0E-02
12	Pickup Truck	Onroad	275	2012	6	8	13200	205	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05	1	3.9E-05
13	Paving Machine	Offroad	200	2012	3	8	4800	56	lb/hr	1.7E-01	5.1E-01	7.0E-01	1.7E-03	2.3E-03	2.1E-03	155	1.6E-02
14	Roller	Offroad	165	2012	3	8	3960	56	lb/hr	1.2E-01	5.9E-01	6.1E-01	1.1E-03	2.0E-03	1.9E-03	102	1.1E-02
15	Scraper	Offroad	195	2012	3	8	4680	50	lb/hr	1.8E-01	5.2E-01	9.3E-01	1.8E-03	3.1E-03	2.8E-03	163	1.7E-02
16	Stake Bed Truck	Onroad	300	2012	2	8	4800	120	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05	1	3.9E-05
17	Tamper	Offroad	15	2012	1	8	120	62	lb/hr	2.8E-02	1.1E+00	2.0E-02	8.6E-05	1.7E-02	1.6E-02	2	1.6E-03
18	Striping Equipment	Offroad	5	2012	1	8	38	30	lb/hr	3.8E-03	2.0E-02	2.4E-02	5.0E-05	9.1E-04	8.4E-04	3	3.4E-04
19	Water Truck	Onroad	325	2012	3	8	7800	127	lb/mile, lb/hr	2.8E-03	1.2E-02	8.6E-01	4.0E-05	7.2E-03	6.6E-03	4	1.1E-05
21	Fugitive Emissions	Fugitive	0	2012	0	0	0	0	lb/day					37.54	7.78		
22	Haul Truck - Paving	Onroad	425	2012	1	8	3400	12	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03	4	1.1E-05
23	Haul Truck - Base	Onroad	425	2012	1	8	3400	12	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03	4	1.1E-05
24	Semi Truck	Onroad	400	2012	1	8	3200	12	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	8.8E-03	8.1E-03	4	1.1E-05
	No	Daily Emissions After Mitigation (lb/day)															
	1	2.32	12.87	13.97	0.03	0.05	0.04	2225	0.21								
	2	0.37	1.36	2.20	0.00	0.01	0.00	194	0.03								
	3	0.92	3.19	7.96	0.01	0.03	0.02	1009	0.08								
	4	5.00	19.06	15.45	0.03	0.05	0.05	2930	0.45								
	5	1.13	4.97	11.50	0.02	0.52	0.49	1647	0.00								
	6	1.24	3.76	11.03	0.02	0.04	0.04	1601	0.11								
	7	1.13	4.97	9.73	0.02	0.08	0.07	1647	0.00								
	8	0.31	1.38	1.74	0.00	0.00	0.00	196	0.03								
	9	0.94	3.66	11.75	0.02	0.04	0.04	1617	0.08								
	10	2.72	7.79	17.43	0.03	0.06	0.05	2974	0.25								
	11	2.75	7.92	18.77	0.03	0.06	0.06	3075	0.25								
	12	0.61	6.31	0.61	0.01	0.10	0.09	1172	0.05								
	13	4.19	12.22	16.83	0.04	0.06	0.05	3732	0.38								
	14	2.99	14.07	14.67	0.03	0.05	0.04	2447	0.27								
	15	4.43	12.54	22.29	0.04	0.07	0.07	3921	0.40								
	16	0.20	2.10	0.20	0.00	0.03	0.03	391	0.02								
	17	0.22	8.72	0.16	0.00	0.14	0.13	17	0.01								
	18	0.03	0.16	0.19	0.00	0.01	0.01	26	0.00								
	19	1.68	7.42	17.40	0.02	0.17	0.16	2468	0.01								
	21					37.54	7.78										
	22	1.46	6.51	8.99	0.02	0.07	0.07	2062	0.01								
	23	0.71	3.16	7.00	0.01	0.07	0.07	1000	0.00								
	24	1.82	8.05	8.46	0.03	0.07	0.06	2642	0.01								
Total Daily Emissions, Backland Construction (Scope Items 9 and 10)										37.15	152.17	218.31	0.41	39.33	9.44	38992	2.65

Notes and Assumptions

Striping Equipment assumed to be a walk-behind, parking lot striper

Table 1.1-11 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity With Mitigation

Phase 1c - AMP Installation

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Backhoe	Offroad	160	2012	1	8	1280	83	lb/hr	9.7E-02	5.4E-01	5.8E-01	1.0E-03	1.9E-03	1.8E-03	93	8.7E-03
2	Crane (Tire)	Offroad	350	2012	1	8	2800	10	lb/hr	1.1E-01	4.0E-01	1.0E+00	1.2E-03	3.3E-03	3.1E-03	126	1.0E-02
3	Flat Bed Truck	Onroad	230	2012	2	8	3680	83	lb/mile, lb/hr	2.8E-03	1.2E-02	6.1E-01	4.0E-05	5.1E-03	4.7E-03	4	1.1E-05
4	Forklift	Offroad	94	2012	1	8	752	67	lb/hr	3.8E-02	1.7E-01	2.2E-01	2.9E-04	6.2E-04	5.7E-04	24	3.5E-03
5	Generator	Offroad	300	2012	1	8	2400	83	lb/hr	1.2E-01	4.6E-01	1.5E+00	2.0E-03	4.9E-03	4.5E-03	202	1.1E-02
7	Fugitive Emissions	Fugitive	0	2012	0	0	0	0	lb/day					4.66	1.02		
8	Haul Truck	Onroad	425	2012	1	8	3400	13	lb/mile, lb/hr	2.8E-03	1.2E-02	1.9E+00	4.0E-05	9.4E-02	8.6E-02	4	1.1E-05
No										Daily Emissions After Mitigation (lb/day)							
1										0.77	4.29	4.66	0.01	0.02	0.01	742	0.07
2										0.92	3.19	7.96	0.01	0.03	0.02	1009	0.08
3										1.13	4.97	9.73	0.02	0.08	0.07	1647	0.00
4										0.31	1.38	1.74	0.00	0.00	0.00	196	0.03
5										0.94	3.66	11.75	0.02	0.04	0.04	1617	0.08
7														4.66	1.02		
8										0.57	2.52	5.75	0.01	0.26	0.24	826	0.00
Total Daily Emissions, AMP Installation (Scope Item 5)										4.63	19.99	41.58	0.06	5.09	1.42	6035	0.27

Notes and Assumptions

Phase 1d - Demolish Roadability Canopy and Building

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Backhoe	Offroad	160	2013	1	8	1200	21	lb/hr	9.0E-02	5.4E-01	5.8E-01	1.0E-03	1.9E-03	1.8E-03	93	8.1E-03
2	Excavator	Offroad	428	2013	1	8	3210	21	lb/hr	1.5E-01	4.5E-01	1.3E+00	2.0E-03	5.4E-03	4.9E-03	200	1.3E-02
3	Loader	Offroad	215	2013	1	8	1613	21	lb/hr	1.1E-01	3.2E-01	7.8E-01	1.4E-03	2.6E-03	2.4E-03	128	9.8E-03
4	Dump Truck	Onroad	310	2013	2	8	4650	21	lb/mile, lb/hr	2.6E-03	1.2E-02	1.4E+00	4.0E-05	6.8E-02	6.3E-02	4	1.1E-05
6	Fugitive Emissions	Fugitive	0	2013	0	0	0	0	lb/day					3.18	0.69		
No										Daily Emissions After Mitigation (lb/day)							
1										0.68	4.02	4.37	0.01	0.01	0.01	695	0.06
2										1.11	3.38	9.48	0.01	0.04	0.04	1501	0.10
3										0.81	2.38	5.87	0.01	0.02	0.02	961	0.07
4										1	5	10.35	0	0.48	0.45	1654	0
6														3.18	0.69		
Total Daily Emissions, Demolition (Scope Item 6)										3.67	14.66	30.06	0.05	3.73	1.20	4810	0.24

Notes and Assumptions

Table 1.1-11 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity With Mitigation

Phase 1e - Construct Buildings and Canopies

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates								
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	
1	Crane	Offroad	190	2012	1	8	1520	180	lb/hr	6.2E-02	2.2E-01	5.4E-01	6.7E-04	1.8E-03	1.7E-03	68	5.6E-03	
2	Generator	Offroad	300	2012	1	8	2400	180	lb/hr	1.2E-01	4.6E-01	1.5E+00	2.0E-03	4.9E-03	4.5E-03	202	1.1E-02	
3	Flat bed Truck	Onroad	300	2012	1	8	2400	180	lb/mile, lb/hr	2.8E-03	1.2E-02	7.9E-01	4.0E-05	6.6E-03	6.1E-03	4	1.1E-05	
4	Concrete Truck	Onroad	425	2012	4	8	13600	50	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03	4	1.1E-05	
5	Concrete Trucks	Onroad	425	2012	1	8	3400	3	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03	4	1.1E-05	
6	Backhoe	Offroad	160	2012	1	8	1280	21	lb/hr	9.7E-02	5.4E-01	5.8E-01	1.0E-03	1.9E-03	1.8E-03	93	8.7E-03	
7	Lift	Offroad	700	2012	1	8	5600	180	lb/hr	2.2E-01	8.3E-01	2.1E+00	3.6E-03	7.1E-03	6.5E-03	359	2.0E-02	
8	Pickup Truck	Onroad	0	2012	3	8	0	360	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05	1	3.9E-05	
9	Fugitive Emissions	Fugitive	0	2012	0	0	0	0	lb/day					17.22	3.76			
10	Concrete/Industrial Saw	Offroad	84	2012	1	8	672	66	lb/hr	8.1E-02	3.4E-01	4.7E-01	6.1E-04	1.4E-03	1.2E-03	52	7.3E-03	
11	Rough Terrain Forklift	Offroad	94	2012	1	8	752	66	lb/hr	8.1E-02	3.4E-01	4.4E-01	5.7E-04	1.2E-03	1.1E-03	49	7.3E-03	
12	Other Equipment	Offroad	190	2012	1	8	1520	66	lb/hr	5.8E-02	2.1E-01	6.3E-01	9.5E-04	2.6E-03	2.4E-03	97	5.2E-03	
13	Supply Trucks	Onroad	300	2012	1	8	2400	5	lb/mile, lb/hr	2.8E-03	1.2E-02	7.9E-01	4.0E-05	6.6E-03	6.1E-03	4	1.1E-05	
14	Excavator	Offroad	428	2012	1	8	3424	21	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	5.4E-03	4.9E-03	200	1.4E-02	
15	Loader	Offroad	215	2012	1	8	1720	21	lb/hr	1.1E-01	3.3E-01	7.8E-01	1.4E-03	2.6E-03	2.4E-03	128	1.0E-02	
16	Dump Truck	Onroad	310	2012	2	8	4960	21	lb/mile, lb/hr	2.8E-03	1.2E-02	1.4E+00	4.0E-05	6.8E-02	6.3E-02	4	1.1E-05	
										Daily Emissions After Mitigation (lb/day)								
Notes and Assumptions										No								
										1	0.50	1.73	4.32	0.01	0.01	0.01	548	0.04
										2	0.94	3.66	11.75	0.02	0.04	0.04	1617	0.08
										3	0.57	2.52	5.80	0.01	0.05	0.05	826	0.00
										4	1.12	4.95	11.45	0.02	0.30	0.28	1646	0.00
										5	0.72	3.33	6.71	0.01	0.07	0.07	913	0.01
										6	0.77	4.29	4.66	0.01	0.02	0.01	742	0.07
										7	1.78	6.67	17.04	0.03	0.06	0.05	2873	0.16
										8	0.31	3.15	0.30	0.01	0.05	0.05	586	0.02
										9					17.22	3.76		
										10	0.65	2.73	3.79	0.00	0.01	0.01	415	0.06
										11	0.65	2.73	3.48	0.00	0.01	0.01	391	0.06
										12	0.46	1.65	5.04	0.01	0.02	0.02	773	0.04
										13	1.14	5.03	6.34	0.02	0.05	0.05	1651	0.01
										14	1.24	3.76	11.03	0.02	0.04	0.04	1601	0.11
										15	0.92	2.64	6.26	0.01	0.02	0.02	1025	0.08
										16	1.13	4.97	11.50	0.02	0.52	0.49	1647	0.00
Total Daily Emissions, Building Construction (Items 7 and 8)										12.88	53.82	109.46	0.17	18.51	4.95	17253	0.76	

Table 1.1-11 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity With Mitigation

Phase 1f - Expand Reefer Area

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Excavator	Offroad	428	2012	1	8	3424	30	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	5.4E-03	4.9E-03	200	1.4E-02
2	Paver	Offroad	200	2012	1	8	1600	20	lb/hr	1.7E-01	5.1E-01	8.2E-01	1.7E-03	2.7E-03	2.5E-03	155	1.6E-02
3	Roller	Offroad	165	2012	1	8	1320	20	lb/hr	1.2E-01	5.9E-01	6.1E-01	1.1E-03	2.0E-03	1.9E-03	102	1.1E-02
4	Loader	Offroad	215	2012	1	8	1720	30	lb/hr	1.1E-01	3.3E-01	7.8E-01	1.4E-03	2.6E-03	2.4E-03	128	1.0E-02
5	5-Ton End Dump	Onroad	310	2012	3	8	7440	30	lb/mile, lb/hr	2.8E-03	1.2E-02	1.4E+00	4.0E-05	6.8E-02	6.3E-02	4	1.1E-05
6	Striping Equipment	Offroad	5	2012	1	8	40	14	lb/hr	3.9E-03	2.1E-02	2.5E-02	5.2E-05	9.5E-04	8.7E-04	3	3.5E-04
7	Cold Plane Equipment	Offroad	750	2012	1	8	6000	14	lb/hr	5.8E-01	2.2E+00	3.6E+00	5.6E-03	1.2E-02	1.1E-02	555	5.2E-02
8	Backhoe	Offroad	160	2012	2	8	2560	60	lb/hr	9.7E-02	5.4E-01	5.8E-01	1.0E-03	1.9E-03	1.8E-03	93	8.7E-03
9	Concrete Truck	Onroad	425	2012	2	8	6800	10	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03	4	1.1E-05
10	Fugitive Emissions	Fugitive	0	2012	0	0	0	0	lb/day					6.28	1.37		
No										Daily Emissions After Mitigation (lb/day)							
1										1.24	3.76	11.03	0.02	0.04	0.04	1601	0.11
2										1.40	4.07	6.56	0.01	0.02	0.02	1244	0.13
3										1.00	4.69	4.89	0.01	0.02	0.01	816	0.09
4										0.92	2.64	6.26	0.01	0.02	0.02	1025	0.08
5										1.68	7.42	17.19	0.02	0.79	0.73	2468	0.01
6										0.03	0.16	0.20	0.00	0.01	0.01	27	0.00
7										4.62	17.90	28.57	0.04	0.10	0.09	4442	0.42
8										1.55	8.58	9.31	0.02	0.03	0.03	1483	0.14
9										0.57	2.50	5.76	0.01	0.15	0.14	825	0.00
10														6.28	1.37		
Total Daily Emissions, Expand Reefer Area (Item 15)										12.99	51.74	89.77	0.14	7.45	2.45	13930	0.98

Notes and Assumptions

Striping Equipment assumed to be a walk-behind, parking lot striper

Phase 1g - Utility Infrastructure

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Excavator	Offroad	428	2012	1	8	3424	45	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	5.4E-03	4.9E-03	200	1.4E-02
2	Backhoe	Offroad	160	2012	1	8	1280	45	lb/hr	9.7E-02	5.4E-01	5.8E-01	1.0E-03	1.9E-03	1.8E-03	93	8.7E-03
3	Crane	Offroad	350	2012	1	8	2800	45	lb/hr	1.1E-01	4.0E-01	1.0E+00	1.2E-03	3.3E-03	3.1E-03	126	1.0E-02
4	Lift	Offroad	700	2012	1	8	5600	45	lb/hr	2.2E-01	8.3E-01	2.1E+00	3.6E-03	7.1E-03	6.5E-03	359	2.0E-02
5	Fugitive Emissions	Fugitive	0	2012	0	0	0	0	lb/day					7.2E-02	7.2E-03		
No										Daily Emissions After Mitigation (lb/day)							
1										1.24	3.76	11.03	0.02	0.04	0.04	1601	0.11
2										0.77	4.29	4.66	0.01	0.02	0.01	742	0.07
3										0.92	3.19	7.96	0.01	0.03	0.02	1009	0.08
4										1.78	6.67	17.04	0.03	0.06	0.05	2873	0.16
5														0.07	0.01		
Total Daily Emissions, Utility Infrastructure (Item 16)										4.70	17.91	40.69	0.06	0.21	0.14	6224	0.42

Notes and Assumptions

Table 1.1-11 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity With Mitigation

Phase 1h - Crane Installation

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates									
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4		
1	Crane - 50 ton	Offroad	330	2012	2	8	5280	2	lb/hr	1.1E-01	3.8E-01	9.4E-01	1.2E-03	3.1E-03	2.9E-03	119	9.7E-03		
2	Winch	Offroad	305	2012	1	4	1220	2	lb/hr	1.2E-01	3.4E-01	1.0E+00	1.3E-03	3.4E-03	3.2E-03	132	9.1E-03		
3	General Cargo Ship + Tugboat A	Marine	0	2012	1	4	0	2	lb/hr	6.17	14.87	50.89	3.18	6.78	6.24	3280	0.18		
4	General Cargo Ship - Hotelling	Marine	6938	2012	1	24	166507	7	lb/hr	1.55	1.38	12.48	1.00	2.07	1.90	587	0.04		
5	Fugitive Emissions	Fugitive	0	2012	0	0	0	0	lb/day					0.00	0.00				
Notes and Assumptions										Daily Emissions After Mitigation (lb/day)									
General Cargo Ship maneuvering emissions include 2 tugboat assists.										No	1	1.73	6.01	15.02	0.02	0.05	0.05	1902	0.16
Ships and equipment are based on China Shipping project										2	0.48	1.37	4.12	0.01	0.01	0.01	527	0.04	
Arrival and departure occur on separate days for hotelling ship										3	24.68	59.48	203.56	12.71	27.12	24.95	13119	0.73	
Four new shore-side A-Frame crane will delivered via one ship. Arrival and departure on separate days.										4	37.18	33.05	299.55	23.96	49.58	45.61	14089	1.03	
										5					0.00	0.00			
Total Daily Emissions, Crane Installation (Item 4)											64.07	99.91	522.23	36.70	76.76	70.62	29637	1.95	

Phase 2a - Grading, Paving and Striping

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates									
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4		
1	Excavator	Offroad	428	2012	1	8	3424	30	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	5.4E-03	4.9E-03	200	1.4E-02		
2	Paver	Offroad	200	2012	1	8	1600	30	lb/hr	1.7E-01	5.1E-01	8.2E-01	1.7E-03	2.7E-03	2.5E-03	155	1.6E-02		
3	Roller	Offroad	165	2012	1	8	1320	30	lb/hr	1.2E-01	5.9E-01	6.1E-01	1.1E-03	2.0E-03	1.9E-03	102	1.1E-02		
4	Loader	Offroad	215	2012	1	8	1720	40	lb/hr	1.1E-01	3.3E-01	7.8E-01	1.4E-03	2.6E-03	2.4E-03	128	1.0E-02		
5	10-Ton End Dump	Onroad	350	2012	3	8	8400	30	lb/mile, lb/hr	2.8E-03	1.2E-02	1.5E+00	4.0E-05	7.7E-02	7.1E-02	4	1.1E-05		
6	Striping Equipment	Offroad	5	2012	1	8	40	10	lb/hr	3.9E-03	2.1E-02	2.5E-02	5.2E-05	9.5E-04	8.7E-04	3	3.5E-04		
7	Cold Plane Equipment	Offroad	750	2012	1	8	6000	5	lb/mile	5.8E-01	2.2E+00	3.6E+00	5.6E-03	1.2E-02	1.1E-02	555	5.2E-02		
8	Concrete Truck	Onroad	425	2012	5	8	17000	10	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03	4	1.1E-05		
9	Fugitive Emissions	Fugitive	0	2012	0	0	0	0	lb/day					8.68	1.88				
Notes and Assumptions										Daily Emissions After Mitigation (lb/day)									
Striping Equipment assumed to be a walk-behind, parking lot striper										No	1	1.24	3.76	11.03	0.02	0.04	0.04	1601	0.11
										2	1.40	4.07	6.56	0.01	0.02	0.02	1244	0.13	
										3	1.00	4.69	4.89	0.01	0.02	0.01	816	0.09	
										4	0.92	2.64	6.26	0.01	0.02	0.02	1025	0.08	
										5	1.68	7.42	17.19	0.02	0.79	0.73	2468	0.01	
										6	0.03	0.16	0.20	0.00	0.01	0.01	27	0.00	
										7	4.62	17.90	28.57	0.04	0.10	0.09	4442	0.42	
										8	1.40	6.18	14.30	0.02	0.37	0.34	2057	0.01	
										9					8.68	1.88			
Total Daily Emissions, Grading, Paving and Striping (Items 11-14)											12.28	46.83	89.00	0.14	10.05	3.14	13679	0.84	

Table 1.1-11 Proposed Project (and Alternatives 5 and 6) Construction Emissions by Activity With Mitigation

All Phases - Worker Commutes

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates								
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	
1	Worker Vehicle	Onroad		2012	50	8	-	500	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05	1	3.9E-05	
2	Fugitive Emissions	Fugitive		2012					lb/day					15.52	3.39			
No										Daily Emissions After Mitigation (lb/day)								
										1	1.0237	10.5156	1.0157	0.0190	0.1688	0.1561	1954	0.0784
										2					15.52	3.39		
Total Daily Emissions, Worker Commutes										1.02	10.52	1.02	0.02	15.69	3.55	1954	0.08	

Notes and Assumptions

Equipment list, activity level, project phases and scope items provided by the Port of LA and posted to the CDM eRoom on December 15, 2009 "B306 Equipment List.xls".

These were revised by Port of LA via email "APL DEIR Construction Comments 8-17-2010.xls"

All activities of the phase are assumed to occur simultaneously.

Activities are assumed to be spread evenly over their entire duration.

All Phases - Worker Commutes for the NEPA Baseline

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates								
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	
1	Worker Vehicle	Onroad		2012	50	8	-	188	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05	9.8E-01	3.9E-05	
2	Fugitive Emissions	Fugitive		2012					lb/day					15.52	3.39			
No										Daily Emissions Before Mitigation (lb/day)								
										1	1.02	10.52	1.02	0.02	0.17	0.16	1953.69	0.08
										2					15.52	3.39		
Total Daily Emissions, Worker Commutes										1.02	10.52	1.02	0.02	15.69	3.55	1954	0.08	

(Time = 3 quarters out of 8 for the PP)

Table 1.1-12 Proposed Project Construction Peak Daily Emissions Summaries for NOx With Mitigation
NOx Maximum Daily Emissions (lb/day)

Project Phase	Construction Schedule	YEAR 1 (2012)				YEAR 2 (2013)			
		QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4
1a	B306 Dredging (20,000cy)	334.45							
1a	B306 New Wharf (1250lf)			334.45	334.45	334.45	334.45	334.45	334.45
1c	B306 AMP								41.58
1h	B302-306 New Cranes (4 total)		522.23						
1b	RB305-306 Backland (40 acres)				218.31	218.31	218.31	218.31	218.31
1b	RB301 Redevelop Backland (9 acres of former LAXT conveyor and bkld)	218.31	218.31	218.31					
2	Modify Earle Street Gate to 6-inbound lanes of full tractor/trailer use	89.00							
1e	Construct Roadability/Gen Set building and canopies (2) (size TBD)	109.46	109.46	109.46	109.46	109.46	109.46		
1e	Construct 2-story expansion to Power Shop Bldg								
2	Main Gate-New Outbound lanes at 2-ac dirt area					89.00			
2	Main Gate - Modify existing outbound lanes to inbound						89.00		
2	Modify Terminal Entrance lanes							89.00	
1g	Various utility infrastructure (LP relocation, etc)	40.69	40.69	40.69					
1f	Expand reefer area	89.77	89.77						
1d	Demolish Roadability Canopy and building							30.06	30.06
All	Worker Commute	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Total		883	981	704	663	752	752	673	625

Activities are assumed to be spread evenly over their entire duration.

Summaries assume all equipment for a phase is running on the same day.

Peak day construction emissions for Alternatives 5 and 6 are the same as for the proposed Project

Table 1.1-13 Proposed Project Construction Peak Daily Emissions Summaries for PM10 With Mitigation
 PM10 Maximum Daily Emissions (lb/day)

Project Phase	Construction Schedule	YEAR 1 (2012)				YEAR 2 (2013)			
		QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4
1a	B306 Dredging (20,000cy)	86.00							
1a	B306 New Wharf (1250lf)			86.00	86.00	86.00	86.00	86.00	86.00
1c	B306 AMP								5.09
1h	B302-306 New Cranes (4 total)		76.76						
1b	RB305-306 Backland (40 acres)				39.33	39.33	39.33	39.33	39.33
1b	RB301 Redevelop Backland (9 acres of former LAXT conveyor and bkld)	39.33	39.33	39.33					
2	Modify Earle Street Gate to 6-inbound lanes of full tractor/trailer use	10.05							
1e	Construct Roadability/Gen Set building and canopies (2) (size TBD)	18.51	18.51	18.51	18.51	18.51	18.51		
1e	Construct 2-story expansion to Power Shop Bldg								
2	Main Gate-New Outbound lanes at 2-ac dirt area					10.05			
2	Main Gate - Modify existing outbound lanes to inbound						10.05		
2	Modify Terminal Entrance lanes							10.05	
1g	Various utility infrastructure (LP relocation, etc)	0.21	0.21	0.21					
1f	Expand reefer area	7.45	7.45						
1d	Demolish Roadability Canopy and building							3.73	3.73
All	Worker Commute	15.69	15.69	15.69	15.69	15.69	15.69	15.69	15.69
Total		177	158	160	160	170	170	155	150

Activities are assumed to be spread evenly over their entire duration.

Summaries assume all equipment for a phase is running on the same day.

Peak day construction emissions for Alternatives 5 and 6 are the same as for the proposed Project

Table 1.1-14 Proposed Project Construction Peak Daily Emissions Summaries for PM2.5 With Mitigation
PM2.5 Maximum Daily Emissions (lb/day)

Project Phase	Construction Schedule	YEAR 1 (2012)				YEAR 2 (2013)			
		QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4
1a	B306 Dredging (20,000cy)	21.10							
1a	B306 New Wharf (1250lf)			21.10	21.10	21.10	21.10	21.10	21.10
1c	B306 AMP								1.42
1h	B302-306 New Cranes (4 total)		70.62						
1b	RB305-306 Backland (40 acres)				9.44	9.44	9.44	9.44	9.44
1b	RB301 Redevelop Backland (9 acres of former LAXT conveyor and bkld)	9.44	9.44	9.44					
2	Modify Earle Street Gate to 6-inbound lanes of full tractor/trailer use	3.14							
1e	Construct Roadability/Gen Set building and canopies (2) (size TBD)	4.95	4.95	4.95	4.95	4.95	4.95		
1e	Construct 2-story expansion to Power Shop Bldg								
2	Main Gate-New Outbound lanes at 2-ac dirt area					3.14			
2	Main Gate - Modify existing outbound lanes to inbound						3.14		
2	Modify Terminal Entrance lanes							3.14	
1g	Various utility infrastructure (LP relocation, etc)	0.14	0.14	0.14					
1f	Expand reefer area	2.45	2.45						
1d	Demolish Roadability Canopy and building							1.20	1.20
All	Worker Commute	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55
Total		45	91	39	39	42	42	38	37

Activities are assumed to be spread evenly over their entire duration.

Summaries assume all equipment for a phase is running on the same day.

Peak day construction emissions for Alternatives 5 and 6 are the same as for the proposed Project

Table 1.1-15 Proposed Project Construction Peak Daily Emissions Summaries for CO With Mitigation
 CO Maximum Daily Emissions (lb/day)

Project Phase	Construction Schedule	YEAR 1 (2012)				YEAR 2 (2013)			
		QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4
1a	B306 Dredging (20,000cy)	259.93							
1a	B306 New Wharf (1250lf)			259.93	259.93	259.93	259.93	259.93	259.93
1c	B306 AMP								19.99
1h	B302-306 New Cranes (4 total)		99.91						
1b	RB305-306 Backland (40 acres)				152.17	152.17	152.17	152.17	152.17
1b	RB301 Redevelop Backland (9 acres of former LAXT conveyor and bkld)	152.17	152.17	152.17					
2	Modify Earle Street Gate to 6-inbound lanes of full tractor/trailer use	46.83							
1e	Construct Roadability/Gen Set building and canopies (2) (size TBD)	53.82	53.82	53.82	53.82	53.82	53.82		
1e	Construct 2-story expansion to Power Shop Bldg								
2	Main Gate-New Outbound lanes at 2-ac dirt area					46.83			
2	Main Gate - Modify existing outbound lanes to inbound						46.83		
2	Modify Terminal Entrance lanes							46.83	
1g	Various utility infrastructure (LP relocation, etc)	17.91	17.91	17.91					
1f	Expand reefer area	51.74	51.74						
1d	Demolish Roadability Canopy and building							14.66	14.66
All	Worker Commute	10.52	10.52	10.52	10.52	10.52	10.52	10.52	10.52
Total		593	386	494	476	523	523	484	457

Activities are assumed to be spread evenly over their entire duration.

Summaries assume all equipment for a phase is running on the same day.

Peak day construction emissions for Alternatives 5 and 6 are the same as for the proposed Project

Table 1.1-17 Proposed Project Future Construction Emissions for Implementation of Automated Backlands

Phase 3 - Complete Infrastructure for Automated Backlands

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Excavator	Offroad	428	2020	1	4	1,712	30	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	4.9E-02	4.5E-02	200	1.4E-02
2	Paver	Offroad	200	2020	1	4	800	20	lb/hr	1.7E-01	5.1E-01	1.7E+00	1.7E-03	6.5E-02	6.0E-02	155	1.6E-02
3	Roller	Offroad	165	2020	1	4	660	20	lb/hr	1.2E-01	5.9E-01	1.0E+00	1.1E-03	5.6E-02	5.1E-02	102	1.1E-02
4	Loader	Offroad	215	2020	1	4	860	30	lb/hr	1.1E-01	3.3E-01	1.1E+00	1.4E-03	4.0E-02	3.7E-02	128	1.0E-02
5	5-Ton End Dump	Onroad	310	2020	1	4	1,240	30	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
6	Striping Equipment	Offroad	5	2020	1	4	20	14	lb/hr	3.9E-03	2.1E-02	2.5E-02	5.2E-05	9.5E-04	8.7E-04	3	3.5E-04
7	Cold Plane Equipment	Offroad	750	2020	1	2	1,500	14	lb/hr	5.8E-01	2.2E+00	5.3E+00	5.6E-03	2.1E-01	1.9E-01	555	5.2E-02
8	Backhoe	Offroad	160	2020	1	4	640	60	lb/hr	9.7E-02	5.4E-01	7.6E-01	1.0E-03	4.4E-02	4.0E-02	93	8.7E-03
9	Concrete Truck	Onroad	425	2020	1	4	1,700	10	lb/mile	2.8E-03	1.2E-02	2.8E-02	4.0E-05	1.3E-03	1.2E-03	4	1.1E-05
10	Fugitive Emissions	Fugitive		2020					lb/day					6.49	1.39		
No										Daily Emissions Before Mitigation (lb/day)							
1										0.62	1.88	5.52	0.01	0.20	0.18	800	0.06
2										0.70	2.04	6.62	0.01	0.26	0.24	622	0.06
3										0.50	2.35	4.04	0.00	0.22	0.21	408	0.04
4										0.46	1.32	4.52	0.01	0.16	0.15	512	0.04
5										1.69	7.48	17.19	0.02	0.79	0.73	2473	0.01
6										0.02	0.08	0.10	0.00	0.00	0.00	13	0.00
7										1.16	4.48	10.65	0.01	0.42	0.38	1111	0.10
8										0.39	2.15	3.03	0.00	0.17	0.16	371	0.03
9										0.57	2.53	5.76	0.01	0.26	0.24	827	0.00
10														6.49	1.39		
Total Daily Emissions, Complete Infrastructure for Automated Backlands										6.10	24.30	57.43	0.07	8.98	3.68	7137	0.36

Phase 3 - Equipment Deliveries

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Crane - 50 ton	Offroad	330	2020	1	4	1,320	2	lb/hr	1.1E-01	3.8E-01	1.0E+00	1.2E-03	3.8E-02	3.5E-02	119	9.7E-03
2	Winch	Offroad	305	2020	1	4	1,220	2	lb/hr	1.2E-01	3.4E-01	1.1E+00	1.3E-03	3.7E-02	3.4E-02	132	9.1E-03
3	General Cargo Ship + Tugboat A	Marine		2020	1	4	-	2	lb/hr	7.3	14.9	80.8	3.2	8.2	7.5	3280	0.2
4	General Cargo Ship - Hotelling	Marine	12,466	2020	1	20	249,330	2	lb/hr	1.5	1.4	12.5	1.0	2.1	1.9	587	0.0
5	Fugitive Emissions	Fugitive		2020					lb/day					0.0000	0.0000		
Notes and Assumptions										Daily Emissions Before Mitigation (lb/day)							
1										0.43	1.50	4.05	0.00	0.15	0.14	475	0.04
2										0.48	1.37	4.30	0.01	0.15	0.14	527	0.04
3										29.21	59.48	323.20	12.71	32.65	30.04	13119	0.73
4										30.99	27.54	249.62	19.97	41.32	38.01	11741	0.86
5														0.00	0.00		
Total Daily Emissions, Equipment Deliveries										61.11	89.90	581.16	32.69	74.27	68.32	25862	1.66

All Phases - Worker Commutes for the Proposed Project

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
1	Worker Vehicle	Onroad		2020	50	8	-	500	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05	9.8E-01	3.9E-05
2	Fugitive Emissions	Fugitive		2020					lb/day					15.52	3.39		
No										Daily Emissions Before Mitigation (lb/day)							
1										1.02	10.52	1.02	0.02	0.17	0.16	1953.69	0.08
2														15.52	3.39		
Total Daily Emissions, Worker Commutes										1.02	10.52	1.02	0.02	15.69	3.55	1954	0.08

Peak Daily Emissions, Future Implementation of Automated Backlands, lbs/day	68.23	124.72	639.60	32.78	83.41	72.16	34,952	2.10
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Table 1.1-18 Alternative 2 Construction Emissions by Activity Without Mitigation

Summary of Daily Construction Emissions Before Mitigation ⁽¹⁾

Construction Phases	Emissions (lb/day)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Phase 1a (Wharf Construction) —Scope Item 1 Construct approx. 1250 LF of wharf (Berth 306) —Scope Item 2 Dredge approx. 20,000 cu.yd. at new wharf (Berth 306)								
Phase 1b (Backland Construction) —Scope Item 9 Develop 40-acre backland (Rear Berths 305-306) —Scope Item 10 Redevelop 9 acres of former LAXT conveyor and backland at Berth 301								
Phase 1c (AMP Installation) —Scope Item 5 Install AMP (Berths 302-306)								
Phase 1d (Demolition) —Scope Item 6 Demolish Roadability canopy and building								
Phase 1e (Building Construction) —Scope Item 7 Construct Roadability/Gen Set building and 2 canopies ⁽²⁾ —Scope Item 8 Construct a 3-story expansion to the Power Shop Building ⁽³⁾								
Phase 1f (Reefer Area Expansion) Scope Item 15 - Expand reefer area	13.01	51.83	119.27	0.14	11.59	6.08	13,937	0.98
Phase 1g (Utility Infrastructure) Scope Item 16 - Light pole relocation, utilities for "Meet & Greet Booth", others	4.70	17.91	48.68	0.06	2.02	1.63	6,224	0.42
Phase 1h (Cranes Installation) —Scope Item 4 Install up to 12 cranes (Berths 302-306) ⁽⁴⁾								
Phase 2 (Grading, Paving, Striping) —Scope Item 11 Construct new Outbound lanes at 2 ac dirt area northeast of Main Gate —Scope Item 12 Modify Main Gate (switch existing outbound lanes to inbound) —Scope Item 13 Modify Terminal Entrance lanes —Scope Item 14 Modify Earle Street Gate for 6 inbound lanes of full tractor/trailer use								
All Phases Worker Commute	1.02	10.52	1.02	0.02	0.17	0.16	1,954	0.08
Total Project lbs/day	19	80	169	0	14	8	22,114	1

Notes and Assumptions

⁽¹⁾ Daily emissions are assumed evenly distributed over the specified quarters

Table 1.1-19 Alternative 2 Construction Peak Daily Emissions Summaries Without Mitigation

Year	Quarter	Maximum Daily Emissions Before Mitigation (lb/day)							
		VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
2012	Quarter 1	19	80	169	0	14	8	22,114	1.48
	Quarter 2	19	80	169	0	14	8	22,114	1.48
	Quarter 3	6	28	50	0	2	2	8,177	0.50
	Quarter 4	-	-	-	-	-	-	-	-
2013	Quarter 1	1	11	1	0	0	0	1,954	0.08
	Quarter 2	1	11	1	0	0	0	1,954	0.08
	Quarter 3	1	11	1	0	0	0	1,954	0.08
	Quarter 4	-	-	-	-	-	-	-	-

Table 1.1-20 Alternative 2 Construction Emissions by Activity With Mitigation

Summary of Daily Construction Emissions After Mitigation ⁽¹⁾

Construction Phases	Emissions (lb/day)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Phase 1a (Wharf Construction) — Scope Item 1 – Construct approx. 1250 LF of wharf (Berth 306) — Scope Item 2 – Dredge approx. 20,000 cu.yd. at new wharf (Berth 306)								
Phase 1b (Backland Construction) — Scope Item 9 – Develop 40-acre backland (Rear Berths 305-306) — Scope Item 10 – Redevelop 9 acres of former LAXT conveyor and backland at Berth 301								
Phase 1c (AMP Installation) — Scope Item 5 – Install AMP (Berths 302-306)								
Phase 1d (Demolition) — Scope Item 6 – Demolish Roadability canopy and building								
Phase 1e (Building Construction) — Scope Item 7 – Construct Roadability/Gen Set building and 2 canopies ⁽²⁾ — Scope Item 8 – Construct a 3-story expansion to the Power Shop Building ⁽³⁾								
Phase 1f (Reefer Area Expansion) Scope Item 15 - Expand reefer area	12.99	51.74	89.77	0.14	7.45	2.45	13,930	0.98
Phase 1g (Utility Infrastructure) Scope Item 16 - Light pole relocation, utilities for "Meet & Greet Booth", others	4.70	17.91	40.69	0.06	0.21	0.14	6,224	0.42
Phase 1h (Cranes Installation) — Scope Item 4 – Install up to 12 cranes (Berths 302-306) ⁽⁴⁾								
Phase 2 (Grading, Paving, Striping) — Scope Item 11 – Construct new Outbound lanes at 2 ac dirt area northeast of Main Gate — Scope Item 12 – Modify Main Gate (switch existing outbound lanes to inbound) — Scope Item 13 – Modify Terminal Entrance lanes — Scope Item 14 – Modify Earle Street Gate for 6 inbound lanes of full tractor/trailer use								
All Phases Worker Commute	1.02	10.52	1.02	0.02	15.69	3.55	1,954	0.08
Total Project lbs/day	19	80	131	0	23	6	22,108	1

Notes and Assumptions

⁽¹⁾ Daily emissions are assumed evenly distributed over the specified quarter.

⁽²⁾ Pending size determination of Roadability/Gen Set building and canopies

⁽³⁾ Pending size determination of Power Shop Building.

⁽⁴⁾ Pending verification of required equipment (not included in the B306 Equipment List.xls file). It was assumed that the same equipment used for cranes installation in the China Shipping project will apply

Table 1.1-21 Alternative 2 Construction Peak Daily Emissions Summaries Without Mitigation

Year	Quarter	Maximum Daily Emissions Before Mitigation (lb/day)							
		VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
2012	Quarter 1	19	80	131	0	23	6	22,108	1.48
	Quarter 2	19	80	131	0	23	6	22,108	1.48
	Quarter 3	6	28	42	0	16	4	8,177	0.50
	Quarter 4	-	-	-	-	-	-	-	-
2013	Quarter 1	1	11	1	0	16	4	1,954	0.08
	Quarter 2	1	11	1	0	16	4	1,954	0.08
	Quarter 3	1	11	1	0	16	4	1,954	0.08
	Quarter 4	-	-	-	-	-	-	-	-

Table 1.1-22 Alternative 3 Construction Emissions by Activity Without Mitigation
Summary of Daily Construction Emissions Before Mitigation ⁽¹⁾

Construction Phases	Emissions (lb/day)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Phase 1a (Wharf Construction) — Scope Item 1 — Construct approx. 1250 LF of wharf (Berth 306) — Scope Item 2 — Dredge approx. 20,000 cu.yd. at new wharf (Berth 306)								
Phase 1b (Backland Construction) — Scope Item 9 — Develop 40-acre backland (Rear Berths 305-306) — Scope Item 10 — Redevelop 9 acres of former LAXT conveyor and backland at Berth 306								
Phase 1c (AMP Installation) — Scope Item 5 — Install AMP (Berths 302-306)								
Phase 1d (Demolition) — Scope Item 6 — Demolish Roadability canopy and building								
Phase 1e (Building Construction) — Scope Item 7 — Construct Roadability/Gen Set building and 2 canopies ⁽²⁾ — Scope Item 8 — Construct a 3-story expansion to the Power Shop Building ⁽³⁾								
Phase 1f (Reefer Area Expansion) Scope Item 15 - Expand reefer area	13.01	51.83	119.27	0.14	11.59	6.08	13,937	0.98
Phase 1g (Utility Infrastructure) Scope Item 16 - Light pole relocation, utilities for "Meet & Greet Booth", others	4.70	17.91	48.68	0.06	2.02	1.63	6,224	0.42
Phase 1h (Cranes Installation) Scope Item 4 - Install up to 12 cranes (Berths 302-306) ⁽⁴⁾	68.60	99.91	643.22	36.70	82.98	76.34	29,637	1.95
Phase 2 (Grading, Paving, Striping) — Scope Item 11 — Construct new Outbound lanes at 2 ac dirt area northeast of Main Gate — Scope Item 12 — Modify Main Gate (switch existing outbound lanes to inbound) — Scope Item 13 — Modify Terminal Entrance lanes — Scope Item 14 — Modify Earle Street Gate for 6 inbound lanes of full tractor/trailer use								
All Phases Worker Commute	1.02	10.52	1.02	0.02	15.69	3.55	1,954	0.08
Total Project lbs/day	87	180	812	37	112	88	51,751	3

Notes and Assumptions

- ⁽¹⁾ Daily emissions are assumed evenly distributed over the specified quarter;
- ⁽²⁾ Pending size determination of Roadability/Gen Set building and canopies
- ⁽³⁾ Pending size determination of Power Shop Building.
- ⁽⁴⁾ Pending verification of required equipment (not included in the *B306 Equipment List.xls* file). It was assumed that the same equipment used for cranes installation in the China Shipping project will apply

Table 1.1-23 Alternative 3 Construction Peak Daily Emissions Summaries Without Mitigation

Year	Quarter	Maximum Daily Emissions Before Mitigation (lb/day)							
		VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
2012	Quarter 1	19	80	169	0	29	11	22,114	1.48
	Quarter 2	87	180	812	37	112	88	51,751	3.43
	Quarter 3	6	28	50	0	18	5	8,177	0.50
	Quarter 4	-	-	-	-	-	-	-	-
2013	Quarter 1	1	11	1	0	16	4	1,954	0.08
	Quarter 2	1	11	1	0	16	4	1,954	0.08
	Quarter 3	1	11	1	0	16	4	1,954	0.08
	Quarter 4	-	-	-	-	-	-	-	-

Table 1.1-24 Alternative 3 Construction Emissions by Activity With Mitigation
Summary of Daily Construction Emissions After Mitigation ⁽¹⁾

Construction Phases	Emissions (lb/day)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Phase 1a (Wharf Construction) — Scope Item 1 – Construct approx. 1250 LF of wharf (Berth 306) — Scope Item 2 – Dredge approx. 20,000 cu.yd. at new wharf (Berth 306)								
Phase 1b (Backland Construction) — Scope Item 9 – Develop 40-acre backland (Rear Berths 305-306) — Scope Item 10 – Redevelop 9 acres of former LAXT conveyor and backland at Berth 306								
Phase 1c (AMP Installation) — Scope Item 5 – Install AMP (Berths 302-306)								
Phase 1d (Demolition) — Scope Item 6 – Demolish Roadability canopy and building								
Phase 1e (Building Construction) — Scope Item 7 – Construct Roadability/Gen Set building and 2 canopies ⁽²⁾ — Scope Item 8 – Construct a 3-story expansion to the Power Shop Building ⁽³⁾								
Phase 1f (Reefer Area Expansion) Scope Item 15 - Expand reefer area	12.99	51.74	89.77	0.14	7.45	2.45	13,930	0.98
Phase 1g (Utility Infrastructure) Scope Item 16 - Light pole relocation, utilities for "Meet & Greet Booth", others	4.70	17.91	40.69	0.06	0.21	0.14	6,224	0.42
Phase 1h (Cranes Installation) Scope Item 4 - Install up to 12 cranes (Berths 302-306) ⁽⁴⁾	64.07	99.91	522.23	36.70	76.76	70.62	29,637	1.95
Phase 2 (Grading, Paving, Striping) — Scope Item 11 – Construct new Outbound lanes at 2 ac dirt area northeast of Main Gate — Scope Item 12 – Modify Main Gate (switch existing outbound lanes to inbound) — Scope Item 13 – Modify Terminal Entrance lanes — Scope Item 14 – Modify Earle Street Gate for 6 inbound lanes of full tractor/trailer use								
All Phases Worker Commute	1.02	10.52	1.02	0.02	15.69	3.55	1,954	0.08
Total Project lbs/day	83	180	654	37	100	77	51,744	3

Notes and Assumptions

- ⁽¹⁾ Daily emissions are assumed evenly distributed over the specified quarter;
- ⁽²⁾ Pending size determination of Roadability/Gen Set building and canopies
- ⁽³⁾ Pending size determination of Power Shop Building.
- ⁽⁴⁾ Pending verification of required equipment (not included in the B306 Equipment List.xls file). It was assumed that the same equipment used for cranes installation in the China Shipping project will apply

Table 1.1-25 Alternative 3 Construction Peak Daily Emissions Summaries Without Mitigation

Year	Quarter	Maximum Daily Emissions After Mitigation (lb/day)							
		VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
2012	Quarter 1	19	80	131	0	23	6	22,108	1.48
	Quarter 2	83	180	654	37	100	77	51,744	3.43
	Quarter 3	6	28	42	0	16	4	8,177	0.50
	Quarter 4	-	-	-	-	-	-	-	-
2013	Quarter 1	1	11	1	0	16	4	1,954	0.08
	Quarter 2	1	11	1	0	16	4	1,954	0.08
	Quarter 3	1	11	1	0	16	4	1,954	0.08
	Quarter 4	-	-	-	-	-	-	-	-

Table 1.1-26 Alternative 4 Construction Emissions by Activity Without Mitigation

Summary of Daily Construction Emissions Before Mitigation ⁽¹⁾

Construction Phases	Emissions (lb/day)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Phase 1a (Wharf Construction) — Scope Item 1 - Construct approx. 1250 LF of wharf (Berth 306) — Scope Item 2 - Dredge approx. 20,000 cu.yd. at new wharf (Berth 306)								
Phase 1b (Backland Construction) Scope Item 9 - Develop 40-acre backland (Rear Berths 305-306) — Scope Item 10 - Redevelop 9 acres of former LAXT conveyor and backland at Berth 301	37.23	152.88	331.14	0.41	63.28	22.66	39,023	2.66
Phase 1c (AMP Installation) Scope Item 5 - Install AMP (Berths 306 only)	4.64	20.06	46.21	0.06	6.68	2.86	6,040	0.27
Phase 1d (Demolition) Scope Item 6 - Demolish Roadability canopy and building	3.68	14.73	32.93	0.05	4.77	1.98	4,815	0.24
Phase 1e (Building Construction) Scope Item 7 - Construct Roadability/Gen Set building and 2 canopies ⁽²⁾ Scope Item 8 - Construct a 3-story expansion to the Power Shop Building ⁽³⁾	12.96	54.31	126.91	0.17	22.77	8.70	17,286	0.76
Phase 1f (Reefer Area Expansion) Scope Item 15 - Expand reefer area	13.01	51.83	119.27	0.14	11.59	6.08	13,937	0.98
Phase 1g (Utility Infrastructure) Scope Item 16 - Light pole relocation, utilities for "Meet & Greet Booth", others	4.70	17.91	48.68	0.06	2.02	1.63	6,224	0.42
Phase 1h (Cranes Installation) Scope Item 4 - Install up to 12 cranes (Berths 302-306) ⁽⁴⁾	68.60	99.91	643.22	36.70	82.98	76.34	29,637	1.95
Phase 2 (Grading, Paving, Striping) Scope Item 11 - Construct new Outbound lanes at 2-ac dirt area northeast of Main Gate Scope Item 12 - Modify Main Gate (switch existing outbound lanes to inbound) Scope Item 13 - Modify Terminal Entrance lanes Scope Item 14 - Modify Earle Street Gate for 6-inbound lanes of full tractor/trailer use	12.30	46.92	115.68	0.14	13.90	6.34	13,685	0.84
All Phases Worker Commute	1.02	10.52	1.02	0.02	15.69	3.55	1,954	0.08
Total Project lbs/day	158	469	1,465	38	224	130	132,600	8

Notes and Assumptions

⁽¹⁾ Daily emissions are assumed evenly distributed over the specified quarters

⁽²⁾ Pending size determination of Roadability/Gen Set building and canopies.

⁽³⁾ Pending size determination of Power Shop Building.

⁽⁴⁾ Pending verification of required equipment (not included in the *B306 Equipment List.xls* file). It was assumed that the same equipment used for cranes installation in the China Shipping project will apply

Table 1.1-27 Alternative 4 Construction Peak Daily Emissions Summaries Without Mitigation

Year	Quarter	Maximum Daily Emissions Before Mitigation (lb/day)							
		VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
2012	Quarter 1	81.23	334.37	742.69	0.95	129.25	48.96	92,108	5.74
	Quarter 2	137.53	387.36	1,270.24	37.51	198.33	118.96	108,060	6.85
	Quarter 3	47.60	201.37	427.05	0.56	87.67	30.70	53,240	3.43
	Quarter 4	50.19	207.19	458.06	0.59	86.05	31.36	56,309	3.42
2013	Quarter 1	63.52	264.63	574.75	0.75	115.64	41.25	71,948	4.34
	Quarter 2	63.52	264.63	574.75	0.75	115.64	41.25	71,948	4.34
	Quarter 3	54.23	225.05	480.76	0.62	97.64	34.53	59,477	3.82
	Quarter 4	45.55	187.67	410.28	0.52	74.73	27.50	49,878	3.17

Table 1.1-28 Alternative 4 Construction Emissions by Activity With Mitigation

Summary of Daily Construction Emissions After Mitigation ⁽¹⁾

Construction Phases	Emissions (lb/day)							
	VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
Phase 1a (Wharf Construction) Scope Item 1 - Construct approx. 1250 LF of wharf (Berth 306) Scope Item 2 - Dredge approx. 20,000 cu.yd. at new wharf (Berth 306)								
Phase 1b (Backland Construction) Scope Item 9 - Develop 40-acre backland (Rear Berths 305-306) Scope Item 10 - Redevelop 9 acres of former LAXT conveyor and backland at Berth 301	37.15	152.17	218.31	0.41	39.33	9.44	38,992	2.65
Phase 1c (AMP Installation) Scope Item 5 - Install AMP (Berths 306 only)	4.63	19.99	41.58	0.06	5.09	1.42	6,035	0.27
Phase 1d (Demolition) Scope Item 6 - Demolish Roadability canopy and building	3.67	14.66	30.06	0.05	3.73	1.20	4,810	0.24
Phase 1e (Building Construction) Scope Item 7 - Construct Roadability/Gen Set building and 2 canopies ⁽²⁾ Scope Item 8 - Construct a 3-story expansion to the Power Shop Building ⁽³⁾	12.88	53.82	109.46	0.17	18.51	4.95	17,253	0.76
Phase 1f (Reefer Area Expansion) Scope Item 15 - Expand reefer area	12.99	51.74	89.77	0.14	7.45	2.45	13,930	0.98
Phase 1g (Utility Infrastructure) Scope Item 16 - Light pole relocation, utilities for "Meet & Greet Booth", others	4.70	17.91	40.69	0.06	0.21	0.14	6,224	0.42
Phase 1h (Cranes Installation) Scope Item 4 - Install up to 12 cranes (Berths 302-306) ⁽⁴⁾	64.07	99.91	522.23	36.70	76.76	70.62	29,637	1.95
Phase 2 (Grading, Paving, Striping) Scope Item 11 - Construct new Outbound lanes at 2-ac dirt area northeast of Main Gate Scope Item 12 - Modify Main Gate (switch existing outbound lanes to inbound) Scope Item 13 - Modify Terminal Entrance lanes Scope Item 14 - Modify Earle Street Gate for 6-inbound lanes of full tractor/trailer use	12.28	46.83	89.00	0.14	10.05	3.14	13,679	0.84
All Phases Worker Commute	1.02	10.52	1.02	0.02	15.69	3.55	1,954	0.08
Total Project lbs/day	153 75	468 550	1,142 100	38 150	177 150.00	97 55	132,514	8

Notes and Assumptions

⁽¹⁾ Daily emissions are assumed evenly distributed over the specified quarter:

⁽²⁾ Pending size determination of Roadability/Gen Set building and canopies

⁽³⁾ Pending size determination of Power Shop Building.

⁽⁴⁾ Pending verification of required equipment (not included in the B306 Equipment List.xls file). It was assumed that the same equipment used for cranes installation in the China Shipping project will apply

Table 1.1-29 Alternative 4 Construction Peak Daily Emissions Summaries Without Mitigation

Year	Quarter	Maximum Daily Emissions After Mitigation (lb/day)							
		VOC	CO	NOx	SOx	PM10	PM2.5	CO2	CH4
2012	Quarter 1	81.02	332.98	548.25	0.95	91.24	23.66	92,031	5.74
	Quarter 2	132.81	386.06	981.48	37.51	157.96	91.14	107,989	6.85
	Quarter 3	47.50	200.59	301.60	0.56	60.33	14.55	53,204	3.43
	Quarter 4	50.02	205.99	327.77	0.59	57.84	14.39	56,245	3.41
2013	Quarter 1	63.33	263.33	417.79	0.75	83.57	21.08	71,877	4.33
	Quarter 2	63.33	263.33	417.79	0.75	83.57	21.08	71,877	4.33
	Quarter 3	54.12	224.17	338.39	0.62	68.80	17.33	59,435	3.81
	Quarter 4	45.44	186.82	289.95	0.52	48.16	12.06	49,837	3.17

Table 1.1-30. Assist Tug Emission Factors

Assist Tugs	Main Engine (1934 HP)											Auxiliary Engine (149 HP)											
	Study Year	MY	Hrs	CO	ROG	NOx	SOx ⁴	PM	PM2.5	CO2	CH4	N2O	MY	Hrs	CO	ROG	NOx	SOx ⁴	PM	PM2.5	CO2	CH4	N2O
ZH (1995 MY) EF ¹				2.99	0.84	12.98	NA	0.50	0.46	486	0.017	0.023			2.78	0.81	8.17	NA	0.32	0.29	486	0.016	0.023
ZH (2013 MY) EF ¹				3.73	0.68	4.37	NA	0.10	0.09	486	0.017	0.023			3.73	0.81	3.80	NA	0.09	0.08	486	0.016	0.023
ULSD FCF ²				1.00	0.72	0.93	NA	0.72	0.72	1.00	1.000	1.000			1.00	0.72	0.95	NA	0.80	0.80	1.00	1.000	1.000
2011 FCF ³				0.00	0.00	0.95	NA	0.85	0.85	-	0.000	0.000			0.00	0.00	0.95	NA	0.85	0.85	-	0.000	0.000
2012	1995	24,446	3.60	0.82	14.12	0.01	0.56	0.51	486	0.016	0.021	1999	20,865	3.03	0.68	8.38	0.01	0.32	0.29	486	0.014	0.022	

Note: Emission factors in g/hp-hr.

(1) Zero hour emission factor from CARB, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B. Main engines are assumed to be replaced by 2013, auxiliary engines by 2014.

(2) Source: 2009 Port of LA Emissions Inventory, Table 4.8. Applied to emission factors pre-2011, except for CO2, CH4, and N2O to which it is assumed they do not apply.

(3) Source: CARB, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Table II-4.

Applied to engine model years newer than 2011.

(4) SOx (gms/hp-hr) = (S content in X/1,000,000) x (2 SO2/g S) x BSFC (184 g/hp-hr).

The sulfur content is assumed to be 15ppm per 13 CCR 2281(a).

(5) The CH4 emission factor is 2% of the ROG factor. Source: 2009 POLA EI.

Table 1.1-30. Assist Tug Emission Factors

g/kWh	
CO2	N2O
652	0.031

Methodology:

EF = ZH + (DR x cumulative hours)
DR = (DF x ZH) / cumulative hours at the end of useful life

Source: IVL, Methodology for Calculating Emissions from Ships: Update on Emission Factors."

Prepared by IVL Swedish Environmental Research Institute for the Swedish Environmental Protection Agency.

g/hp-hr	
CO2	N2O
486	0.023

0.746 kW/hp
0.92 PM2.5/PM10
CARB CEIDARS Profile 425 - Diesel Engine Exhaust

APPENDIX A COMMERCIAL HARBOR CRAFT EMISSION FACTOR TABLE											
HP Range	Model Year	Main Engine					Auxiliary Engine				
		CO	ROG	Nox	PM	PM2.5 ¹	CO	ROG	Nox	PM	PM2.5 ¹
121-175 hp	pre-1971	3.21	1.32	16.52	0.73	0.67	4.53	1.57	14	0.65	0.60
	1971-1978	3.21	1.1	15.34	0.63	0.58	4.53	1.31	13	0.55	0.51
	1979-1983	3.21	1	14.16	0.52	0.48	4.53	1.19	12	0.46	0.42
	1984-1986	3.14	0.94	12.98	0.52	0.48	4.43	1.12	11	0.46	0.42
	1987-1995	3.07	0.88	12.98	0.52	0.48	4.33	1.05	11	0.46	0.42
	1996-1999	1.97	0.68	9.64	0.36	0.33	2.78	0.81	8.17	0.32	0.29
	2000-2003	1.97	0.68	7.31	0.36	0.33	2.78	0.81	7.31	0.32	0.29
	2004-2012	3.73	0.68	5.1	0.22	0.20	3.73	0.81	5.1	0.22	0.20
1901-3300 hp	2013-2020	3.73	0.68	3.8	0.09	0.08	3.73	0.81	3.8	0.09	0.08
	pre-1971	3.07	1.26	16.52	0.7	0.64	4.33	1.5	14	0.62	0.57
	1971-1978	3.07	1.05	15.34	0.6	0.55	4.33	1.25	13	0.53	0.49
	1979-1983	3.07	0.95	14.16	0.5	0.46	4.33	1.13	12	0.45	0.41
	1984-1986	3.07	0.9	12.98	0.5	0.46	4.33	1.07	11	0.45	0.41
	1987-1998	2.99	0.84	12.98	0.5	0.46	4.22	1	11	0.45	0.41
	1999	1.97	0.68	9.64	0.36	0.33	2.78	0.81	8.17	0.32	0.29
	2000-2006	1.97	0.68	7.31	0.36	0.33	2.78	0.81	7.31	0.32	0.29
	2007-2012	3.73	0.68	5.53	0.2	0.18	3.73	0.81	5.53	0.2	0.18
	2013-2015	3.73	0.68	4.37	0.1	0.09	3.73	0.81	4.37	0.1	0.09
2016-2020	3.73	0.18	1.3	0.03	0.03	3.73	0.18	1.3	0.03	0.03	

Note: Emission factors in g/hp-hr.

Source: CARB, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B.

¹PM2.5 emission factors are derived from the PM emission factors using CARB CEIDARS Profile 425.

Table 4.1: Propulsion Engine Data by Vessel Category											
Harbor	Vessel	Engine	Model year			Horsepower			Annual Operating Hrs		
Vessel Type	Count	Count	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Assist tug	18	36	1967	2008	1995	750	2,400	1,934	600	2,415	1,438

Source: 2009 POLA EI, Table 4.1

Table 4.2: Auxiliary Engine Data by Vessel Category											
Harbor	Vessel	Engine	Model year			Horsepower			Annual Operating Hrs		
Vessel Type	Count	Count	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Assist tug	18	36	1967	2008	1998	115	425	149	172	3,025	1,605

Source: 2009 POLA EI, Table 4.2

Craft Diesel Engines				
HP Range	CO	HC	NOx	PM
25-50	0.41	0.51	0.06	0.31
51-250	0.16	0.28	0.14	0.44
>251	0.25	0.44	0.21	0.67

Source: 2009 POLA EI

Table 4.7: Useful Life by Vessel Type and Engine Type, years		
Vessel Type	Auxiliary Engines	Main Engines
Assist tug	23	21

Source: 2009 POLA EI

Table 4.8: Fuel Correction Factors for ULSD									
MY	CO	HC	NOx	SOx	PM	PM2.5 ¹	CO2	CH4	N2O
< 1995	1	0.72	0.93	0.043	0.72	0.72	1	0.72	0.93
1996+	1	0.72	0.95	0.043	0.8	0.8	1	0.72	0.95

Source: 2009 POLA EI

1. PM2.5 ULSD correction factor is assumed to be equivalent to the factor for PM.

Table II-4 Fuel Correction Factor				
Year	HP Range	MY	NOx	PM
1994-2006	<25	Pre-1995	0.93	0.75
	25-50	Pre-1999		
	51-100	Pre-1998		
	101-175	Pre-1997		
	176+	Pre-1996	0.948	0.822
	<25	1995+		
	25-50	1999-2010		
	51-100	1998-2010		
2007+	101-175	1997-2010	0.93	0.72
	176+	1996-2010		
	<25	1995+		
	25-50	1999-2010		
	51-100	1998-2010	0.948	0.800
	101-175	1997-2010		
	176+	1996-2010		
	All	2011+		

Source: CARB In-Use Harbor Craft Regulation

Table 1.1-31. Tugboat Emission Factors

Assist Tugs	Main Engine (702 HP)											Auxiliary Engine (50 HP)											
	Study Year	MY	Hrs	CO	ROG	NOx	SOx ⁴	PM	PM2.5	CO2	CH4 ⁵	N2O	MY	Hrs	CO	ROG	NOx	SOx ⁴	PM	PM2.5	CO2	CH4 ⁵	N2O
ZH (2001 MY) EF ¹				1.97	0.68	7.31	NA	0.36	0.33	486	0.014	0.023			1.97	0.68	7.31	NA	0.36	0.33	486	0.014	0.023
ULSD FCF ²				1.00	0.72	0.95	NA	0.80	0.80	1.00	1.000	1.000			1.00	0.72	0.95	NA	0.80	0.80	1.00	1.000	1.000
	2012	2001	7,612	2.18	0.58	7.56	0.01	0.37	0.34	486	0.012	0.021	2001	4,587	2.11	0.55	7.37	0.01	0.34	0.32	486	0.011	0.022

Note: Emission factors in g/hp-hr.

(1) Zero hour emission factor from CARB, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B. Main engines are assumed to be replaced by 2013, auxiliary engines by 2014.

(2) Source: 2009 Port of LA Emissions Inventory, Table 4.8. Applied to emission factors pre-2011, except for CO2, CH4, and N2O to which it is assumed they do not apply.

(4) SOx (gms/hp-hr) = (S content in X/1,000,000) x (2 SO2/g S) x BSFC (184 g/hp-hr).

The sulfur content is assumed to be 15ppm per 13 CCR 2281(a).

(5) The CH4 emission factor is 2% of the ROG factor. Source: 2009 POLA EI.

Table 1.1-31. Tugboat Emission Factors

g/kWh	
CO2	N2O
652	0.031

Methodology:

EF = ZH + (DR x cumulative hours)
DR = (DF x ZH) / cumulative hours at the end of useful life

Source: IVL, Methodology for Calculating Emissions from Ships: Update on Emission Factors."

Prepared by IVL Swedish Environmental Research Institute for the Swedish Environmental Protection Agency.

g/hp-hr	
CO2	N2O
486	0.023

0.746 kW/hp
0.92 PM2.5/PM10
CARB CEIDARS Profile 425 - Diesel Engine Exhaust

APPENDIX A COMMERCIAL HARBOR CRAFT EMISSION FACTOR TABLE

HP Range	Model Year	Main Engine					Auxiliary Engine				
		CO	ROG	Nox	PM	PM2.5 ¹	CO	ROG	Nox	PM	PM2.5 ¹
121-175 hp	pre-1971	3.21	1.32	16.52	0.73	0.67	4.53	1.57	14	0.65	0.60
	1971-1978	3.21	1.1	15.34	0.63	0.58	4.53	1.31	13	0.55	0.51
	1979-1983	3.21	1	14.16	0.52	0.48	4.53	1.19	12	0.46	0.42
	1984-1986	3.14	0.94	12.98	0.52	0.48	4.43	1.12	11	0.46	0.42
	1987-1995	3.07	0.88	12.98	0.52	0.48	4.33	1.05	11	0.46	0.42
	1996-1999	1.97	0.68	9.64	0.36	0.33	2.78	0.81	8.17	0.32	0.29
	2000-2003	1.97	0.68	7.31	0.36	0.33	2.78	0.81	7.31	0.32	0.29
	2004-2012	3.73	0.68	5.1	0.22	0.20	3.73	0.81	5.1	0.22	0.20
1901-3300 hp	2013-2020	3.73	0.68	3.8	0.09	0.08	3.73	0.81	3.8	0.09	0.08
	pre-1971	3.07	1.26	16.52	0.7	0.64	4.33	1.5	14	0.62	0.57
	1971-1978	3.07	1.05	15.34	0.6	0.55	4.33	1.25	13	0.53	0.49
	1979-1983	3.07	0.95	14.16	0.5	0.46	4.33	1.13	12	0.45	0.41
	1984-1986	3.07	0.9	12.98	0.5	0.46	4.33	1.07	11	0.45	0.41
	1987-1998	2.99	0.84	12.98	0.5	0.46	4.22	1	11	0.45	0.41
	1999	1.97	0.68	9.64	0.36	0.33	2.78	0.81	8.17	0.32	0.29
	2000-2006	1.97	0.68	7.31	0.36	0.33	2.78	0.81	7.31	0.32	0.29
	2007-2012	3.73	0.68	5.53	0.2	0.18	3.73	0.81	5.53	0.2	0.18
	2013-2015	3.73	0.68	4.37	0.1	0.09	3.73	0.81	4.37	0.1	0.09
2016-2020	3.73	0.18	1.3	0.03	0.03	3.73	0.18	1.3	0.03	0.03	

Note: Emission factors in g/hp-hr.

Source: CARB, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B.

¹PM2.5 emission factors are derived from the PM emission factors using CARB CEIDARS Profile 425.

Table 4.1: Propulsion Engine Data by Vessel Category

Harbor	Vessel	Engine	Model year			Horsepower			Annual Operating Hrs		
			Count	Count	Avg	Min	Max	Avg	Min	Max	Avg
	Barge Tug				2001			1,350			692

Sources: 2009 POLA EI, Table 4.1 (Ocean Tugs); and Berth 136-147 [TraPac] Container Terminal Project Final EIS/EIR (LAHD 2008).

Table 4.2: Auxiliary Engine Data by Vessel Category

Harbor	Vessel	Engine	Model year			Horsepower			Annual Operating Hrs		
			Count	Count	Avg	Min	Max	Avg	Min	Max	Avg
	Barge Tug				2001			90			417

Source: 2009 POLA EI, Table 4.2 (Ocean Tugs)

Craft Diesel Engines				
HP Range	CO	HC	NOx	PM
25-50	0.41	0.51	0.06	0.31
51-250	0.16	0.28	0.14	0.44
>251	0.25	0.44	0.21	0.67

Source: 2009 POLA EI

Table 4.7: Useful Life by Vessel Type and Engine Type, years

Vessel Type	Engines	
	Auxiliary Engines	Main Engines
Ocean Tug	25	26

Source: 2009 POLA EI

Table 4.8: Fuel Correction Factors for ULSD

MY	CO	HC	NOx	SOx	PM	PM2.5 ¹	CO2	CH4	N2O
< 1995	1	0.72	0.93	0.043	0.72	0.72	1	0.72	0.93
1996+	1	0.72	0.95	0.043	0.8	0.8	1	0.72	0.95

Source: 2009 POLA EI

1. PM2.5 ULSD correction factor is assumed to be equivalent to the factor for PM.

Table II-4 Fuel Correction Factor

Year	HP Range	MY	NOx	PM
1994-2006	<25	Pre-1995	0.93	0.75
	25-50	Pre-1999		
	51-100	Pre-1998		
	101-175	Pre-1997		
	176+	Pre-1996	0.948	0.822
	<25	1995+		
	25-50	1999-2010		
	51-100	1998-2010		
2007+	101-175	1997-2010	0.93	0.72
	176+	1996-2010		
	<25	1995+		
	25-50	1999-2010		
	51-100	1998-2010	0.948	0.800
	101-175	1997-2010		
	176+	1996-2010		
	All	2011+		

Source: CARB In-Use Harbor Craft Regulation

Table 1.1-32. GHG Emissions from Construction without Mitigation-Proposed Project / Alternative 5 / Alternative 6 (Metric tons)

Construction Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e
Wharf Construction	2,015	0.099	0.046	2,031
Backland Construction	1,107	0.068	0.034	1,118
AMP Installation	166	0.007	0.003	168
Demolition	46	0.002	0.001	46
Building Construction	712	0.035	0.018	719
Reefer Area Expansion	161	0.011	0.005	162
Utility Infrastructure	127	0.009	0.004	128
Cranes Installation	59	0.004	0.001	59
Grading, paving striping	122	0.007	0.003	123
Worker commute	443	0.018	0.010	446
Total = CEQA Impact	4,957	0.26	0.12	5,001
NEPA Impact	4,226	0.22	0.11	4,264

Table 1.1-34. GHG Emissions from Construction without Mitigation-Alternative 3 (Metric tons)

Construction Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e
Wharf Construction	-	-	-	-
Backland Construction	-	-	-	-
AMP Installation	-	-	-	-
Demolition	-	-	-	-
Building Construction	-	-	-	-
Reefer Area Expansion	161	0.011	0.005	162
Utility Infrastructure	127	0.009	0.004	128
Cranes Installation	59	0.004	0.001	59
Grading, paving striping	-	-	-	-
Worker commute	443	0.018	0.010	446
Total = CEQA Impact	790	0.04	0.02	797
NEPA Impact	59	0.00	0.00	59

Table 1.1-33. GHG Emissions from Construction without Mitigation-NEPA Baseline / Alternative 1 / Alternative 2 (Metric tons)

Construction Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e
Wharf Construction	-	-	-	-
Backland Construction	-	-	-	-
AMP Installation	-	-	-	-
Demolition	-	-	-	-
Building Construction	-	-	-	-
Reefer Area Expansion	161	0.011	0.005	162
Utility Infrastructure	127	0.009	0.004	128
Cranes Installation	-	-	-	-
Grading, paving striping	-	-	-	-
Worker commute	443	0.018	0.010	446
Total = CEQA Impact	731	0.04	0.02	737
NEPA Impact	-	-	-	-

Table 1.1-35. GHG Emissions from Construction without Mitigation-Alternative 4 (Metric tons)

Construction Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e
Wharf Construction	-	-	-	-
Backland Construction	1,107	0.068	0.034	1,118
AMP Installation	-	-	-	-
Demolition	46	0.002	0.001	46
Building Construction	712	0.035	0.018	719
Reefer Area Expansion	161	0.011	0.005	162
Utility Infrastructure	127	0.009	0.004	128
Cranes Installation	59	0.004	0.001	59
Grading, paving striping	122	0.007	0.003	123
Worker commute	443	0.018	0.010	446
Total = CEQA Impact	2,776	0.15	0.08	2,803
NEPA Impact	2,045	0.12	0.06	2,065

Table 1.1-36. GHG Emissions from Construction with Mitigation- Proposed Project / Alternative 5 / Alternative 6 (Metric tons)

Construction Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e
Wharf Construction	1,881	0.091	0.042	1,896
Backland Construction	1,105	0.068	0.034	1,117
AMP Installation	166	0.007	0.003	167
Demolition	46	0.002	0.001	46
Building Construction	712	0.035	0.018	718
Reefer Area Expansion	160	0.011	0.005	162
Utility Infrastructure	127	0.009	0.004	128
Cranes Installation	59	0.004	0.001	59
Grading, paving striping	122	0.007	0.003	123
Worker commute	443	0.018	0.010	446
Total = CEQA Impact	4,821	0.25	0.12	4,863
NEPA Impact	4,090	0.22	0.10	4,126

Table 1.1-38. GHG Emissions from Construction with Mitigation- Alternative 3 (Metric tons)

Construction Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e
Wharf Construction	-	-	-	-
Backland Construction	-	-	-	-
AMP Installation	-	-	-	-
Demolition	-	-	-	-
Building Construction	-	-	-	-
Reefer Area Expansion	160	0.011	0.005	162
Utility Infrastructure	127	0.009	0.004	128
Cranes Installation	59	0.004	0.001	59
Grading, paving striping	-	-	-	-
Worker commute	443	0.018	0.010	446
Total = CEQA Impact	789	0.04	0.02	797
NEPA Impact	59	0.00	0.00	59

Table 1.1-37. GHG Emissions from Construction with Mitigation- NEPA Baseline / Alternative 1 / Alternative 2 (Metric tons)

Construction Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e
Wharf Construction	-	-	-	-
Backland Construction	-	-	-	-
AMP Installation	-	-	-	-
Demolition	-	-	-	-
Building Construction	-	-	-	-
Reefer Area Expansion	160	0.011	0.005	162
Utility Infrastructure	127	0.009	0.004	128
Cranes Installation	-	-	-	-
Grading, paving striping	-	-	-	-
Worker commute	443	0.018	0.010	446
Total = CEQA Impact	731	0.04	0.02	737
NEPA Impact	-	-	-	-

Table 1.1-39. GHG Emissions from Construction with Mitigation- Alternative 4 (Metric tons)

Construction Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e
Wharf Construction	-	-	-	-
Backland Construction	1,105	0.068	0.034	1,117
AMP Installation	-	-	-	-
Demolition	46	0.002	0.001	46
Building Construction	712	0.035	0.018	718
Reefer Area Expansion	160	0.011	0.005	162
Utility Infrastructure	127	0.009	0.004	128
Cranes Installation	59	0.004	0.001	59
Grading, paving striping	122	0.007	0.003	123
Worker commute	443	0.018	0.010	446
Total = CEQA Impact	2,773	0.15	0.08	2,800
NEPA Impact	2,043	0.12	0.06	2,063

Table 1.2-1 General Conformity Applicability Analysis

Phase 1a - Subtask: Dredging & Disposal - 20,000 cu yds for Berth 306

Equip. No.	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates					
										VOC	CO	NOx	SOx	PM10	PM2.5
41	Derrick Barge Clamshell Bucket	Offroad	564	2012	1	8	4,512	12	Electric						
42	Derrick Barge Deck Winch	Offroad	238	2012	2	8	3,808	12	Electric						
43	Generator	Offroad	432	2012	1	8	3,456	12	Electric						
44	Generator	Offroad	135	2012	1	8	1,080	12	lb/hr	1.1E-01	5.7E-01	6.6E-01	1.2E-03	2.2E-03	2.0E-03
45	Tugboat - Barge to LA-2	Marine	1,350	2012	2	6.7	18,144	6	lb/hr	8.7E-01	4.5E+00	7.8E+00	1.1E-02	1.7E-01	1.5E-01

Phase 1a - Subtask: Piledriving - Pinpiles/Indicators

1	Derrick Barge Crane Hoist	Offroad	564	2012	1	8	4512	44	lb/hr	3.0E-01	8.4E-01	1.9E+00	3.2E-03	6.3E-03	5.8E-03
2	Deck Winch	Offroad	238	2012	2	8	3808	44	lb/hr	1.3E-01	3.2E-01	8.0E-01	1.5E-03	2.7E-03	2.5E-03
3	Generator	Offroad	432	2012	1	8	3456	44	lb/hr	1.7E-01	6.6E-01	2.1E+00	2.9E-03	7.0E-03	6.5E-03
4	Generator	Offroad	135	2012	1	8	1080	44	lb/hr	1.1E-01	5.7E-01	6.6E-01	1.2E-03	2.2E-03	2.0E-03
5	Pile Hammer	Offroad	190	2012	1	8	1520	44	lb/hr	5.8E-02	2.1E-01	6.3E-01	9.5E-04	2.6E-03	2.4E-03
6	Jet Pump	Offroad	290	2012	1	8	2320	44	Electric						
7	Haul Trucks - Pile Deliveries	Onroad	425	2012	1	8	3400	22	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03

Phase 1a - Subtask: Piledriving - Production Pile

8	Main Hoist	Offroad	700	2012	1	8	5600	49	lb/hr	3.7E-01	1.0E+00	2.4E+00	3.9E-03	7.9E-03	7.2E-03
9	Main Generator	Offroad	485	2012	1	8	3880	49	lb/hr	1.9E-01	7.4E-01	2.4E+00	3.2E-03	7.9E-03	7.3E-03
10	Boom Hoist	Offroad	700	2012	1	8	5600	49	lb/hr	3.7E-01	1.0E+00	2.4E+00	3.9E-03	7.9E-03	7.2E-03
11	Anchor Winch	Offroad	305	2012	1	8	2440	49	lb/hr	1.2E-01	3.4E-01	1.0E+00	1.3E-03	3.4E-03	3.2E-03
12	Breasting Winch	Offroad	210	2012	2	8	3360	49	lb/hr	1.1E-01	2.8E-01	7.1E-01	1.3E-03	2.4E-03	2.2E-03
13	Emergency Generator	Offroad	210	2012	1	8	1680	49	lb/hr	1.2E-01	3.8E-01	1.0E+00	2.0E-03	3.4E-03	3.2E-03
14	Pile Hammer	Offroad	190	2012	1	8	1520	49	lb/hr	5.8E-02	2.1E-01	6.3E-01	9.5E-04	2.6E-03	2.4E-03
15	Jet Pump	Offroad	290	2012	1	8	2320	49	Electric						
16	Pile Handler	Offroad	456	2012	1	8	3648	49	lb/hr	1.4E-01	4.9E-01	1.5E+00	2.3E-03	6.2E-03	5.7E-03
17	Haul Trucks - Pile Deliveries	Onroad	425	2012	1	8	3400	56	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03

Phase 1a - Subtask: Wharf Construction

Equip. No.	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates					
										VOC	CO	NOx	SOx	PM10	PM2.5
18	Crane - 888	Offroad	330	2012	1	8	2640	92	lb/hr	1.1E-01	3.8E-01	9.4E-01	1.2E-03	3.1E-03	2.9E-03
19	Crane - 4000	Offroad	350	2012	1	8	2800	92	lb/hr	1.1E-01	4.0E-01	1.0E+00	1.2E-03	3.3E-03	3.1E-03
20	Air Compressor - 100 CFM	Offroad	49	2012	2	8	784	92	lb/hr	9.9E-02	2.6E-01	2.3E-01	2.8E-04	2.3E-02	2.2E-02
21	Air Compressor - 185 CFM	Offroad	62	2012	2	8	992	92	lb/hr	4.6E-02	1.7E-01	2.8E-01	2.8E-04	6.6E-04	6.0E-04
22	Welder - 300 Amp.	Offroad	33	2012	1	8	264	92	lb/hr	7.1E-02	1.9E-01	1.7E-01	2.2E-04	1.7E-02	1.6E-02
23	Welder - 400 Amp.	Offroad	35	2012	1	8	280	92	lb/hr	7.5E-02	2.0E-01	1.8E-01	2.3E-04	1.8E-02	1.7E-02
24	Haul Truck	Onroad	425	2012	1	8	3400	31	lb/mile, lb/hr	2.8E-03	1.2E-02	1.9E+00	4.0E-05	9.4E-02	8.6E-02
25	Concrete Trucks	Onroad	425	2012	1	8	3400	62	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03
26	Backhoe	Offroad	160	2012	1	8	1280	92	lb/hr	9.7E-02	5.4E-01	5.8E-01	1.0E-03	1.9E-03	1.8E-03
27	Crane (Track)	Offroad	350	2012	2	8	5600	142	lb/hr	1.1E-01	4.0E-01	1.0E+00	1.2E-03	3.3E-03	3.1E-03
28	Dozer	Offroad	165	2012	1	8	1320	8	lb/hr	2.1E-01	7.9E-01	6.4E-01	1.4E-03	2.1E-03	2.0E-03
29	Dump Truck	Onroad	310	2012	2	8	4960	100	lb/mile, lb/hr	2.8E-03	1.2E-02	1.4E+00	4.0E-05	6.8E-02	6.3E-02
30	Excavator	Offroad	428	2012	1	8	3424	30	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	5.4E-03	4.9E-03
31	Flat Bed Truck	Onroad	230	2012	1	8	1840	10	lb/mile, lb/hr	2.8E-03	1.2E-02	6.1E-01	4.0E-05	5.1E-03	4.7E-03
32	Forklift	Offroad	94	2012	1	8	752	10	lb/hr	3.8E-02	1.7E-01	2.2E-01	2.9E-04	6.2E-04	5.7E-04
33	Grader	Offroad	180	2012	1	8	1440	36	lb/hr	1.1E-01	3.2E-01	7.3E-01	1.4E-03	2.4E-03	2.2E-03
34	Loader	Offroad	215	2012	2	8	3440	160	lb/hr	1.1E-01	3.3E-01	7.8E-01	1.4E-03	2.6E-03	2.4E-03
35	Paving Machine	Offroad	200	2012	1	8	1600	13	lb/hr	1.7E-01	5.1E-01	7.0E-01	1.7E-03	2.3E-03	2.1E-03
36	Dive Boat	Marine	112	2012	1	8	895	2	lb/hr	9.9E-02	2.9E-01	8.9E-01	1.2E-03	2.2E-02	2.0E-02
37	Roller	Offroad	165	2012	2	8	2640	26	lb/hr	1.2E-01	5.9E-01	6.1E-01	1.1E-03	2.0E-03	1.9E-03
38	Scrapper	Offroad	195	2012	1	8	1560	24	lb/hr	1.8E-01	5.2E-01	9.3E-01	1.8E-03	3.1E-03	2.8E-03
39	Water Truck	Onroad	325	2012	1	8	2600	32	lb/mile, lb/hr	2.8E-03	1.2E-02	8.6E-01	4.0E-05	7.2E-03	6.6E-03
40	Fugitive Emissions	Fugitive	0	2012	0	0	0	0	lb/day					82.7	18.1

Table 1.2-1 General Conformity Applicability Analysis

		Phase 1a (Dredging & Disposal) - lbs/day					
No							
41	Derrick Barge Clamshell Bucket	-	-	-	-	-	-
42	Derrick Barge Deck Winch	-	-	-	-	-	-
43	Generator	-	-	-	-	-	-
44	Generator	0.90	4.58	5.29	0.01	0.02	0.02
45	Tugboat - Barge to LA-2	11.71	60.31	105.37	0.15	2.22	2.04
Totals		12.61	64.89	110.66	0.16	2.24	2.06
		Phase 1a (Piledriving - Pinpiles/Indicators) - lbs/day					
No							
1	Derrick Barge Crane Hoist	2.40	6.75	15.22	0.03	0.05	0.05
2	Deck Winch	2.08	5.06	12.84	0.02	0.04	0.04
3	Generator	1.35	5.26	16.91	0.02	0.06	0.05
4	Generator	0.90	4.58	5.29	0.01	0.02	0.02
5	Pile Hammer	0.46	1.65	5.04	0.01	0.02	0.02
6	Jet Pump	-	-	-	-	-	-
7	Haul Trucks - Pile Deliveries	4.37	19.27	8.99	0.06	0.07	0.07
Totals		11.5670	42.5624	64.2886	0.1518	0.2632	0.2422
		Phase 1a (Piledriving - Production Piles) - lbs/day					
No							
8	Main Hoist	2.98	8.38	18.89	0.03	0.06	0.06
9	Main Generator	1.51	5.91	18.99	0.03	0.06	0.06
10	Boom Hoist	2.98	8.38	18.89	0.03	0.06	0.06
11	Anchor Winch	0.97	2.75	8.23	0.01	0.03	0.03
12	Breasting Winch	1.84	4.46	11.33	0.02	0.04	0.03
13	Emergency Generator	0.92	3.03	8.22	0.02	0.03	0.03
14	Pile Hammer	0.46	1.65	5.04	0.01	0.02	0.02
15	Jet Pump	-	-	-	-	-	-
16	Pile Handler	1.11	3.96	12.09	0.02	0.05	0.05
17	Haul Trucks - Pile Deliveries	4.37	19.27	8.99	0.06	0.07	0.07
Totals		17.1420	57.7740	110.6699	0.2243	0.4274	0.3932
		Phase 1a (Wharf Construction) - lbs/day					
No							
18	Crane - 888	0.86	3.00	7.51	0.01	0.03	0.02
19	Crane - 4000	0.92	3.19	7.96	0.01	0.03	0.02
20	Air Compressor - 100 CFM	1.58	4.15	3.62	0.00	0.37	0.34
21	Air Compressor - 185 CFM	0.74	2.72	4.41	0.00	0.01	0.01
22	Welder - 300 Amp.	0.57	1.51	1.39	0.00	0.14	0.13
23	Welder - 400 Amp.	0.60	1.60	1.48	0.00	0.15	0.13
24	Haul Truck	14.57	64.23	14.98	0.21	0.75	0.69
25	Concrete Trucks	4.32	19.18	8.99	0.06	0.07	0.07
26	Backhoe	0.77	4.29	4.66	0.01	0.02	0.01
27	Crane (Track)	1.83	6.37	15.93	0.02	0.05	0.05
28	Dozer	1.67	6.35	5.15	0.01	0.02	0.02
29	Dump Truck	1.13	4.97	11.50	0.02	0.52	0.49
30	Excavator	1.24	3.76	11.03	0.02	0.04	0.04
31	Flat Bed Truck	0.57	2.52	4.86	0.01	0.04	0.04
32	Forklift	0.31	1.38	1.74	0.00	0.00	0.00
33	Grader	0.91	2.60	5.81	0.01	0.02	0.02
34	Loader	1.83	5.28	12.51	0.02	0.04	0.04
35	Paving Machine	1.40	4.07	5.61	0.01	0.02	0.02
36	Dive Boat	0.79	2.35	7.15	0.01	0.18	0.16
37	Roller	1.99	9.38	9.78	0.02	0.03	0.03
38	Scraper	1.48	4.18	7.43	0.01	0.02	0.02
39	Water Truck	0.57	2.52	6.01	0.01	0.06	0.05
40	Fugitive Emissions					82.69	18.06
Totals		40.6271	159.5937	159.4951	0.4824	85.3065	20.4612

Notes: Barge Tug parameters taken from Berths 136 - 147 [TraPac] Container Terminal Project Final EIS/EIR (LAHD 2008). Assumes that dredging removes 1800 cu yds/day, barge holds 1800 cu yds, rt distance to disposal site (LA-2) is 16.8 nm, and speed is 5 kts.

Notes and Assumptions
Jet pumps are assumed to be part of dredging equipment.
Dredging Equipment is electric (see POLA CEQA Mitigation Measures MM AQ-:Dredging Equipment, 11/09)
SCAB/OFFROAD EFs used for VOC, SOx, CO2, CH4. Load factors are included in these EFs.
Offroad equipment >50 HP: Tier 3 EFs apply to CO, Nox; load factors applied. Used if smaller than SCAB factors.
Offroad: PM10/PM2.5: CARB Level 3 DECS applied to equipment >50 HP; load factors applied.
Onroad: vehicles>19,500 GVW subject to PM & NOx reduction. NOx, PM10 & PM2.5 columns in lb/hr for these vehicles, remaining columns in lb/mile.

Table 1.2-1 General Conformity Table 1.1-16 Federal Action Construction Emissions for G

	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1a (Dredging & Disposal) - tons						
41 Derrick Barge Clamshell Bucket	-	-	-	-	-	-
42 Derrick Barge Deck Winch	-	-	-	-	-	-
43 Generator	-	-	-	-	-	-
44 Generator	0.01	0.03	0.03	0.00	0.00	0.00
45 Tugboat - Barge to LA-2	0.04	0.18	0.32	0.00	0.01	0.01
	0.04	0.21	0.35	0.00	0.01	0.01
Phase 1a (Piledriving - Pinpiles/Indicators) - tons						
1 Derrick Barge Crane Hoist	0.05	0.15	0.33	0.00	0.00	0.00
2 Deck Winch	0.05	0.11	0.28	0.00	0.00	0.00
3 Generator	0.03	0.12	0.37	0.00	0.00	0.00
4 Generator	0.02	0.10	0.12	0.00	0.00	0.00
5 Pile Hammer	0.01	0.04	0.11	0.00	0.00	0.00
6 Jet Pump	-	-	-	-	-	-
7 Haul Trucks - Pile Deliveries	0.05	0.21	0.10	0.00	0.00	0.00
	0.21	0.72	1.32	0.00	0.00	0.00
Phase 1a (Piledriving - Production Piles) - tons						
8 Main Hoist	0.07	0.21	0.46	0.00	0.00	0.00
9 Main Generator	0.04	0.14	0.47	0.00	0.00	0.00
10 Boom Hoist	0.07	0.21	0.46	0.00	0.00	0.00
11 Anchor Winch	0.02	0.07	0.20	0.00	0.00	0.00
12 Breasting Winch	0.05	0.11	0.28	0.00	0.00	0.00
13 Emergency Generator	0.02	0.07	0.20	0.00	0.00	0.00
14 Pile Hammer	0.01	0.04	0.12	0.00	0.00	0.00
15 Jet Pump	-	-	-	-	-	-
16 Pile Handler	0.03	0.10	0.30	0.00	0.00	0.00
17 Haul Trucks - Pile Deliveries	0.12	0.54	0.25	0.00	0.00	0.00
	0.44	1.48	2.74	0.01	0.01	0.01
Phase 1a (Wharf Construction) - tons						
18 Crane - 888	0.04	0.14	0.35	0.00	0.00	0.00
19 Crane - 4000	0.04	0.15	0.37	0.00	0.00	0.00
20 Air Compressor - 100 CFM	0.07	0.19	0.17	0.00	0.02	0.02
21 Air Compressor - 185 CFM	0.03	0.12	0.20	0.00	0.00	0.00
22 Welder - 300 Amp.	0.03	0.07	0.06	0.00	0.01	0.01
23 Welder - 400 Amp.	0.03	0.07	0.07	0.00	0.01	0.01
24 Haul Truck	0.23	1.00	0.23	0.00	0.01	0.01
25 Concrete Trucks	0.13	0.59	0.28	0.00	0.00	0.00
26 Backhoe	0.04	0.20	0.21	0.00	0.00	0.00
27 Crane (Track)	0.13	0.45	1.13	0.00	0.00	0.00
28 Dozer	0.01	0.03	0.02	0.00	0.00	0.00
29 Dump Truck	0.06	0.25	0.57	0.00	0.03	0.02
30 Excavator	0.02	0.06	0.17	0.00	0.00	0.00
31 Flat Bed Truck	0.00	0.01	0.02	0.00	0.00	0.00
32 Forklift	0.00	0.01	0.01	0.00	0.00	0.00
33 Grader	0.02	0.05	0.11	0.00	0.00	0.00
34 Loader	0.15	0.42	1.00	0.00	0.00	0.00
35 Paving Machine	0.01	0.03	0.04	0.00	0.00	0.00
36 Dive Boat	0.00	0.00	0.01	0.00	0.00	0.00
37 Roller	0.03	0.12	0.13	0.00	0.00	0.00
38 Scraper	0.02	0.05	0.09	0.00	0.00	0.00
39 Water Truck	0.01	0.04	0.10	0.00	0.00	0.00
40 Fugitive Emissions	-	-	-	-	-	-
	1.08	4.04	5.32	0.01	0.08	0.08

Table 1.2-1 General Conformity Applicability Analysis

Phase 1b - Backland Construction

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates					
										VOC	CO	NOx	SOx	PM10	PM2.5
1	Backhoe	Offroad	160	2012	3	8	3840	41	lb/hr	9.7E-02	5.4E-01	5.8E-01	1.0E-03	1.9E-03	1.8E-03
2	Compressor	Offroad	62	2012	1	8	496	65	lb/hr	4.6E-02	1.7E-01	2.8E-01	2.8E-04	6.6E-04	6.0E-04
3	Crane (Tire)	Offroad	350	2012	1	8	2800	68	lb/hr	1.1E-01	4.0E-01	1.0E+00	1.2E-03	3.3E-03	3.1E-03
4	Dozer	Offroad	165	2012	3	8	3960	41	lb/hr	2.1E-01	7.9E-01	6.4E-01	1.4E-03	2.1E-03	2.0E-03
5	Dump Truck	Onroad	310	2012	2	8	4960	67	lb/mile, lb/hr	2.8E-03	1.2E-02	1.4E+00	4.0E-05	6.8E-02	6.3E-02
6	Excavator	Offroad	428	2012	1	8	3424	56	lb/hr	1.5E-01	4.7E-01	1.4E+00	2.0E-03	5.4E-03	4.9E-03
7	Flat Bed Truck	Onroad	230	2012	2	8	3680	147	lb/mile, lb/hr	2.8E-03	1.2E-02	6.1E-01	4.0E-05	5.1E-03	4.7E-03
8	Forklift	Offroad	94	2012	1	8	752	137	lb/hr	3.8E-02	1.7E-01	2.2E-01	2.9E-04	6.2E-04	5.7E-04
9	Generator	Offroad	300	2012	1	8	2400	68	lb/hr	1.2E-01	4.6E-01	1.5E+00	2.0E-03	4.9E-03	4.5E-03
10	Grader	Offroad	180	2012	3	8	4320	58	lb/hr	1.1E-01	3.2E-01	7.3E-01	1.4E-03	2.4E-03	2.2E-03
11	Loader	Offroad	215	2012	3	8	5160	58	lb/hr	1.1E-01	3.3E-01	7.8E-01	1.4E-03	2.6E-03	2.4E-03
12	Pickup Truck	Onroad	275	2012	6	8	13200	205	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05
13	Paving Machine	Offroad	200	2012	3	8	4800	56	lb/hr	1.7E-01	5.1E-01	7.0E-01	1.7E-03	2.3E-03	2.1E-03
14	Roller	Offroad	165	2012	3	8	3960	56	lb/hr	1.2E-01	5.9E-01	6.1E-01	1.1E-03	2.0E-03	1.9E-03
15	Scraper	Offroad	195	2012	3	8	4680	50	lb/hr	1.8E-01	5.2E-01	9.3E-01	1.8E-03	3.1E-03	2.8E-03
16	Stake Bed Truck	Onroad	300	2012	2	8	4800	120	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05
17	Tamper	Offroad	15	2012	1	8	120	62	lb/hr	2.8E-02	1.1E+00	2.0E-02	8.6E-05	1.7E-02	1.6E-02
18	Striping Equipment	Offroad	5	2012	1	8	38	30	lb/hr	3.8E-03	2.0E-02	2.4E-02	5.0E-05	9.1E-04	8.4E-04
19	Water Truck	Onroad	325	2012	3	8	7800	127	lb/mile, lb/hr	2.8E-03	1.2E-02	8.6E-01	4.0E-05	7.2E-03	6.6E-03
21	Fugitive Emissions	Fugitive	0	2012	0	0	0	0	lb/day					37.54	7.78
22	Haul Truck - Paving	Onroad	425	2012	1	8	3400	12	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03
23	Haul Truck - Base	Onroad	425	2012	1	8	3400	12	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	9.4E-03	8.6E-03
24	Semi Truck	Onroad	400	2012	1	8	3200	12	lb/mile, lb/hr	2.8E-03	1.2E-02	1.1E+00	4.0E-05	8.8E-03	8.1E-03

No	Phase 1b (Backland Construction) - lbs/day					
1	2.32	12.87	13.97	0.03	0.05	0.04
2	0.37	1.36	2.20	0.00	0.01	0.00
3	0.92	3.19	7.96	0.01	0.03	0.02
4	5.00	19.06	15.45	0.03	0.05	0.05
5	1.13	4.97	11.50	0.02	0.52	0.49
6	1.24	3.76	11.03	0.02	0.04	0.04
7	1.13	4.97	9.73	0.02	0.08	0.07
8	0.31	1.38	1.74	0.00	0.00	0.00
9	0.94	3.66	11.75	0.02	0.04	0.04
10	2.72	7.79	17.43	0.03	0.06	0.05
11	2.75	7.92	18.77	0.03	0.06	0.06
12	0.61	6.31	0.61	0.01	0.10	0.09
13	4.19	12.22	16.83	0.04	0.06	0.05
14	2.99	14.07	14.67	0.03	0.05	0.04
15	4.43	12.54	22.29	0.04	0.07	0.07
16	0.20	2.10	0.20	0.00	0.03	0.03
17	0.22	8.72	0.16	0.00	0.14	0.13
18	0.03	0.16	0.19	0.00	0.01	0.01
19	1.68	7.42	17.40	0.02	0.17	0.16
21					37.54	7.78
22	1.46	6.51	8.99	0.02	0.07	0.07
23	0.71	3.16	7.00	0.01	0.07	0.07
24	1.82	8.05	8.46	0.03	0.07	0.06
Totals	37.15	152.17	218.31	0.41	39.33	9.44

Notes and Assumptions
 Striping Equipment assumed to be a walk-behind, parking lot striper

Table 1.2-1 General Conformity Table 1.1-16 Federal Action Construction Emissions for G

	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1b (Backland Construction) - tons						
1 Backhoe	0.05	0.26	0.29	0.00	0.00	0.00
2 Compressor	0.01	0.04	0.07	0.00	0.00	0.00
3 Crane (Tire)	0.03	0.11	0.27	0.00	0.00	0.00
4 Dozer	0.10	0.39	0.32	0.00	0.00	0.00
5 Dump Truck	0.04	0.17	0.39	0.00	0.02	0.02
6 Excavator	0.03	0.11	0.31	0.00	0.00	0.00
7 Flat Bed Truck	0.08	0.36	0.71	0.00	0.01	0.01
8 Forklift	0.02	0.09	0.12	0.00	0.00	0.00
9 Generator	0.03	0.12	0.40	0.00	0.00	0.00
10 Grader	0.08	0.23	0.51	0.00	0.00	0.00
11 Loader	0.08	0.23	0.54	0.00	0.00	0.00
12 Pickup Truck	0.06	0.65	0.06	0.00	0.01	0.01
13 Paving Machine	0.12	0.34	0.47	0.00	0.00	0.00
14 Roller	0.08	0.39	0.41	0.00	0.00	0.00
15 Scraper	0.11	0.31	0.56	0.00	0.00	0.00
16 Stake Bed Truck	0.01	0.13	0.01	0.00	0.00	0.00
17 Tamper	0.01	0.27	0.00	0.00	0.00	0.00
18 Striping Equipment	0.00	0.00	0.00	0.00	0.00	0.00
19 Water Truck	0.11	0.47	1.10	0.00	0.01	0.01
21 Fugitive Emissions	-	-	-	-	-	-
22 Haul Truck - Paving	0.01	0.04	0.05	0.00	0.00	0.00
23 Haul Truck - Base	0.00	0.02	0.04	0.00	0.00	0.00
24 Semi Truck	0.01	0.05	0.05	0.00	0.00	0.00
	1.08	4.79	6.70	0.01	0.07	0.06

Table 1.2-1 General Conformity Applicability Analysis

Phase 1c - AMP Installation

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5		
1	Backhoe	Offroad	160	2012	1	8	1280	83	lb/hr	9.7E-02	5.4E-01	5.8E-01	1.0E-03	1.9E-03	1.8E-03		
2	Crane (Tire)	Offroad	350	2012	1	8	2800	10	lb/hr	1.1E-01	4.0E-01	1.0E+00	1.2E-03	3.3E-03	3.1E-03		
3	Flat Bed Truck	Onroad	230	2012	2	8	3680	83	lb/mile, lb/hr	2.8E-03	1.2E-02	6.1E-01	4.0E-05	5.1E-03	4.7E-03		
4	Forklift	Offroad	94	2012	1	8	752	67	lb/hr	3.8E-02	1.7E-01	2.2E-01	2.9E-04	6.2E-04	5.7E-04		
5	Generator	Offroad	300	2012	1	8	2400	83	lb/hr	1.2E-01	4.6E-01	1.5E+00	2.0E-03	4.9E-03	4.5E-03		
7	Fugitive Emissions	Fugitive	0	2012	0	0	0	0	lb/day					4.66	1.02		
8	Haul Truck	Onroad	425	2012	1	8	3400	13	lb/mile, lb/hr	2.8E-03	1.2E-02	1.9E+00	4.0E-05	9.4E-02	8.6E-02		
										Phase 1c (AMP Installation) - lbs/day							
										No	1	7.7E-01	4.3E+00	4.7E+00	8.3E-03	1.6E-02	1.4E-02
										No	2	9.2E-01	3.2E+00	8.0E+00	9.9E-03	2.7E-02	2.4E-02
										No	3	1.1E+00	5.0E+00	9.7E+00	1.6E-02	8.1E-02	7.5E-02
										No	4	3.1E-01	1.4E+00	1.7E+00	2.3E-03	5.0E-03	4.6E-03
										No	5	9.4E-01	3.7E+00	1.2E+01	1.6E-02	3.9E-02	3.6E-02
										No	7					4.7E+00	1.0E+00
										No	8	5.7E-01	2.5E+00	5.7E+00	8.1E-03	2.6E-01	2.4E-01
										Totals		4.63	19.99	41.58	0.06	5.09	1.42

Phase 1h - Crane Installation

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5		
1	Crane - 50 ton	Offroad	330	2012	2	8	5280	2	lb/hr	1.1E-01	3.8E-01	9.4E-01	1.2E-03	3.1E-03	2.9E-03		
2	Winch	Offroad	305	2012	1	4	1220	2	lb/hr	1.2E-01	3.4E-01	1.0E+00	1.3E-03	3.4E-03	3.2E-03		
3	General Cargo Ship + Tugboat Ass	Marine		2012	1	4	0	2	lb/hr	6.17	14.87	50.89	3.18	6.78	6.24		
4	General Cargo Ship - Hotelling	Marine	6938	2012	1	24	166507	7	lb/hr	1.55	1.38	12.48	1.00	2.07	1.90		
5	Fugitive Emissions	Fugitive		2012					lb/day					0.00	0.00		
										Phase 1h (Crane Installation) - lbs/day							
										No	1	1.73	6.01	15.02	0.02	0.05	0.05
										No	2	0.48	1.37	4.12	0.01	0.01	0.01
										No	3	24.68	59.48	203.56	12.71	27.12	24.95
										No	4	37.18	33.05	299.55	23.96	49.58	45.61
										No	5					0.00	0.00
										Totals		64.07	99.91	522.23	36.70	76.76	70.62

Notes and Assumptions

General Cargo Ship maneuvering emissions include 2 tugboat assists.
Ships and equipment are based on China Shipping project
Arrival and departure occur on separate days for hotelling ship
Four new shore-side A-Frame crane will delivered via one ship. Arrival and departure on separate days.

All Phases - Worker Commutes

No	Construction Activity/Equipment Type	EF ID	HP Rating	Const Start Year	# Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	Emission Units	Emission Rates							
										VOC	CO	NOx	SOx	PM10	PM2.5		
1	Worker Vehicle	Onroad		2012	50	8	-	500	lb/mile	5.1E-04	5.3E-03	5.1E-04	9.5E-06	8.4E-05	7.8E-05		
2	Fugitive Emissions	Fugitive		2012					lb/day					15.52	3.39		
										All Phases (Worker Commutes) - lbs/day							
										No	1	1.02	10.52	1.02	0.02	0.17	0.16
										No	2					15.52	3.39
										Totals		1.02	10.52	1.02	0.02	15.69	3.55

Notes and Assumptions

Equipment list, activity level, project phases and scope items provided by the Port of LA and posted to the CDM eRoom on December 15, 2009 "B306 Equipment List.xls".

These were revised by Port of LA via email "APL DEIR Construction Comments 8-17-2010.xls"

All activities of the phase are assumed to occur simultaneously.

Activities are assumed to be spread evenly over their entire duration.

Table 1.2-1 General Conformity Table 1.1-16 Federal Action Construction Emissions for G

	VOC	CO	NOx	SOx	PM10	PM2.5
Phase 1c (AMP Installation) - tons						
1 Backhoe	0.03	0.18	0.19	0.00	0.00	0.00
2 Crane (Tire)	0.00	0.02	0.04	0.00	0.00	0.00
3 Flat Bed Truck	0.05	0.21	0.40	0.00	0.00	0.00
4 Forklift	0.01	0.05	0.06	0.00	0.00	0.00
5 Generator	0.04	0.15	0.49	0.00	0.00	0.00
7 Fugitive Emissions	-	-	-	-	-	-
8 Haul Truck	0.00	0.02	0.04	0.00	0.00	0.00
	0.14	0.61	1.22	0.00	0.01	0.01

Phase 1h - Crane Installation

No	Construction Activity/Equipment Type					
1	Crane - 50 ton					
2	Winch					
3	General Cargo Ship + Tugboat Ass					
4	General Cargo Ship - Hotelling					
5	Fugitive Emissions					
Phase 1h (Crane Installation) - tons						
1	Crane - 50 ton	0.00	0.01	0.02	0.00	0.00
2	Winch	0.00	0.00	0.00	0.00	0.00
3	General Cargo Ship + Tugboat Ass	0.02	0.06	0.20	0.01	0.03
4	General Cargo Ship - Hotelling	0.13	0.12	1.05	0.08	0.17
5	Fugitive Emissions	-	-	-	-	-
		0.16	0.18	1.27	0.10	0.20

All Phases - Worker Commutes

No	Construction Activity/Equipment Type					
1	Worker Vehicle					
2	Fugitive Emissions					
		Total Emissions (lb)				
All Phases (Worker Commutes) - lbs/day						
1	Worker Vehicle	0.26	2.63	0.25	0.00	0.04
2	Fugitive Emissions	-	-	-	-	3.88
Total Daily Emissions, Worker Commutes		0.26	2.63	0.25	0.00	3.92

Table 1.2-2 General Conformity Applicability Analysis

Annual Federal Action Construction Emissions

Project Phase	Construction Schedule	Fraction of given activity per year		YEAR 1 (2012), tons per year						YEAR 2 (2013), tons per year					
		2012	2013	VOC	CO	NOx	SO2	PM10	PM2.5	VOC	CO	NOx	SO2	PM10	PM2.5
1a	B306 Dredging (20,000cy)	1.00	-	0.04	0.21	0.35	0.00	0.01	0.01	-	-	-	-	-	-
1a	B306 New Wharf (1250lf)	0.49	0.51	0.84	3.06	4.59	0.01	0.05	0.05	0.88	3.19	4.78	0.01	0.05	0.05
1c	B306 AMP	-	1.00	-	-	-	-	-	-	0.14	0.61	1.22	0.00	0.01	0.01
1h	B302-306 New Cranes (4 total)	1.00	-	0.16	0.18	1.27	0.10	0.20	0.18	-	-	-	-	-	-
1b	B306 Backland (41 acres)	0.49	0.51	0.53	2.35	3.28	0.01	0.03	0.03	0.55	2.44	3.41	0.01	0.03	0.03
All	Worker Commute	0.50	0.50	0.13	1.31	0.13	0.00	1.96	0.44	0.13	1.31	0.13	0.00	1.96	0.44
Total Annual Emissions, tons per year				1.70	7.11	9.62	0.12	2.25	0.71	1.69	7.56	9.54	0.02	2.05	0.53
De minimis Emissions, tons/year				10	100	10	100	70	100	10	100	10	100	70	100

Notes: De minimis values from 40 CFR 93.153(b)(1) and (2).
 CEQA-Required mitigation included as a component of the Federal Action project design.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-1. Summary of Annual Marine Vessel Emissions without Mitigation
Proposed Project

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	13.7	6.1	174.8	106.4	15.0	12.0
Ships - 20nm to PA	12.8	6.4	106.1	59.2	10.1	8.1
Ships - PA	6.0	3.3	44.0	23.0	4.5	3.6
Ships - Harbor Transit	3.8	3.4	25.5	8.4	3.1	2.5
Ships - Turning & Docking	1.6	1.1	14.7	10.1	1.7	1.3
Ships - Anchoring	0.2	0.1	2.9	3.8	0.4	0.3
Ships - Hotelling	15.5	6.2	196.8	259.7	23.8	18.8
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.6	0.6	8.8	0.0	0.4	0.3
Total	56.3	27.2	573.7	470.5	58.9	46.9
Project Year 2012						
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	25.9	10.2	285.2	16.6	6.8	5.4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.7	0.6	10.5	0.0	0.4	0.4
Total	70.5	33.2	656.4	26.0	13.8	11.0
Project Year 2015						
Ships - AQMD 40nm to 20nm	17.7	7.9	202.2	5.5	3.3	2.6
Ships - 20nm to PA	16.4	8.2	122.1	3.2	2.3	1.8
Ships - PA	7.7	4.2	50.3	1.2	1.0	0.8
Ships - Harbor Transit	4.9	4.3	29.3	0.5	0.7	0.6
Ships - Turning & Docking	2.0	1.4	15.9	0.5	0.4	0.3
Ships - Anchoring	0.2	0.1	2.1	0.1	0.0	0.0
Ships - Hotelling	18.1	7.3	198.1	14.7	5.2	4.1
AMP - Hotelling	1.3	0.1	7.5	0.8	0.3	0.3
Tugboats	3.6	0.7	4.1	0.0	0.1	0.1
Total	71.8	34.1	631.6	26.4	13.3	10.6
Project Year 2020						
Ships - AQMD 40nm to 20nm	22.0	9.8	250.6	6.8	4.1	3.3
Ships - 20nm to PA	20.1	10.1	148.3	3.8	2.8	2.2
Ships - PA	9.4	5.2	61.1	1.5	1.2	1.0
Ships - Harbor Transit	6.0	5.3	35.8	0.5	0.9	0.7
Ships - Turning & Docking	2.4	1.7	19.1	0.6	0.4	0.4
Ships - Anchoring	0.2	0.1	2.7	0.2	0.1	0.1
Ships - Hotelling	9.0	3.8	96.5	10.9	3.2	2.4
AMP - Hotelling	2.2	0.1	12.4	1.3	0.4	0.4
Tugboats	4.5	0.9	5.1	0.0	0.1	0.1
Total	75.7	37.0	631.6	25.6	13.2	10.6

Table 1.3-2. Summary of Peak Daily Marine Vessel Emissions without Mitigation
Proposed Project

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	283	126	3,219	88	52	42
Ships - 20nm to PA	254	128	1,870	48	35	28
Ships - PA	119	66	770	18	15	12
Ships - Harbor Transit	76	67	453	7	11	9
Ships - Turning & Docking	31	22	244	8	6	4
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	148	59	1,624	116	42	33
AMP - Hotelling	11	1	62	6	2	2
Tugboats	50	9	58	0	1	1
Total	971	478	8,300	290	165	132
Project Year 2020						
Ships - AQMD 40nm to 20nm	327	146	3,724	100	60	48
Ships - 20nm to PA	284	147	2,016	50	38	31
Ships - PA	133	75	829	19	17	14
Ships - Harbor Transit	84	79	504	7	12	10
Ships - Turning & Docking	32	24	244	7	6	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	57	24	618	70	20	16
AMP - Hotelling	14	1	79	8	3	3
Tugboats	53	10	60	0	1	1
Total	984	507	8,073	262	158	127

Table 1.3-3. Summary of Peak Hourly Marine Vessel Emissions without Mitigation
Proposed Project

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	199	112	1,581	40	30	24
Project Year 2020						
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	228	131	1,820	45	35	28

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-1. Summary of Annual Marine Vessel Emissions without Mitigation
Proposed Project

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Project Year 2025						
Ships - AQMD 40nm to 20nm	26.6	11.9	302.8	8.2	4.9	3.9
Ships - 20nm to PA	23.8	12.1	172.8	4.4	3.3	2.6
Ships - PA	11.1	6.2	71.1	1.7	1.4	1.2
Ships - Harbor Transit	7.1	6.4	42.3	0.6	1.0	0.8
Ships - Turning & Docking	2.8	2.0	21.8	0.7	0.5	0.4
Ships - Anchoring	0.3	0.1	3.5	0.2	0.1	0.1
Ships - Hotelling	7.1	3.0	76.7	8.6	2.5	1.9
AMP - Hotelling	1.7	0.1	9.9	1.0	0.3	0.3
Tugboats	5.1	1.0	5.7	0.0	0.1	0.1
Total	85.6	42.9	706.7	25.3	14.2	11.4
Project Year 2027						
Ships - AQMD 40nm to 20nm	29.0	13.0	330.9	9.0	5.4	4.3
Ships - 20nm to PA	25.9	13.2	187.7	4.7	3.6	2.8
Ships - PA	12.1	6.8	77.2	1.8	1.6	1.2
Ships - Harbor Transit	7.7	7.0	46.0	0.7	1.1	0.9
Ships - Turning & Docking	3.0	2.2	23.7	0.7	0.6	0.4
Ships - Anchoring	0.3	0.1	3.6	0.2	0.1	0.1
Ships - Hotelling	7.4	3.1	79.4	8.8	2.6	2.0
AMP - Hotelling	1.8	0.1	10.3	1.1	0.4	0.4
Tugboats	5.6	1.1	6.2	0.0	0.2	0.1
Total	92.8	46.6	765.2	27.0	15.4	12.3

(1) There is no AMP usage assumed for the baseline.

Table 1.3-2. Summary of Peak Daily Marine Vessel Emissions without Mitigation
Proposed Project

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Project Year 2025						
Ships - AQMD 40nm to 20nm	401	179	4,568	123	74	59
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	66	27	711	74	22	17
AMP - Hotelling	17	1	95	10	3	3
Tugboats	56	11	63	0	2	1
Total	1,192	617	9,825	306	191	153
Project Year 2027						
Ships - AQMD 40nm to 20nm	401	179	4,568	123	74	59
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	66	27	711	74	22	17
AMP - Hotelling	17	1	95	10	3	3
Tugboats	57	12	64	0	2	1
Total	1,193	618	9,826	306	191	153

Table 1.3-3. Summary of Peak Hourly Marine Vessel Emissions without Mitigation
Proposed Project

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Project Year 2025						
Ships - AQMD 40nm to 20nm	92	41	1,046	28	17	14
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	274	160	2,194	53	42	33
Project Year 2027						
Ships - AQMD 40nm to 20nm	92	41	1,046	28	17	14
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	275	160	2,194	53	42	33

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-4. Summary of Annual Marine Vessel Emissions with Mitigation
Proposed Project

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	13.7	6.1	174.8	106.4	16.0	14.0
Ships - 20nm to PA	12.8	6.4	106.1	59.2	10.1	8.1
Ships - PA	6.0	3.3	44.0	23.0	4.5	3.6
Ships - Harbor Transit	3.8	3.4	25.5	8.4	3.1	2.5
Ships - Turning & Docking	1.6	1.1	14.7	10.1	1.7	1.3
Ships - Anchoring	0.2	0.1	2.9	3.8	0.4	0.3
Ships - Hotelling	15.5	6.2	196.8	259.7	23.8	18.8
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.6	0.6	8.8	0.0	0.4	0.3
Total	56.3	27.2	573.7	470.5	59.9	48.9
Project Year 2012						
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	25.9	10.2	285.2	16.6	6.8	5.4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.7	0.6	10.5	0.0	0.4	0.4
Total	70.5	33.2	656.4	26.0	13.8	11.0
Project Year 2015						
Ships - AQMD 40nm to 20nm	18.1	9.1	135.4	3.5	2.5	2.0
Ships - 20nm to PA	16.4	8.2	122.1	3.2	2.3	1.8
Ships - PA	7.7	4.2	50.3	1.2	1.0	0.8
Ships - Harbor Transit	4.9	4.3	29.3	0.5	0.7	0.6
Ships - Turning & Docking	2.0	1.4	15.9	0.5	0.4	0.3
Ships - Anchoring	0.2	0.1	2.1	0.1	0.0	0.0
Ships - Hotelling	18.1	7.3	198.1	14.7	5.2	4.1
AMP - Hotelling	1.3	0.1	7.5	0.8	0.3	0.3
Tugboats	3.6	0.7	4.1	0.0	0.1	0.1
Total	72.2	35.2	564.8	24.4	12.6	10.0
Project Year 2020						
Ships - AQMD 40nm to 20nm	22.2	11.2	164.4	4.2	3.1	2.5
Ships - 20nm to PA	20.1	10.1	148.3	3.8	2.8	2.2
Ships - PA	9.4	5.2	61.1	1.5	1.2	1.0
Ships - Harbor Transit	6.0	5.3	35.8	0.5	0.9	0.7
Ships - Turning & Docking	2.4	1.7	19.1	0.6	0.4	0.4
Ships - Anchoring	0.2	0.1	2.7	0.2	0.1	0.1
Ships - Hotelling	9.0	3.8	96.5	10.9	3.2	2.4
AMP - Hotelling	2.2	0.1	12.4	1.3	0.4	0.4
Tugboats	4.5	0.9	5.1	0.0	0.1	0.1
Total	75.9	38.4	545.5	23.0	12.2	9.8

Table 1.3-5. Summary of Peak Daily Marine Vessel Emissions with Mitigation
Proposed Project

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	282	142	2,074	53	39	31
Ships - 20nm to PA	254	128	1,870	48	35	28
Ships - PA	119	66	770	18	15	12
Ships - Harbor Transit	76	67	453	7	11	9
Ships - Turning & Docking	31	22	244	8	6	4
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	146	58	1,602	115	42	33
AMP - Hotelling	11	1	61	6	2	2
Tugboats	50	9	58	0	1	1
Total	968	493	7,132	254	151	121
Project Year 2020						
Ships - AQMD 40nm to 20nm	315	163	2,235	56	43	34
Ships - 20nm to PA	284	147	2,016	50	38	31
Ships - PA	133	75	829	19	17	14
Ships - Harbor Transit	84	79	504	7	12	10
Ships - Turning & Docking	32	24	244	7	6	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	57	24	609	69	20	15
AMP - Hotelling	14	1	78	8	3	3
Tugboats	53	10	60	0	1	1
Total	972	523	6,574	216	140	112

Table 1.3-6. Summary of Peak Hourly Marine Vessel Emissions with Mitigation
Proposed Project

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	42	21	312	8	6	5
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	179	106	1,192	29	25	20
Project Year 2020						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	200	122	1,306	31	27	22

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Project Year 2025						
Ships - AQMD 40nm to 20nm	26.4	13.4	191.6	4.9	3.6	2.9
Ships - 20nm to PA	23.8	12.1	172.8	4.4	3.3	2.6
Ships - PA	11.1	6.2	71.1	1.7	1.4	1.2
Ships - Harbor Transit	7.1	6.4	42.3	0.6	1.0	0.8
Ships - Turning & Docking	2.8	2.0	21.8	0.7	0.5	0.4
Ships - Anchoring	0.3	0.1	3.5	0.2	0.1	0.1
Ships - Hotelling	7.1	3.0	76.7	8.6	2.5	1.9
AMP - Hotelling	1.7	0.1	9.9	1.0	0.3	0.3
Tugboats	5.1	1.0	5.7	0.0	0.1	0.1
Total	85.4	44.4	595.5	22.0	12.9	10.4
Project Year 2027						
Ships - AQMD 40nm to 20nm	28.7	14.6	208.1	5.3	3.9	3.2
Ships - 20nm to PA	25.9	13.2	187.7	4.7	3.6	2.8
Ships - PA	12.1	6.8	77.2	1.8	1.6	1.2
Ships - Harbor Transit	7.7	7.0	46.0	0.7	1.1	0.9
Ships - Turning & Docking	3.0	2.2	23.7	0.7	0.6	0.4
Ships - Anchoring	0.3	0.1	3.6	0.2	0.1	0.1
Ships - Hotelling	3.3	1.5	34.2	7.0	1.6	1.2
AMP - Hotelling	2.1	0.1	12.2	1.3	0.4	0.4
Tugboats	5.6	1.1	6.2	0.0	0.2	0.1
Total	88.7	46.7	599.2	21.7	13.0	10.5

(1) There is no AMP usage assumed for the baseline.

Project Year 2025						
Ships - AQMD 40nm to 20nm	386	200	2,733	67	52	42
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	65	27	700	73	22	17
AMP - Hotelling	-	-	-	-	-	-
Tugboats	56	11	63	0	2	1
Total	1,160	636	7,885	239	165	132
Project Year 2027						
Ships - AQMD 40nm to 20nm	386	200	2,733	67	52	42
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	28	13	289	56	13	10
AMP - Hotelling	19	1	111	12	4	4
Tugboats	57	12	64	0	2	1
Total	1,143	623	7,586	234	160	129

Project Year 2025						
Ships - AQMD 40nm to 20nm	58	30	415	10	8	6
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	240	148	1,562	35	33	26
Project Year 2027						
Ships - AQMD 40nm to 20nm	58	30	415	10	8	6
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	240	148	1,563	35	33	26

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Summary-Alts

December 2011

Table 1.3-7. Summary of Annual Marine Vessel Emissions without Mitigation
Alt 1

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	14	6	175	106	15	12
Ships - 20nm to PA	13	6	106	59	10	8
Ships - PA	6	3	44	23	4	4
Ships - Harbor Transit	4	3	26	8	3	3
Ships - Turning & Docking	2	1	15	10	2	1
Ships - Anchoring	0	0	3	4	0	0
Ships - Hotelling	16	6	197	260	24	19
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	9	0	0	0
Total	56	27	574	471	59	47
Project Year 2012						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	26	10	285	17	7	5
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	10	0	0	0
Total	70	33	656	26	14	11
Project Year 2015						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	14	5	149	11	4	3
AMP - Hotelling	1	0	6	1	0	0
Tugboats	3	1	3	0	0	0
Total	59	28	518	21	11	9
Project Year 2020						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	7	3	73	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	3	1	4	0	0	0
Total	53	26	446	19	9	8

Table 1.3-8. Summary of Peak Daily Marine Vessel Emissions without Mitigation
Alt 1

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	119	47	1,300	93	34	27
AMP - Hotelling	9	0	50	5	2	2
Tugboats	25	5	29	0	1	1
Total	533	257	4,656	182	96	77
Project Year 2020						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	56	23	603	65	19	15
AMP - Hotelling	14	1	79	8	3	3
Tugboats	27	5	30	0	1	1
Total	477	234	3,991	157	83	66

Table 1.3-9. Summary of Peak Hourly Marine Vessel Emissions without Mitigation
Alt 1

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	199	112	1,581	40	30	24
Project Year 2020						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	199	112	1,581	40	30	24

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Summary-Alts

December 2011

Project Year 2025						
Ships - AQMD 40nm to 20nm	20	9	223	6	4	3
Ships - 20nm to PA	18	9	129	3	2	2
Ships - PA	8	5	53	1	1	1
Ships - Harbor Transit	5	5	31	0	1	1
Ships - Turning & Docking	2	2	17	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	6	3	68	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	4	1	4	0	0	0
Total	65	32	538	20	11	9
Project Year 2027						
Ships - AQMD 40nm to 20nm	20	9	223	6	4	3
Ships - 20nm to PA	18	9	129	3	2	2
Ships - PA	8	5	53	1	1	1
Ships - Harbor Transit	5	5	31	0	1	1
Ships - Turning & Docking	2	2	17	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	6	3	69	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	4	1	5	0	0	0
Total	65	32	539	20	11	9

Project Year 2025						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13
AMP - Hotelling	11	1	63	7	2	2
Tugboats	28	6	31	0	1	1
Total	515	261	4,246	154	86	69
Project Year 2027						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13
AMP - Hotelling	11	1	63	7	2	2
Tugboats	29	6	32	0	1	1
Total	515	261	4,247	154	86	69

Project Year 2025						
Ships - AQMD 40nm to 20nm	75	34	854	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	228	131	1,818	45	35	28
Project Year 2027						
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	229	132	1,821	45	35	28

Table 1.3-10. Summary of Annual Marine Vessel Emissions without Mitigation NEPA/Alt 2

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	14	6	175	106	15	12
Ships - 20nm to PA	13	6	106	59	10	8
Ships - PA	6	3	44	23	4	4
Ships - Harbor Transit	4	3	26	8	3	3
Ships - Turning & Docking	2	1	15	10	2	1
Ships - Anchoring	0	0	3	4	0	0
Ships - Hotelling	16	6	197	260	24	19
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	9	0	0	0
Total	56	27	574	471	59	47
Project Year 2012						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	26	10	285	17	7	5
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	10	0	0	0
Total	70	33	656	26	14	11

Table 1.3-11. Summary of Peak Daily Marine Vessel Emissions without Mitigation NEPA/Alt 2

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97

Table 1.3-12. Summary of Peak Hourly Marine Vessel Emissions without Mitigation NEPA/Alt 2

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Summary-Alts

December 2011

Project Year 2015						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	14	5	149	11	4	3
AMP - Hotelling	1	0	6	1	0	0
Tugboats	3	1	3	0	0	0
Total	59	28	518	21	11	9
Project Year 2020						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	7	3	73	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	3	1	4	0	0	0
Total	53	26	446	19	9	8
Project Year 2025						
Ships - AQMD 40nm to 20nm	20	9	223	6	4	3
Ships - 20nm to PA	18	9	129	3	2	2
Ships - PA	8	5	53	1	1	1
Ships - Harbor Transit	5	5	31	0	1	1
Ships - Turning & Docking	2	2	17	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	6	3	68	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	4	1	4	0	0	0
Total	65	32	538	20	11	9
Project Year 2027						
Ships - AQMD 40nm to 20nm	20	9	223	6	4	3
Ships - 20nm to PA	18	9	129	3	2	2
Ships - PA	8	5	53	1	1	1
Ships - Harbor Transit	5	5	31	0	1	1
Ships - Turning & Docking	2	2	17	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	6	3	69	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	4	1	5	0	0	0
Total	65	32	539	20	11	9

Project Year 2015						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	119	47	1,300	93	34	27
AMP - Hotelling	9	0	50	5	2	2
Tugboats	25	5	29	0	1	1
Total	533	257	4,656	182	96	77
Project Year 2020						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	56	23	603	65	19	15
AMP - Hotelling	14	1	79	8	3	3
Tugboats	27	5	30	0	1	1
Total	477	234	3,991	157	83	66
Project Year 2025						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13
AMP - Hotelling	11	1	63	7	2	2
Tugboats	28	6	31	0	1	1
Total	515	261	4,246	154	86	69
Project Year 2027						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13
AMP - Hotelling	11	1	63	7	2	2
Tugboats	29	6	32	0	1	1
Total	515	261	4,247	154	86	69

Project Year 2015						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	199	112	1,581	40	30	24
Project Year 2020						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	199	112	1,581	40	30	24
Project Year 2025						
Ships - AQMD 40nm to 20nm	75	34	854	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	228	131	1,818	45	35	28
Project Year 2027						
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	229	132	1,821	45	35	28

(1) There is no AMP usage assumed for the baseline.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Summary-Alts

December 2011

Table 1.3-13. Summary of Annual Marine Vessel Emissions without Mitigation
Alt 3

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	14	6	175	106	15	12
Ships - 20nm to PA	13	6	106	59	10	8
Ships - PA	6	3	44	23	4	4
Ships - Harbor Transit	4	3	26	8	3	3
Ships - Turning & Docking	2	1	15	10	2	1
Ships - Anchoring	0	0	3	4	0	0
Ships - Hotelling	16	6	197	260	24	19
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	9	0	0	0
Total	56	27	574	471	59	47
Project Year 2012						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	26	10	285	17	7	5
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	10	0	0	0
Total	70	33	656	26	14	11
Project Year 2015						
Ships - AQMD 40nm to 20nm	16	7	181	5	3	2
Ships - 20nm to PA	14	7	105	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	26	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	13	5	144	11	4	3
AMP - Hotelling	1	0	5	1	0	0
Tugboats	3	1	3	0	0	0
Total	60	29	524	21	11	9
Project Year 2020						
Ships - AQMD 40nm to 20nm	20	9	223	6	4	3
Ships - 20nm to PA	18	9	129	3	2	2
Ships - PA	8	5	53	1	1	1
Ships - Harbor Transit	5	5	31	0	1	1
Ships - Turning & Docking	2	2	17	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	7	3	76	9	2	2
AMP - Hotelling	2	0	10	1	0	0
Tugboats	4	1	4	0	0	0
Total	66	32	546	21	11	9

Table 1.3-14. Summary of Peak Daily Marine Vessel Emissions without Mitigation
Alt 3

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	96	39	1,050	78	28	22
AMP - Hotelling	7	0	40	4	1	1
Tugboats	25	5	29	0	1	1
Total	558	279	4,776	174	97	77
Project Year 2020						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13
AMP - Hotelling	11	1	63	7	2	2
Tugboats	27	5	30	0	1	1
Total	513	261	4,245	154	86	69

Table 1.3-15. Summary of Peak Hourly Marine Vessel Emissions without Mitigation
Alt 3

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	227	131	1,819	45	35	28
Project Year 2020						
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	228	131	1,820	45	35	28

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Summary-Alts

December 2011

Project Year 2025						
Ships - AQMD 40nm to 20nm	23	10	265	7	4	3
Ships - 20nm to PA	21	11	154	4	3	2
Ships - PA	10	5	63	1	1	1
Ships - Harbor Transit	6	6	37	1	1	1
Ships - Turning & Docking	3	2	20	1	0	0
Ships - Anchoring	0	0	3	0	0	0
Ships - Hotelling	6	3	69	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	5	1	5	0	0	0
Total	76	38	625	23	13	10
Project Year 2027						
Ships - AQMD 40nm to 20nm	23	10	265	7	4	3
Ships - 20nm to PA	21	11	154	4	3	2
Ships - PA	10	5	63	1	1	1
Ships - Harbor Transit	6	6	37	1	1	1
Ships - Turning & Docking	3	2	20	1	0	0
Ships - Anchoring	0	0	3	0	0	0
Ships - Hotelling	7	3	71	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	5	1	5	0	0	0
Total	76	38	627	23	13	10

(1) There is no AMP usage assumed for the baseline.

Table 1.3-16. Summary of Annual Marine Vessel Emissions without Mitigation Alt 4

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	14	6	175	106	15	12
Ships - 20nm to PA	13	6	106	59	10	8
Ships - PA	6	3	44	23	4	4
Ships - Harbor Transit	4	3	26	8	3	3
Ships - Turning & Docking	2	1	15	10	2	1
Ships - Anchoring	0	0	3	4	0	0
Ships - Hotelling	16	6	197	260	24	19
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	9	0	0	0
Total	56	27	574	471	59	47
Project Year 2012						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	26	10	285	17	7	5
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	10	0	0	0
Total	70	33	656	26	14	11

Project Year 2025						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13
AMP - Hotelling	11	1	63	7	2	2
Tugboats	28	6	31	0	1	1
Total	515	261	4,246	154	86	69
Project Year 2027						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13
AMP - Hotelling	11	1	63	7	2	2
Tugboats	29	6	32	0	1	1
Total	515	261	4,247	154	86	69

Table 1.3-17. Summary of Peak Daily Marine Vessel Emissions without Mitigation Alt 4

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97

Project Year 2025						
Ships - AQMD 40nm to 20nm	75	34	854	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	228	131	1,818	45	35	28
Project Year 2027						
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	229	132	1,821	45	35	28

Table 1.3-18. Summary of Peak Hourly Marine Vessel Emissions without Mitigation Alt 4

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Summary-Alts

December 2011

Project Year 2015						
Ships - AQMD 40nm to 20nm	16	7	181	5	3	2
Ships - 20nm to PA	14	7	105	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	26	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	13	5	143	11	4	3
AMP - Hotelling	1	0	5	1	0	0
Tugboats	3	1	3	0	0	0
Total	60	29	522	21	11	9
Project Year 2020						
Ships - AQMD 40nm to 20nm	20	9	223	6	4	3
Ships - 20nm to PA	18	9	129	3	2	2
Ships - PA	8	5	53	1	1	1
Ships - Harbor Transit	5	5	31	0	1	1
Ships - Turning & Docking	2	2	17	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	7	3	75	8	2	2
AMP - Hotelling	2	0	10	1	0	0
Tugboats	4	1	4	0	0	0
Total	66	32	546	21	11	9
Project Year 2025						
Ships - AQMD 40nm to 20nm	23	10	265	7	4	3
Ships - 20nm to PA	21	11	154	4	3	2
Ships - PA	10	5	63	1	1	1
Ships - Harbor Transit	6	6	37	1	1	1
Ships - Turning & Docking	3	2	20	1	0	0
Ships - Anchoring	0	0	3	0	0	0
Ships - Hotelling	6	3	69	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	5	1	5	0	0	0
Total	76	38	625	23	13	10
Project Year 2027						
Ships - AQMD 40nm to 20nm	24	11	272	7	4	4
Ships - 20nm to PA	21	11	156	4	3	2
Ships - PA	10	6	64	2	1	1
Ships - Harbor Transit	6	6	38	1	1	1
Ships - Turning & Docking	3	2	20	1	0	0
Ships - Anchoring	0	0	3	0	0	0
Ships - Hotelling	6	3	69	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	5	1	5	0	0	0
Total	77	38	635	23	13	10

(1) There is no AMP usage assumed for the baseline.

Project Year 2015						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	96	39	1,050	78	28	22
AMP - Hotelling	7	0	40	4	1	1
Tugboats	25	5	29	0	1	1
Total	558	279	4,776	174	97	77
Project Year 2020						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13
AMP - Hotelling	11	1	63	7	2	2
Tugboats	27	5	30	0	1	1
Total	513	261	4,245	154	86	69
Project Year 2025						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13
AMP - Hotelling	11	1	63	7	2	2
Tugboats	28	6	31	0	1	1
Total	515	261	4,246	154	86	69
Project Year 2027						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13
AMP - Hotelling	11	1	63	7	2	2
Tugboats	29	6	32	0	1	1
Total	515	261	4,247	154	86	69

Project Year 2015						
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	227	131	1,819	45	35	28
Project Year 2020						
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	228	131	1,820	45	35	28
Project Year 2025						
Ships - AQMD 40nm to 20nm	75	34	854	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	228	131	1,818	45	35	28
Project Year 2027						
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	229	132	1,821	45	35	28

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Summary-Alts

December 2011

Table 1.3-19. Summary of Annual Marine Vessel Emissions without Mitigation
Alt 5/Alt 6

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	14	6	175	106	15	12
Ships - 20nm to PA	13	6	106	59	10	8
Ships - PA	6	3	44	23	4	4
Ships - Harbor Transit	4	3	26	8	3	3
Ships - Turning & Docking	2	1	15	10	2	1
Ships - Anchoring	0	0	3	4	0	0
Ships - Hotelling	16	6	197	260	24	19
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	9	0	0	0
Total	56	27	574	471	59	47
Project Year 2012						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	26	10	285	17	7	5
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	10	0	0	0
Total	70	33	656	26	14	11
Project Year 2015						
Ships - AQMD 40nm to 20nm	18	8	202	6	3	3
Ships - 20nm to PA	16	8	122	3	2	2
Ships - PA	8	4	50	1	1	1
Ships - Harbor Transit	5	4	29	0	1	1
Ships - Turning & Docking	2	1	16	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	18	7	198	15	5	4
AMP - Hotelling	1	0	7	1	0	0
Tugboats	4	1	4	0	0	0
Total	72	34	632	26	13	11
Project Year 2020						
Ships - AQMD 40nm to 20nm	22	10	251	7	4	3
Ships - 20nm to PA	20	10	148	4	3	2
Ships - PA	9	5	61	1	1	1
Ships - Harbor Transit	6	5	36	1	1	1
Ships - Turning & Docking	2	2	19	1	0	0
Ships - Anchoring	0	0	3	0	0	0
Ships - Hotelling	9	4	97	11	3	2
AMP - Hotelling	2	0	12	1	0	0
Tugboats	4	1	5	0	0	0
Total	76	37	632	26	13	11

Table 1.3-20. Summary of Peak Daily Marine Vessel Emissions without Mitigation
Alt 5/Alt 6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	283	126	3,219	88	52	42
Ships - 20nm to PA	254	128	1,870	48	35	28
Ships - PA	119	66	770	18	15	12
Ships - Harbor Transit	76	67	453	7	11	9
Ships - Turning & Docking	31	22	244	8	6	4
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	148	59	1,624	116	42	33
AMP - Hotelling	11	1	62	6	2	2
Tugboats	50	9	58	0	1	1
Total	971	478	8,300	290	165	132
Project Year 2020						
Ships - AQMD 40nm to 20nm	327	146	3,724	100	60	48
Ships - 20nm to PA	284	147	2,016	50	38	31
Ships - PA	133	75	829	19	17	14
Ships - Harbor Transit	84	79	504	7	12	10
Ships - Turning & Docking	32	24	244	7	6	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	57	24	618	70	20	16
AMP - Hotelling	14	1	79	8	3	3
Tugboats	53	10	60	0	1	1
Total	984	507	8,073	262	158	127

Table 1.3-21. Summary of Peak Hourly Marine Vessel Emissions without Mitigation
Alt 5/Alt 6

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	199	112	1,581	40	30	24
Project Year 2020						
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	228	131	1,820	45	35	28

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Summary-Alts

December 2011

<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	27	12	303	8	5	4
Ships - 20nm to PA	24	12	173	4	3	3
Ships - PA	11	6	71	2	1	1
Ships - Harbor Transit	7	6	42	1	1	1
Ships - Turning & Docking	3	2	22	1	1	0
Ships - Anchoring	0	0	4	0	0	0
Ships - Hotelling	7	3	77	9	2	2
AMP - Hotelling	2	0	10	1	0	0
Tugboats	5	1	6	0	0	0
Total	86	43	707	25	14	11
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	29	13	331	9	5	4
Ships - 20nm to PA	26	13	188	5	4	3
Ships - PA	12	7	77	2	2	1
Ships - Harbor Transit	8	7	46	1	1	1
Ships - Turning & Docking	3	2	24	1	1	0
Ships - Anchoring	0	0	4	0	0	0
Ships - Hotelling	7	3	79	9	3	2
AMP - Hotelling	2	0	10	1	0	0
Tugboats	6	1	6	0	0	0
Total	93	47	765	27	15	12

(1) There is no AMP usage assumed for the baseline.

<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	401	179	4,568	123	74	59
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	66	27	711	74	22	17
AMP - Hotelling	17	1	95	10	3	3
Tugboats	56	11	63	0	2	1
Total	1,192	617	9,825	306	191	153
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	401	179	4,568	123	74	59
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	66	27	711	74	22	17
AMP - Hotelling	17	1	95	10	3	3
Tugboats	57	12	64	0	2	1
Total	1,193	618	9,826	306	191	153

<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	92	41	1,046	28	17	14
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	274	160	2,194	53	42	33
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	92	41	1,046	28	17	14
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	275	160	2,194	53	42	33

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-22. Summary of Annual Marine Vessel Emissions with Mitigation
Alt 1

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	14	6	175	106	16	14
Ships - 20nm to PA	13	6	106	59	10	8
Ships - PA	6	3	44	23	4	4
Ships - Harbor Transit	4	3	26	8	3	3
Ships - Turning & Docking	2	1	15	10	2	1
Ships - Anchoring	0	0	3	4	0	0
Ships - Hotelling	16	6	197	260	24	19
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	9	0	0	0
Total	56	27	574	471	60	49
Project Year 2012						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	26	10	285	17	7	5
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	10	0	0	0
Total	70	33	656	26	14	11
Project Year 2015						
Ships - AQMD 40nm to 20nm	15	8	115	3	2	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	14	5	149	11	4	3
AMP - Hotelling	1	0	6	1	0	0
Tugboats	3	1	3	0	0	0
Total	60	29	458	19	10	8
Project Year 2020						
Ships - AQMD 40nm to 20nm	15	8	115	3	2	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	7	3	73	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	3	1	4	0	0	0
Total	53	27	386	17	9	7

Table 1.3-23. Summary of Peak Daily Marine Vessel Emissions with Mitigation
Alt 1

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	141	71	1,037	26	20	16
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	118	47	1,288	92	33	26
AMP - Hotelling	9	0	49	5	2	2
Tugboats	25	5	29	0	1	1
Total	532	265	4,072	164	89	71
Project Year 2020						
Ships - AQMD 40nm to 20nm	141	71	1,037	26	20	16
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	55	23	598	64	19	15
AMP - Hotelling	14	1	79	8	3	3
Tugboats	27	5	30	0	1	1
Total	476	242	3,412	139	76	61

Table 1.3-24. Summary of Peak Hourly Marine Vessel Emissions with Mitigation
Alt 1

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	42	21	312	8	6	5
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	179	106	1,192	29	25	20
Project Year 2020						
Ships - AQMD 40nm to 20nm	42	21	312	8	6	5
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	180	106	1,193	29	25	20

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Project Year 2025						
Ships - AQMD 40nm to 20nm	20	10	144	4	3	2
Ships - 20nm to PA	18	9	129	3	2	2
Ships - PA	8	5	53	1	1	1
Ships - Harbor Transit	5	5	31	0	1	1
Ships - Turning & Docking	2	2	17	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	6	3	68	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	4	1	4	0	0	0
Total	65	33	458	18	10	8
Project Year 2027						
Ships - AQMD 40nm to 20nm	20	10	144	4	3	2
Ships - 20nm to PA	18	9	129	3	2	2
Ships - PA	8	5	53	1	1	1
Ships - Harbor Transit	5	5	31	0	1	1
Ships - Turning & Docking	2	2	17	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	3	1	30	6	1	1
AMP - Hotelling	2	0	11	1	0	0
Tugboats	4	1	5	0	0	0
Total	62	32	422	17	9	8

Table 1.3-25. Summary of Annual Marine Vessel Emissions with Mitigation NEPA/II 2

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	14	6	175	106	16	14
Ships - 20nm to PA	13	6	106	59	10	8
Ships - PA	6	3	44	23	4	4
Ships - Harbor Transit	4	3	26	8	3	3
Ships - Turning & Docking	2	1	15	10	2	1
Ships - Anchoring	0	0	3	4	0	0
Ships - Hotelling	16	6	197	260	24	19
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	9	0	0	0
Total	56	27	574	471	60	49
Project Year 2012						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	26	10	285	17	7	5
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	10	0	0	0
Total	70	33	656	26	14	11

Project Year 2025						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	45	19	489	55	16	12
AMP - Hotelling	11	1	63	7	2	2
Tugboats	28	6	31	0	1	1
Total	509	269	3,497	131	77	62
Project Year 2027						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	21	10	214	44	10	8
AMP - Hotelling	13	1	74	8	3	3
Tugboats	29	6	32	0	1	1
Total	486	260	3,233	121	72	58

Table 1.3-26. Summary of Peak Daily Marine Vessel Emissions with Mitigation NEPA/II 2

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97

Project Year 2025						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	201	122	1,307	31	27	22
Project Year 2027						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	201	122	1,307	31	27	22

Table 1.3-27. Summary of Peak Hourly Marine Vessel Emissions with Mitigation NEPA/II 2

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

<i>Project Year 2015</i>						
Ships - AQMD 40nm to 20nm	15	8	115	3	2	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	14	5	149	11	4	3
AMP - Hotelling	1	0	6	1	0	0
Tugboats	3	1	3	0	0	0
Total	60	29	458	19	10	8
<i>Project Year 2020</i>						
Ships - AQMD 40nm to 20nm	15	8	115	3	2	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	7	3	73	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	3	1	4	0	0	0
Total	53	27	386	17	9	7
<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	20	10	144	4	3	2
Ships - 20nm to PA	18	9	129	3	2	2
Ships - PA	8	5	53	1	1	1
Ships - Harbor Transit	5	5	31	0	1	1
Ships - Turning & Docking	2	2	17	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	6	3	68	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	4	1	4	0	0	0
Total	65	33	458	18	10	8
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	20	10	144	4	3	2
Ships - 20nm to PA	18	9	129	3	2	2
Ships - PA	8	5	53	1	1	1
Ships - Harbor Transit	5	5	31	0	1	1
Ships - Turning & Docking	2	2	17	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	3	1	30	6	1	1
AMP - Hotelling	2	0	11	1	0	0
Tugboats	4	1	5	0	0	0
Total	62	32	422	17	9	8

<i>Project Year 2015</i>						
Ships - AQMD 40nm to 20nm	141	71	1,037	26	20	16
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	118	47	1,288	92	33	26
AMP - Hotelling	9	0	49	5	2	2
Tugboats	25	5	29	0	1	1
Total	532	265	4,072	164	89	71
<i>Project Year 2020</i>						
Ships - AQMD 40nm to 20nm	141	71	1,037	26	20	16
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	55	23	598	64	19	15
AMP - Hotelling	14	1	79	8	3	3
Tugboats	27	5	30	0	1	1
Total	476	242	3,412	139	76	61
<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	45	19	489	55	16	12
AMP - Hotelling	11	1	63	7	2	2
Tugboats	28	6	31	0	1	1
Total	509	269	3,497	131	77	62
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	21	10	214	44	10	8
AMP - Hotelling	13	1	74	8	3	3
Tugboats	29	6	32	0	1	1
Total	486	260	3,233	121	72	58

<i>Project Year 2015</i>						
Ships - AQMD 40nm to 20nm	42	21	312	8	6	5
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	179	106	1,192	29	25	20
<i>Project Year 2020</i>						
Ships - AQMD 40nm to 20nm	42	21	312	8	6	5
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	180	106	1,193	29	25	20
<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	201	122	1,307	31	27	22
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	201	122	1,307	31	27	22

(1) There is no AMP usage assumed for the baseline.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-28. Summary of Annual Marine Vessel Emissions with Mitigation
Alt 3

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	14	6	175	106	16	14
Ships - 20nm to PA	13	6	106	59	10	8
Ships - PA	6	3	44	23	4	4
Ships - Harbor Transit	4	3	26	8	3	3
Ships - Turning & Docking	2	1	15	10	2	1
Ships - Anchoring	0	0	3	4	0	0
Ships - Hotelling	16	6	197	260	24	19
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	9	0	0	0
Total	56	27	574	471	60	49
Project Year 2012						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	26	10	285	17	7	5
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	10	0	0	0
Total	70	33	656	26	14	11
Project Year 2015						
Ships - AQMD 40nm to 20nm	16	8	117	3	2	2
Ships - 20nm to PA	14	7	105	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	26	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	13	5	144	11	4	3
AMP - Hotelling	1	0	5	1	0	0
Tugboats	3	1	3	0	0	0
Total	60	30	459	19	10	8
Project Year 2020						
Ships - AQMD 40nm to 20nm	20	10	144	4	3	2
Ships - 20nm to PA	18	9	129	3	2	2
Ships - PA	8	5	53	1	1	1
Ships - Harbor Transit	5	5	31	0	1	1
Ships - Turning & Docking	2	2	17	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	7	3	76	9	2	2
AMP - Hotelling	2	0	10	1	0	0
Tugboats	4	1	4	0	0	0
Total	66	34	467	19	10	8

Table 1.3-29. Summary of Peak Daily Marine Vessel Emissions with Mitigation
Alt 3

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	95	38	1,040	78	28	22
AMP - Hotelling	7	0	39	4	1	1
Tugboats	25	5	29	0	1	1
Total	551	287	4,021	151	88	70
Project Year 2020						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	45	19	489	55	16	12
AMP - Hotelling	11	1	63	7	2	2
Tugboats	27	5	30	0	1	1
Total	507	269	3,495	131	77	62

Table 1.3-30. Summary of Peak Hourly Marine Vessel Emissions with Mitigation
Alt 3

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	200	122	1,306	31	27	22
Project Year 2020						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	200	122	1,306	31	27	22

**Port of Los Angeles
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Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	23	12	171	4	3	3
Ships - 20nm to PA	21	11	154	4	3	2
Ships - PA	10	5	63	1	1	1
Ships - Harbor Transit	6	6	37	1	1	1
Ships - Turning & Docking	3	2	20	1	0	0
Ships - Anchoring	0	0	3	0	0	0
Ships - Hotelling	6	3	69	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	5	1	5	0	0	0
Total	76	39	530	20	12	9
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	23	12	171	4	3	3
Ships - 20nm to PA	21	11	154	4	3	2
Ships - PA	10	5	63	1	1	1
Ships - Harbor Transit	6	6	37	1	1	1
Ships - Turning & Docking	3	2	20	1	0	0
Ships - Anchoring	0	0	3	0	0	0
Ships - Hotelling	3	1	31	6	1	1
AMP - Hotelling	2	0	11	1	0	0
Tugboats	5	1	5	0	0	0
Total	73	38	494	19	11	9

(1) There is no AMP usage assumed for the baseline.

Table 1.3-31. Summary of Annual Marine Vessel Emissions with Mitigation Alt 4

<i>Project Scenario/Activity</i>	<i>Tons Per Year</i>					
	<i>CO</i>	<i>VOC</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>
Baseline						
Ships - AQMD 40nm to 20nm	14	6	175	106	16	14
Ships - 20nm to PA	13	6	106	59	10	8
Ships - PA	6	3	44	23	4	4
Ships - Harbor Transit	4	3	26	8	3	3
Ships - Turning & Docking	2	1	15	10	2	1
Ships - Anchoring	0	0	3	4	0	0
Ships - Hotelling	16	6	197	260	24	19
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	9	0	0	0
Total	56	27	574	471	60	49
Project Year 2012						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	26	10	285	17	7	5
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	10	0	0	0
Total	70	33	656	26	14	11

<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	45	19	489	55	16	12
AMP - Hotelling	11	1	63	7	2	2
Tugboats	28	6	31	0	1	1
Total	509	269	3,497	131	77	62
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	21	10	214	44	10	8
AMP - Hotelling	13	1	74	8	3	3
Tugboats	29	6	32	0	1	1
Total	486	260	3,233	121	72	58

Table 1.3-32. Summary of Peak Daily Marine Vessel Emissions with Mitigation Alt 4

<i>Project Scenario/Activity</i>	<i>Pounds per Day</i>					
	<i>CO</i>	<i>VOC</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97

<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	201	122	1,307	31	27	22
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	201	122	1,307	31	27	22

Table 1.3-33. Summary of Peak Hourly Marine Vessel Emissions with Mitigation Alt 4

<i>Project Scenario/Activity</i>	<i>Pounds per Hour</i>					
	<i>CO</i>	<i>VOC</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25

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December 2011

<i>Project Year 2015</i>						
Ships - AQMD 40nm to 20nm	16	8	117	3	2	2
Ships - 20nm to PA	14	7	105	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	26	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	13	5	143	11	4	3
AMP - Hotelling	1	0	5	1	0	0
Tugboats	3	1	3	0	0	0
Total	60	30	458	19	10	8
<i>Project Year 2020</i>						
Ships - AQMD 40nm to 20nm	20	10	144	4	3	2
Ships - 20nm to PA	18	9	129	3	2	2
Ships - PA	8	5	53	1	1	1
Ships - Harbor Transit	5	5	31	0	1	1
Ships - Turning & Docking	2	2	17	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	7	3	75	8	2	2
AMP - Hotelling	2	0	10	1	0	0
Tugboats	4	1	4	0	0	0
Total	66	34	466	19	10	8
<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	23	12	171	4	3	3
Ships - 20nm to PA	21	11	154	4	3	2
Ships - PA	10	5	63	1	1	1
Ships - Harbor Transit	6	6	37	1	1	1
Ships - Turning & Docking	3	2	20	1	0	0
Ships - Anchoring	0	0	3	0	0	0
Ships - Hotelling	6	3	69	8	2	2
AMP - Hotelling	2	0	9	1	0	0
Tugboats	5	1	5	0	0	0
Total	76	39	531	20	12	9
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	24	12	173	4	3	3
Ships - 20nm to PA	21	11	156	4	3	2
Ships - PA	10	6	64	2	1	1
Ships - Harbor Transit	6	6	38	1	1	1
Ships - Turning & Docking	3	2	20	1	0	0
Ships - Anchoring	0	0	3	0	0	0
Ships - Hotelling	3	1	30	6	1	1
AMP - Hotelling	2	0	10	1	0	0
Tugboats	5	1	5	0	0	0
Total	74	39	499	18	11	9

(1) There is no AMP usage assumed for the baseline.

<i>Project Year 2015</i>						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	95	38	1,040	78	28	22
AMP - Hotelling	7	0	39	4	1	1
Tugboats	25	5	29	0	1	1
Total	551	287	4,021	151	88	70
<i>Project Year 2020</i>						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	45	19	489	55	16	12
AMP - Hotelling	11	1	63	7	2	2
Tugboats	27	5	30	0	1	1
Total	507	269	3,495	131	77	62
<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	45	19	489	55	16	12
AMP - Hotelling	11	1	63	7	2	2
Tugboats	28	6	31	0	1	1
Total	509	269	3,497	131	77	62
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	21	10	214	44	10	8
AMP - Hotelling	13	1	74	8	3	3
Tugboats	29	6	32	0	1	1
Total	486	260	3,233	121	72	58

<i>Project Year 2015</i>						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	200	122	1,306	31	27	22
<i>Project Year 2020</i>						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	200	122	1,306	31	27	22
<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	201	122	1,307	31	27	22
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	201	122	1,307	31	27	22

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-34. Summary of Annual Marine Vessel Emissions with Mitigation
Alt 5/Alt 6

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	14	6	175	106	16	14
Ships - 20nm to PA	13	6	106	59	10	8
Ships - PA	6	3	44	23	4	4
Ships - Harbor Transit	4	3	26	8	3	3
Ships - Turning & Docking	2	1	15	10	2	1
Ships - Anchoring	0	0	3	4	0	0
Ships - Hotelling	16	6	197	260	24	19
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	9	0	0	0
Total	56	27	574	471	60	49
Project Year 2012						
Ships - AQMD 40nm to 20nm	15	7	175	5	3	2
Ships - 20nm to PA	14	7	103	3	2	2
Ships - PA	7	4	43	1	1	1
Ships - Harbor Transit	4	4	25	0	1	0
Ships - Turning & Docking	2	1	14	0	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	26	10	285	17	7	5
AMP - Hotelling	-	-	-	-	-	-
Tugboats	3	1	10	0	0	0
Total	70	33	656	26	14	11
Project Year 2015						
Ships - AQMD 40nm to 20nm	18	9	135	4	3	2
Ships - 20nm to PA	16	8	122	3	2	2
Ships - PA	8	4	50	1	1	1
Ships - Harbor Transit	5	4	29	0	1	1
Ships - Turning & Docking	2	1	16	1	0	0
Ships - Anchoring	0	0	2	0	0	0
Ships - Hotelling	18	7	198	15	5	4
AMP - Hotelling	1	0	7	1	0	0
Tugboats	4	1	4	0	0	0
Total	72	35	565	24	13	10
Project Year 2020						
Ships - AQMD 40nm to 20nm	22	11	164	4	3	2
Ships - 20nm to PA	20	10	148	4	3	2
Ships - PA	9	5	61	1	1	1
Ships - Harbor Transit	6	5	36	1	1	1
Ships - Turning & Docking	2	2	19	1	0	0
Ships - Anchoring	0	0	3	0	0	0
Ships - Hotelling	9	4	97	11	3	2
AMP - Hotelling	2	0	12	1	0	0
Tugboats	4	1	5	0	0	0
Total	76	38	545	23	12	10

Table 1.3-35. Summary of Peak Daily Marine Vessel Emissions with Mitigation
Alt 5/Alt 6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	282	142	2,074	53	39	31
Ships - 20nm to PA	254	128	1,870	48	35	28
Ships - PA	119	66	770	18	15	12
Ships - Harbor Transit	76	67	453	7	11	9
Ships - Turning & Docking	31	22	244	8	6	4
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	146	58	1,602	115	42	33
AMP - Hotelling	11	1	61	6	2	2
Tugboats	50	9	58	0	1	1
Total	968	493	7,132	254	151	121
Project Year 2020						
Ships - AQMD 40nm to 20nm	315	163	2,235	56	43	34
Ships - 20nm to PA	284	147	2,016	50	38	31
Ships - PA	133	75	829	19	17	14
Ships - Harbor Transit	84	79	504	7	12	10
Ships - Turning & Docking	32	24	244	7	6	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	57	24	609	69	20	15
AMP - Hotelling	14	1	78	8	3	3
Tugboats	53	10	60	0	1	1
Total	972	523	6,574	216	140	112

Table 1.3-36. Summary of Peak Hourly Marine Vessel Emissions with Mitigation
Alt 5/Alt 6

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	42	21	312	8	6	5
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	179	106	1,192	29	25	20
Project Year 2020						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	200	122	1,306	31	27	22

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	26	13	192	5	4	3
Ships - 20nm to PA	24	12	173	4	3	3
Ships - PA	11	6	71	2	1	1
Ships - Harbor Transit	7	6	42	1	1	1
Ships - Turning & Docking	3	2	22	1	1	0
Ships - Anchoring	0	0	4	0	0	0
Ships - Hotelling	7	3	77	9	2	2
AMP - Hotelling	2	0	10	1	0	0
Tugboats	5	1	6	0	0	0
Total	85	44	595	22	13	10
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	29	15	208	5	4	3
Ships - 20nm to PA	26	13	188	5	4	3
Ships - PA	12	7	77	2	2	1
Ships - Harbor Transit	8	7	46	1	1	1
Ships - Turning & Docking	3	2	24	1	1	0
Ships - Anchoring	0	0	4	0	0	0
Ships - Hotelling	3	2	34	7	2	1
AMP - Hotelling	2	0	12	1	0	0
Tugboats	6	1	6	0	0	0
Total	89	47	599	22	13	10

<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	386	200	2,733	67	52	42
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	65	27	700	73	22	17
AMP - Hotelling	-	-	-	-	-	-
Tugboats	56	11	63	0	2	1
Total	1,160	636	7,885	239	165	132
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	386	200	2,733	67	52	42
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	28	13	289	56	13	10
AMP - Hotelling	19	1	111	12	4	4
Tugboats	57	12	64	0	2	1
Total	1,143	623	7,586	234	160	129

<i>Project Year 2025</i>						
Ships - AQMD 40nm to 20nm	58	30	415	10	8	6
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	240	148	1,562	35	33	26
<i>Project Year 2027</i>						
Ships - AQMD 40nm to 20nm	58	30	415	10	8	6
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	240	148	1,563	35	33	26

Table 1.3-37. Annual Ship Visit Data - CEQA Baseline and Proposed Project

Project Scenario Ship Type	Annual Ship Calls	Annual Anchor Calls (1)	Engine Year (2)	Avg Hotelling per Ship (hr)
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	2	-	2008	38.2
Containerships 5,000 TEU	177	11	1998	44.9
Containerships 4,000 TEU	59	8	2002	37.8
Containerships 3,000 TEU	7	-	2004	60.1
Containerships 1,000 TEU	2	1	2002	19.3
Total	247	20		n/a
Project Year 2012				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	-	-	2007	-
Containerships 6,000 TEU	156	16	2003	71.0
Containerships 5,000 TEU	52	5	2002	59.7
Containerships 4,000 TEU	26	3	2000	48.3
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	234	23		n/a
Project Year 2015				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	-	-	2007	-
Containerships 6,000 TEU	156	16	2003	79.3
Containerships 5,000 TEU	52	5	2002	66.6
Containerships 4,000 TEU	78	8	2000	53.9
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	286	29		n/a
Project Year 2020				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	52	5	2007	97.1
Containerships 6,000 TEU	156	16	2003	65.8
Containerships 5,000 TEU	52	5	2002	55.3
Containerships 4,000 TEU	78	8	2000	44.8
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	338	34		n/a
Project Year 2025				
Containerships 10,000 TEU	52	5	2007	68.9
Containerships 9,000 TEU	104	10	2007	62.3
Containerships 6,000 TEU	104	10	2003	42.5
Containerships 5,000 TEU	52	5	2002	35.9
Containerships 4,000 TEU	52	5	2000	29.3
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	364	36		n/a
Project Year 2027				
Containerships 10,000 TEU	52	5	2007	65.5
Containerships 9,000 TEU	104	10	2007	59.3
Containerships 6,000 TEU	156	16	2003	40.5
Containerships 5,000 TEU	52	5	2002	34.3
Containerships 4,000 TEU	26	3	2000	28.0
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	390	39		n/a

(1) Anchor calls in 2015-2027 are assumed to be 10 percent of total calls at berth for each study year.

(2) For future study years, engine year is taken from the POLA 2009 EI, Table 3.25

Table 1.3-38. Peak Day Ship Visit Data - CEQA Baseline and Proposed Project

Project Scenario/Ship Type	Peak Day Arrivals	Peak Day Departures	Peak Day At Berth	Peak Day Hotelling (hr)	
				Unmitigated	Mitigated (2)
Baseline					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU				-	-
Containerships 6,000 TEU	1	1	1	64.0	64.0
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.0	64.0
Project Year 2012					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU				-	-
Containerships 6,000 TEU	1	1	1	64.0	64.0
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.0	64.0
Project Year 2015					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU				-	-
Containerships 6,000 TEU	2	2	-	80.0	78.9
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	2	2	-	80.0	78.9
Project Year 2020					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU	2	2	-	80.3	79.1
Containerships 6,000 TEU				-	-
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	2	2	-	80.3	79.1
Project Year 2025					
Containerships 10,000 TEU	2	2	-	80.3	79.1
Containerships 9,000 TEU				-	-
Containerships 6,000 TEU				-	-
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	2	2	-	80.3	79.1
Project Year 2027					
Containerships 10,000 TEU	2	2	-	80.3	79.1
Containerships 9,000 TEU				-	-
Containerships 6,000 TEU				-	-
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	2	2	-	80.3	79.1

Notes: (1) Hotelling time equals 24 hours minus vessel transit time within the SCAB. Because the Vessel Speed Reduction (VSR) program increases transit time, the hotelling times are shorter when VSR is implemented as mitigation.

(2) For the Mitigated Project, 95% VSR is assumed out to 40nm. 95% VSR is assumed out to 20nm for the unmitigated project.

(3) Peak daily arrivals and departures provided by APL.

Table 1.3-39. OGV Main Engine Usage per One-Way Transit: Baseline

Vessel Type	Propulsion Max kW	Speed (Kts)	Load Factor	Distance (nm/trip)	Duration (hr/trip)	Energy Consumed (kW-hr/trip)
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (1)						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	18.1	0.31	20.73	1.15	21,345
Containerships 5,000 TEU	53,032	17.8	0.30	20.73	1.17	18,247
Containerships 4,000 TEU	42,216	16.1	0.25	20.73	1.29	13,370
Containerships 3,000 TEU	30,647	13.8	0.18	20.73	1.51	8,115
Containerships 1,000 TEU	8,610	15.1	0.38	20.73	1.37	4,487
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR						
Doesn't apply to the baseline						
Fairway: 20nm to Precautionary Area, Without VSR						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	18.1	0.31	18.58	1.03	19,131
Containerships 5,000 TEU	53,032	17.8	0.30	18.58	1.05	16,355
Containerships 4,000 TEU	42,216	16.1	0.25	18.58	1.16	11,984
Containerships 3,000 TEU	30,647	13.8	0.18	18.58	1.35	7,273
Containerships 1,000 TEU	8,610	15.1	0.38	18.58	1.23	4,022
Fairway: 20nm to Precautionary Area, With VSR						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	12.0	0.09	18.58	1.55	8,456
Containerships 5,000 TEU	53,032	12.0	0.09	18.58	1.55	7,449
Containerships 4,000 TEU	42,216	12.0	0.10	18.58	1.55	6,699
Containerships 3,000 TEU	30,647	12.0	0.12	18.58	1.55	5,522
Containerships 1,000 TEU	8,610	12.0	0.19	18.58	1.55	2,540
Precautionary Area						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	11.0	0.07	8.06	0.73	3,083
Containerships 5,000 TEU	53,032	11.0	0.07	8.06	0.73	2,716
Containerships 4,000 TEU	42,216	11.0	0.08	8.06	0.73	2,442
Containerships 3,000 TEU	30,647	11.0	0.09	8.06	0.73	2,014
Containerships 1,000 TEU	8,610	11.0	0.15	8.06	0.73	926
Harbor Transit Inbound						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	7.0	0.02	3.50	0.50	542
Containerships 5,000 TEU	53,032	7.0	0.02	3.50	0.50	477
Containerships 4,000 TEU	42,216	7.0	0.02	3.50	0.50	429
Containerships 3,000 TEU	30,647	7.0	0.02	3.50	0.50	354
Containerships 1,000 TEU	8,610	7.0	0.04	3.50	0.50	163
Harbor Transit Outbound						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	8.0	0.03	3.50	0.44	708
Containerships 5,000 TEU	53,032	8.0	0.03	3.50	0.44	624
Containerships 4,000 TEU	42,216	8.0	0.03	3.50	0.44	561
Containerships 3,000 TEU	30,647	8.0	0.03	3.50	0.44	462
Containerships 1,000 TEU	8,610	8.0	0.06	3.50	0.44	213
Turning						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.23	281
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.23	247
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.23	197
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.23	143
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.23	40
Docking						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.25	301
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.25	265
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.25	211
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.25	153
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.25	43

Source: POLA 2009 Emission Inventory Report.

(1) VSR = vessel speed reduction (speed reduced to 12 knots).

(2) Turning time and turning and docking load factors from 2008 POLA EI, Section 3.5.6.

(3) Harbor transit distance and turning time assumed from China Shipping EIR.

Table 1.3-40. OGV Auxiliary Engine Usage per One-Way Transit: Baseline

Vessel Type	Auxiliary kW per Vessel (1)	Hours/Transit	kW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.15	1,946
Containerships 5,000 TEU	1,256	1.17	1,464
Containerships 4,000 TEU	1,611	1.29	2,081
Containerships 3,000 TEU	667	1.51	1,005
Containerships 1,000 TEU	443	1.37	608
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR			
Doesn't apply to the baseline			
Fairway: 20nm to Precautionary Area, Without VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.03	1,744
Containerships 5,000 TEU	1,256	1.05	1,313
Containerships 4,000 TEU	1,611	1.16	1,865
Containerships 3,000 TEU	667	1.35	901
Containerships 1,000 TEU	443	1.23	545
Fairway: 20nm to Precautionary Area, With VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.55	2,623
Containerships 5,000 TEU	1,256	1.55	1,945
Containerships 4,000 TEU	1,611	1.55	2,494
Containerships 3,000 TEU	667	1.55	1,034
Containerships 1,000 TEU	443	1.55	686
Precautionary Area			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.73	1,242
Containerships 5,000 TEU	1,256	0.73	921
Containerships 4,000 TEU	1,611	0.73	1,181
Containerships 3,000 TEU	667	0.73	489
Containerships 1,000 TEU	443	0.73	325
Harbor Transit Inbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.50	847
Containerships 5,000 TEU	1,256	0.50	628
Containerships 4,000 TEU	1,611	0.50	805
Containerships 3,000 TEU	667	0.50	334
Containerships 1,000 TEU	443	0.50	222
Harbor Transit Outbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.44	741
Containerships 5,000 TEU	1,256	0.44	549
Containerships 4,000 TEU	1,611	0.44	705
Containerships 3,000 TEU	667	0.44	292
Containerships 1,000 TEU	443	0.44	194
Turning			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	3,778	0.23	882
Containerships 5,000 TEU	3,457	0.23	807
Containerships 4,000 TEU	2,889	0.23	674
Containerships 3,000 TEU	2,288	0.23	534
Containerships 1,000 TEU	1,051	0.23	245
Docking			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	3,778	0.25	945
Containerships 5,000 TEU	3,457	0.25	864
Containerships 4,000 TEU	2,889	0.25	722
Containerships 3,000 TEU	2,288	0.25	572
Containerships 1,000 TEU	1,051	0.25	263

(1) Auxiliary engine data provided by Starcrest.

Table 1.3-41. OGV Auxiliary Boiler Usage per One-Way Transit: Baseline

Vessel Type	Boiler kW	Hours/Transit	kW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.15	-
Containerships 5,000 TEU	411	1.17	-
Containerships 4,000 TEU	367	1.29	-
Containerships 3,000 TEU	394	1.51	593
Containerships 1,000 TEU	58	1.37	-
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR (2)			
Doesn't apply to the baseline			
Fairway: 20nm to Precautionary Area, Without VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.03	-
Containerships 5,000 TEU	411	1.05	-
Containerships 4,000 TEU	367	1.16	-
Containerships 3,000 TEU	394	1.35	531
Containerships 1,000 TEU	58	1.23	-
Fairway: 20nm to Precautionary Area, With VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.55	505
Containerships 5,000 TEU	411	1.55	636
Containerships 4,000 TEU	367	1.55	569
Containerships 3,000 TEU	394	1.55	610
Containerships 1,000 TEU	58	1.55	90
Precautionary Area			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.73	239
Containerships 5,000 TEU	411	0.73	301
Containerships 4,000 TEU	367	0.73	269
Containerships 3,000 TEU	394	0.73	289
Containerships 1,000 TEU	58	0.73	43
Harbor Transit Inbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.50	163
Containerships 5,000 TEU	411	0.50	205
Containerships 4,000 TEU	367	0.50	184
Containerships 3,000 TEU	394	0.50	197
Containerships 1,000 TEU	58	0.50	29
Harbor Transit Outbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.44	143
Containerships 5,000 TEU	411	0.44	180
Containerships 4,000 TEU	367	0.44	161
Containerships 3,000 TEU	394	0.44	172
Containerships 1,000 TEU	58	0.44	25
Turning			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	0.23	116
Containerships 5,000 TEU	608	0.23	142
Containerships 4,000 TEU	523	0.23	122
Containerships 3,000 TEU	513	0.23	120
Containerships 1,000 TEU	232	0.23	54
Docking			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	0.25	124
Containerships 5,000 TEU	608	0.25	152
Containerships 4,000 TEU	523	0.25	131
Containerships 3,000 TEU	513	0.25	128
Containerships 1,000 TEU	232	0.25	58

(1) The boiler is assumed to be operated under engine loads less than 20% (Starcrest, 2009).

(2) Boilers are assumed to not have an applied load factor.

Table 1.3-42. OGV Main Engine Usage per One-Way Transit: 2012-2027

Vessel Type	Propulsion Max kW	Speed (Kts)	Load Factor	Distance (nm/trip)	Duration (hr/trip)	Energy Consumed (kW-hr/trip)
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (1)						
Containerships 10,000 TEU	84,280	19.0	0.34	20.74	1.09	30,860
Containerships 9,000 TEU	68,639	19.0	0.34	20.74	1.09	25,133
Containerships 6,000 TEU	60,199	18.1	0.31	20.74	1.15	21,354
Containerships 5,000 TEU	53,032	17.8	0.30	20.74	1.17	18,255
Containerships 4,000 TEU	42,216	16.1	0.25	20.74	1.29	13,376
Containerships 3,000 TEU	30,647	13.8	0.18	20.74	1.51	8,118
Containerships 1,000 TEU	8,610	15.1	0.38	20.74	1.37	4,489
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR						
Containerships 10,000 TEU	84,280	12.0	0.08	20.74	1.73	12,310
Containerships 9,000 TEU	68,639	12.0	0.08	20.74	1.73	10,025
Containerships 6,000 TEU	60,199	12.0	0.09	20.74	1.73	9,438
Containerships 5,000 TEU	53,032	12.0	0.09	20.74	1.73	8,315
Containerships 4,000 TEU	42,216	12.0	0.10	20.74	1.73	7,477
Containerships 3,000 TEU	30,647	12.0	0.12	20.74	1.73	6,164
Containerships 1,000 TEU	8,610	12.0	0.19	20.74	1.73	2,835
Fairway: 20nm to Precautionary Area, Without VSR						
Containerships 10,000 TEU	84,280	19.0	0.34	18.71	0.98	27,832
Containerships 9,000 TEU	68,639	19.0	0.34	18.71	0.98	22,667
Containerships 6,000 TEU	60,199	18.1	0.31	18.71	1.04	19,259
Containerships 5,000 TEU	53,032	17.8	0.30	18.71	1.05	16,464
Containerships 4,000 TEU	42,216	16.1	0.25	18.71	1.17	12,064
Containerships 3,000 TEU	30,647	13.8	0.18	18.71	1.36	7,322
Containerships 1,000 TEU	8,610	15.1	0.38	18.71	1.24	4,049
Fairway: 20nm to Precautionary Area, With VSR						
Containerships 10,000 TEU	84,280	12.0	0.08	18.71	1.56	11,102
Containerships 9,000 TEU	68,639	12.0	0.08	18.71	1.56	9,042
Containerships 6,000 TEU	60,199	12.0	0.09	18.71	1.56	8,512
Containerships 5,000 TEU	53,032	12.0	0.09	18.71	1.56	7,499
Containerships 4,000 TEU	42,216	12.0	0.10	18.71	1.56	6,744
Containerships 3,000 TEU	30,647	12.0	0.12	18.71	1.56	5,559
Containerships 1,000 TEU	8,610	12.0	0.19	18.71	1.56	2,557
Precautionary Area						
Containerships 10,000 TEU	84,280	11.0	0.07	8.06	0.73	4,020
Containerships 9,000 TEU	68,639	11.0	0.07	8.06	0.73	3,274
Containerships 6,000 TEU	60,199	11.0	0.07	8.06	0.73	3,082
Containerships 5,000 TEU	53,032	11.0	0.07	8.06	0.73	2,715
Containerships 4,000 TEU	42,216	11.0	0.08	8.06	0.73	2,442
Containerships 3,000 TEU	30,647	11.0	0.09	8.06	0.73	2,013
Containerships 1,000 TEU	8,610	11.0	0.15	8.06	0.73	926
Harbor Transit Inbound						
Containerships 10,000 TEU	84,280	7.0	0.02	3.50	0.50	707
Containerships 9,000 TEU	68,639	7.0	0.02	3.50	0.50	576
Containerships 6,000 TEU	60,199	7.0	0.02	3.50	0.50	542
Containerships 5,000 TEU	53,032	7.0	0.02	3.50	0.50	477
Containerships 4,000 TEU	42,216	7.0	0.02	3.50	0.50	429
Containerships 3,000 TEU	30,647	7.0	0.02	3.50	0.50	354
Containerships 1,000 TEU	8,610	7.0	0.04	3.50	0.50	163
Harbor Transit Outbound						
Containerships 10,000 TEU	84,280	8.0	0.03	3.50	0.44	923
Containerships 9,000 TEU	68,639	8.0	0.03	3.50	0.44	752
Containerships 6,000 TEU	60,199	8.0	0.03	3.50	0.44	708
Containerships 5,000 TEU	53,032	8.0	0.03	3.50	0.44	624
Containerships 4,000 TEU	42,216	8.0	0.03	3.50	0.44	561
Containerships 3,000 TEU	30,647	8.0	0.03	3.50	0.44	462
Containerships 1,000 TEU	8,610	8.0	0.06	3.50	0.44	213
Turning						
Containerships 10,000 TEU	84,280	n/a	0.02	n/a	0.23	393
Containerships 9,000 TEU	68,639	n/a	0.02	n/a	0.23	320
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.23	281
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.23	247
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.23	197
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.23	143
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.23	40
Docking						
Containerships 10,000 TEU	84,280	n/a	0.02	n/a	0.25	421
Containerships 9,000 TEU	68,639	n/a	0.02	n/a	0.25	343
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.25	301
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.25	265
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.25	211
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.25	153
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.25	43

Source: POLA 2009 Emission Inventory Report.

(1) VSR = vessel speed reduction (speed reduced to 12 knots).

(2) Turning time and turning and docking load factors from 2008 POLA EI, Section 3.5.6.

(3) Harbor transit distance and turning time assumed from China Shipping EIR.

Table 1.3-43. OGV Auxiliary Engine Usage per One-Way Transit: 2012-2027

Vessel Type	Auxiliary kW per Vessel (1)	Load Factor (2)	Hours/Transit	KW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR				
Containerships 10,000 TEU	14,000	0.13	1.09	2,030
Containerships 9,000 TEU	11,665	0.13	1.09	1,692
Containerships 6,000 TEU	1,694	NA	1.15	1,947
Containerships 5,000 TEU	1,256	NA	1.17	1,465
Containerships 4,000 TEU	1,611	NA	1.29	2,081
Containerships 3,000 TEU	667	NA	1.51	1,005
Containerships 1,000 TEU	443	NA	1.37	609
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR				
Containerships 10,000 TEU	14,000	0.13	1.73	3,215
Containerships 9,000 TEU	11,665	0.13	1.73	2,678
Containerships 6,000 TEU	1,694	NA	1.73	2,928
Containerships 5,000 TEU	1,256	NA	1.73	2,171
Containerships 4,000 TEU	1,611	NA	1.73	2,784
Containerships 3,000 TEU	667	NA	1.73	1,154
Containerships 1,000 TEU	443	NA	1.73	766
Fairway: 20nm to Precautionary Area, Without VSR				
Containerships 10,000 TEU	14,000	0.13	0.98	1,831
Containerships 9,000 TEU	11,665	0.13	0.98	1,526
Containerships 6,000 TEU	1,694	NA	1.04	1,756
Containerships 5,000 TEU	1,256	NA	1.05	1,321
Containerships 4,000 TEU	1,611	NA	1.17	1,877
Containerships 3,000 TEU	667	NA	1.36	907
Containerships 1,000 TEU	443	NA	1.24	549
Fairway: 20nm to Precautionary Area, With VSR				
Containerships 10,000 TEU	14,000	0.13	1.56	2,899
Containerships 9,000 TEU	11,665	0.13	1.56	2,416
Containerships 6,000 TEU	1,694	NA	1.56	2,641
Containerships 5,000 TEU	1,256	NA	1.56	1,958
Containerships 4,000 TEU	1,611	NA	1.56	2,511
Containerships 3,000 TEU	667	NA	1.56	1,041
Containerships 1,000 TEU	443	NA	1.56	691
Precautionary Area				
Containerships 10,000 TEU	14,000	0.13	0.73	1,363
Containerships 9,000 TEU	11,665	0.13	0.73	1,136
Containerships 6,000 TEU	1,694	NA	0.73	1,241
Containerships 5,000 TEU	1,256	NA	0.73	920
Containerships 4,000 TEU	1,611	NA	0.73	1,180
Containerships 3,000 TEU	667	NA	0.73	489
Containerships 1,000 TEU	443	NA	0.73	325
Harbor Transit Inbound				
Containerships 10,000 TEU	14,000	0.13	0.50	930
Containerships 9,000 TEU	11,665	0.13	0.50	775
Containerships 6,000 TEU	1,694	NA	0.50	847
Containerships 5,000 TEU	1,256	NA	0.50	628
Containerships 4,000 TEU	1,611	NA	0.50	805
Containerships 3,000 TEU	667	NA	0.50	334
Containerships 1,000 TEU	443	NA	0.50	222
Harbor Transit Outbound				
Containerships 10,000 TEU	14,000	0.13	0.44	814
Containerships 9,000 TEU	11,665	0.13	0.44	678
Containerships 6,000 TEU	1,694	NA	0.44	741
Containerships 5,000 TEU	1,256	NA	0.44	549
Containerships 4,000 TEU	1,611	NA	0.44	705
Containerships 3,000 TEU	667	NA	0.44	292
Containerships 1,000 TEU	443	NA	0.44	194
Turning				
Containerships 10,000 TEU	14,000	0.30	0.23	968
Containerships 9,000 TEU	11,665	0.30	0.23	806
Containerships 6,000 TEU	3,778	NA	0.23	882
Containerships 5,000 TEU	3,457	NA	0.23	807
Containerships 4,000 TEU	2,889	NA	0.23	674
Containerships 3,000 TEU	2,288	NA	0.23	534
Containerships 1,000 TEU	1,051	NA	0.23	245
Docking				
Containerships 10,000 TEU	14,000	0.30	0.25	1,037
Containerships 9,000 TEU	11,665	0.30	0.25	864
Containerships 6,000 TEU	3,778	NA	0.25	945
Containerships 5,000 TEU	3,457	NA	0.25	864
Containerships 4,000 TEU	2,889	NA	0.25	722
Containerships 3,000 TEU	2,288	NA	0.25	572
Containerships 1,000 TEU	1,051	NA	0.25	263

(1) Containership 10,000 kW provided by APL. Containership 9,000 data from the POLA 2009 Emission Inventory Report. Containership 1,000 to 6,000 data provided by Starcrest.

(2) Derived from POLA 2009 EI Table 3.13 and Table 3.26

Table 1.3-44. OGV Auxiliary Boiler Usage per One-Way Transit:2012-2027

Vessel Type	Boiler kW	Hours/Transit	KW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (2)			
Containerships 10,000 TEU	440	1.09	-
Containerships 9,000 TEU	440	1.09	-
Containerships 6,000 TEU	326	1.15	-
Containerships 5,000 TEU	411	1.17	-
Containerships 4,000 TEU	367	1.29	-
Containerships 3,000 TEU	394	1.51	593
Containerships 1,000 TEU	58	1.37	-
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR (2)			
Containerships 10,000 TEU	440	1.73	761
Containerships 9,000 TEU	440	1.73	761
Containerships 6,000 TEU	326	1.73	564
Containerships 5,000 TEU	411	1.73	710
Containerships 4,000 TEU	367	1.73	635
Containerships 3,000 TEU	394	1.73	680
Containerships 1,000 TEU	58	1.73	100
Fairway: 20nm to Precautionary Area, Without VSR (2)			
Containerships 10,000 TEU	440	0.98	-
Containerships 9,000 TEU	440	0.98	-
Containerships 6,000 TEU	326	1.04	-
Containerships 5,000 TEU	411	1.05	-
Containerships 4,000 TEU	367	1.17	-
Containerships 3,000 TEU	394	1.36	535
Containerships 1,000 TEU	58	1.24	-
Fairway: 20nm to Precautionary Area, With VSR (2)			
Containerships 10,000 TEU	440	1.56	686
Containerships 9,000 TEU	440	1.56	686
Containerships 6,000 TEU	326	1.56	508
Containerships 5,000 TEU	411	1.56	641
Containerships 4,000 TEU	367	1.56	573
Containerships 3,000 TEU	394	1.56	614
Containerships 1,000 TEU	58	1.56	90
Precautionary Area			
Containerships 10,000 TEU	440	0.73	322
Containerships 9,000 TEU	440	0.73	322
Containerships 6,000 TEU	326	0.73	239
Containerships 5,000 TEU	411	0.73	301
Containerships 4,000 TEU	367	0.73	269
Containerships 3,000 TEU	394	0.73	288
Containerships 1,000 TEU	58	0.73	43
Harbor Transit Inbound			
Containerships 10,000 TEU	440	0.50	220
Containerships 9,000 TEU	440	0.50	220
Containerships 6,000 TEU	326	0.50	163
Containerships 5,000 TEU	411	0.50	205
Containerships 4,000 TEU	367	0.50	184
Containerships 3,000 TEU	394	0.50	197
Containerships 1,000 TEU	58	0.50	29
Harbor Transit Outbound			
Containerships 10,000 TEU	440	0.44	193
Containerships 9,000 TEU	440	0.44	193
Containerships 6,000 TEU	326	0.44	143
Containerships 5,000 TEU	411	0.44	180
Containerships 4,000 TEU	367	0.44	161
Containerships 3,000 TEU	394	0.44	172
Containerships 1,000 TEU	58	0.44	25
Turning			
Containerships 10,000 TEU	440	0.23	103
Containerships 9,000 TEU	440	0.23	103
Containerships 6,000 TEU	497	0.23	116
Containerships 5,000 TEU	608	0.23	142
Containerships 4,000 TEU	523	0.23	122
Containerships 3,000 TEU	513	0.23	120
Containerships 1,000 TEU	232	0.23	54
Docking			
Containerships 10,000 TEU	440	0.25	110
Containerships 9,000 TEU	440	0.25	110
Containerships 6,000 TEU	497	0.25	124
Containerships 5,000 TEU	608	0.25	152
Containerships 4,000 TEU	523	0.25	131
Containerships 3,000 TEU	513	0.25	128
Containerships 1,000 TEU	232	0.25	58

(1) Boilers for Containerships 9,000 to 10,000 data from the POLA 2009 Emission Inventory Report. Boiler data for Containerships 1,000 to 6,000 provided by Starcrest.

(2) Boilers assumed to operate under engine loads less than 20% (Starcrest, 2009).

(3) Boilers are assumed to not have an applied load factor.

Table 1.3-45. OGV Hotelling Aux. Gen. Usage per Ship Visit (Assuming No AMP)
CEQA Baseline & Proposed Project

Vessel Type	Auxiliary kW per Vessel	Load Factor (1)	Hours/ Visit	kW-Hrs/ Visit
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	1,347	NA	38.2	51,455
Containerships 5,000 TEU	1,040	NA	44.9	46,729
Containerships 4,000 TEU	1,372	NA	37.8	51,814
Containerships 3,000 TEU	572	NA	60.1	34,377
Containerships 1,000 TEU	339	NA	19.3	6,543
Project Year 2012				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	-	-
Containerships 6,000 TEU	1,347	NA	71.0	95,642
Containerships 5,000 TEU	1,040	NA	59.7	62,031
Containerships 4,000 TEU	1,372	NA	48.3	66,315
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2015				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	-	-
Containerships 6,000 TEU	1,347	NA	79.3	106,835
Containerships 5,000 TEU	1,040	NA	66.6	69,230
Containerships 4,000 TEU	1,372	NA	53.9	73,916
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2020				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	97.1	104,199
Containerships 6,000 TEU	1,347	NA	65.8	88,586
Containerships 5,000 TEU	1,040	NA	55.3	57,493
Containerships 4,000 TEU	1,372	NA	44.8	61,524
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2025				
Containerships 10,000 TEU	14,000	0.09	68.9	88,640
Containerships 9,000 TEU	11,665	0.09	62.3	66,792
Containerships 6,000 TEU	1,347	NA	42.5	57,268
Containerships 5,000 TEU	1,040	NA	35.9	37,351
Containerships 4,000 TEU	1,372	NA	29.3	40,258
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2027				
Containerships 10,000 TEU	14,000	0.09	65.5	84,350
Containerships 9,000 TEU	11,665	0.09	59.3	63,575
Containerships 6,000 TEU	1,347	NA	40.5	54,575
Containerships 5,000 TEU	1,040	NA	34.3	35,619
Containerships 4,000 TEU	1,372	NA	28.0	38,429
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-

(1) Derived from POLA 2009 EI Table 3.13 and Table 3.26

Table 1.3-46. OGV Hotelling Auxiliary Boiler Usage per Ship Visit
CEQA Baseline & Proposed Project

Vessel Type	Boiler kW	Hours/ Visit	kW-Hrs/ Visit
Baseline			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	38.2	18,985
Containerships 5,000 TEU	608	44.9	27,313
Containerships 4,000 TEU	523	37.8	19,763
Containerships 3,000 TEU	513	60.1	30,830
Containerships 1,000 TEU	232	19.3	4,478
Project Year 2012			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	-	-
Containerships 6,000 TEU	497	71.0	35,289
Containerships 5,000 TEU	608	59.7	36,257
Containerships 4,000 TEU	523	48.3	25,293
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2015			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	-	-
Containerships 6,000 TEU	497	79.3	39,419
Containerships 5,000 TEU	608	66.6	40,465
Containerships 4,000 TEU	523	53.9	28,192
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2020			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	97.1	42,745
Containerships 6,000 TEU	497	65.8	32,686
Containerships 5,000 TEU	608	55.3	33,605
Containerships 4,000 TEU	523	44.8	23,466
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2025			
Containerships 10,000 TEU	440	68.9	30,298
Containerships 9,000 TEU	440	62.3	27,400
Containerships 6,000 TEU	497	42.5	21,130
Containerships 5,000 TEU	608	35.9	21,832
Containerships 4,000 TEU	523	29.3	15,355
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2027			
Containerships 10,000 TEU	440	65.5	28,832
Containerships 9,000 TEU	440	59.3	26,080
Containerships 6,000 TEU	497	40.5	20,136
Containerships 5,000 TEU	608	34.3	20,819
Containerships 4,000 TEU	523	28.0	14,658
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-

Table 1.3-47. OGV Anchoring Auxiliary Engine Usage per Ship Visit
CEQA Baseline & Proposed Project

Vessel Type	Auxiliary kW per Vessel (1)	Load Factor (2)	Hours/ Visit	kW-Hrs/ Visit
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	1,694	NA	2.1	3,557
Containerships 5,000 TEU	1,053	NA	10.7	11,229
Containerships 4,000 TEU	1,378	NA	4.3	5,913
Containerships 3,000 TEU	NA	NA	NA	-
Containerships 1,000 TEU	443	NA	5.6	2,481
Project Year 2012				
Containerships 10,000 TEU	-	-	7.4	-
Containerships 9,000 TEU	-	-	7.4	-
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2015				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	-	0.09	7.4	-
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2020				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2025				
Containerships 10,000 TEU	14,000	0.09	7.4	9,515
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2027				
Containerships 10,000 TEU	14,000	0.09	7.4	9,515
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-

Note: (1) Average anchoring time was derived from actual anchoring data for APL ship visits for 2008 and 2009, provided by Starcrest.

- (2) Anchoring times assumed for the baseline are carried through 2027.
(3) Anchoring times for OGVs larger than 6,000 TEU are assumed to be equal to the average for all sizes.

Table 1.3-48. OGV Anchoring Auxiliary Boiler Usage per Ship Visit
CEQA Baseline & Proposed Project

Vessel Type	Boiler kW	Hours/ Visit	kW-Hrs/ Visit
Baseline			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	2.1	1,044
Containerships 5,000 TEU	608	10.7	6,482
Containerships 4,000 TEU	523	4.3	2,246
Containerships 3,000 TEU	NA	NA	-
Containerships 1,000 TEU	232	5.6	1,299
Project Year 2012			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	-	7.4	-
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2015			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	-	7.4	-
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2020			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2025			
Containerships 10,000 TEU	440	7.4	3,252
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2027			
Containerships 10,000 TEU	440	7.4	3,252
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-

Table 1.3-49. Tugboat Main Engine Usage during Assists

Vessel Type	Tugboat Avg Hp (1)	Load Factor (1)	Hours/ Assist (2)	Tugboats per Assist	hp-Hrs/ Assist
Containerships 10,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 9,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 6,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 5,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 4,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 3,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 1,000 TEU	1,934	0.31	1.13	2	1,351

(1) Source: POLA 2009 Emission Inventory Report.

(2) Time spent operating per vessel trip. Equal to vessel "Harbor" transit times 1.3 to account for tug movement and assist time. Vessel turning time is divided by a factor of 2 because tugboats are assumed to assist containerships while turning to dock but not while turning to leave the berth.

Table 1.3-50. Tugboat Auxiliary Engine Usage during Assists

Vessel Type	Aux Engine Avg Hp (1)	Load Factor (1)	Hours/ Assist	Tugboats per Assist	hp-Hrs/ Assist
Containerships 10,000 TEU	149	0.43	1.13	2	144
Containerships 9,000 TEU	149	0.43	1.13	2	144
Containerships 6,000 TEU	149	0.43	1.13	2	144
Containerships 5,000 TEU	149	0.43	1.13	2	144
Containerships 4,000 TEU	149	0.43	1.13	2	144
Containerships 3,000 TEU	149	0.43	1.13	2	144
Containerships 1,000 TEU	149	0.43	1.13	2	144

(1) Source: POLA 2009 Emission Inventory Report.

Table 1.3-51. Emission Factors for Commercial Marine Vessels

Engine Type	Fuel Type	Description	CO	VOC	NOx	SOx	PM10	PM2.5	Notes
Main Propulsion Engine									
OGV Main Engines (g/kw-hr)	Residual Oil (2.7% S)	Slow speed diesel ≤ 1999	1.40	0.63	18.10	10.50	1.50	1.20	(1)
		Slow speed diesel 2000+	1.40	0.63	17.00	10.50	1.50	1.20	(1)
	MGO (0.2% S)	Slow speed diesel ≤ 1999	1.40	0.63	17.01	0.74	0.29	0.23	(2)
		Slow speed diesel 2000+	1.40	0.63	15.98	0.74	0.29	0.23	(2)
	MGO (0.1% S)	Slow speed diesel ≤ 1999	1.40	0.63	17.01	0.42	0.26	0.20	(2)
		Slow speed diesel 2000+	1.40	0.63	15.98	0.42	0.26	0.20	(2)
	Baseline	Slow speed diesel ≤ 1999	1.40	0.63	18.05	10.01	1.44	1.15	(5)
	(0.95 IFO, 0.5 0.2% MGO)	Slow speed diesel 2000+	1.40	0.63	16.95	10.01	1.44	1.15	(5)
Tugboat Main Engines (Medium Speed Diesel) (g/hp-hr)	Baseline Fleet		3.11	0.74	11.12	0.01	0.47	0.44	(6)
	CARB (15 ppm S)	2008	3.45	0.77	13.64	0.01	0.51	0.47	(3,4)
	CARB (15 ppm S)	2012	3.60	0.82	14.12	0.01	0.56	0.51	(3,4)
	CARB (15 ppm S)	2015	3.82	0.71	4.45	0.01	0.09	0.08	(3,4)
	CARB (15 ppm S)	2020	4.04	0.78	4.66	0.01	0.10	0.10	(3,4)
	CARB (15 ppm S)	2025	4.26	0.85	4.87	0.01	0.12	0.11	(3,4)
	CARB (15 ppm S)	2027	4.35	0.88	4.95	0.01	0.12	0.11	(3,4)
Auxiliary Engine									
OGV Auxiliary Engines (g/kw-hr)	Residual Oil (2.7% S)	Medium speed diesel ≤ 1999	1.10	0.42	14.70	12.30	1.50	1.20	(1)
		Medium speed diesel 2000+	1.10	0.42	13.00	12.30	1.50	1.20	(2)
	MGO (0.2% S)	Medium speed diesel ≤ 1999	1.10	0.42	13.82	0.86	0.29	0.23	(2)
		Medium speed diesel 2000+	1.10	0.42	12.22	0.86	0.29	0.23	(2)
	MGO (0.1% S)	Medium speed diesel ≤ 1999	1.10	0.42	13.82	0.49	0.26	0.20	(2)
		Medium speed diesel 2000+	1.10	0.42	12.22	0.49	0.26	0.20	(2)
	Baseline	Medium speed diesel ≤ 1999	1.10	0.42	14.66	11.73	1.44	1.15	(5)
	(0.95 IFO, 0.5 0.2% MGO)	Medium speed diesel 2000+	1.10	0.42	12.96	11.73	1.44	1.15	(5)
Tugboat Auxiliary Engines (High Speed Diesel) (g/hp-hr)	Baseline Fleet		3.92	0.81	7.62	0.01	0.36	0.33	(6)
	CARB (15 ppm S)	2008	2.97	0.65	8.23	0.01	0.30	0.28	(3,4)
	CARB (15 ppm S)	2012	3.03	0.68	8.38	0.01	0.32	0.29	(3,4)
	CARB (15 ppm S)	2015	3.76	0.82	3.62	0.01	0.08	0.07	(3,4)
	CARB (15 ppm S)	2020	3.89	0.87	3.73	0.01	0.09	0.08	(3,4)
	CARB (15 ppm S)	2025	4.02	0.92	3.84	0.01	0.09	0.09	(3,4)
	CARB (15 ppm S)	2027	4.07	0.94	3.89	0.01	0.10	0.09	(3,4)
Auxiliary Boiler									
Auxiliary Boilers (g/kw-hr)	Residual Oil (2.7% S)	Current in-use average	0.20	0.11	2.10	16.50	0.80	0.60	(1)
	MDO (0.5% S)	Low sulfur fuel	0.20	0.11	1.97	10.00	0.20	0.15	(2)
	MGO (0.2% S)	Low sulfur fuel	0.20	0.11	1.97	1.16	0.15	0.11	(2)
	MGO (0.1% S)	Low sulfur fuel	0.20	0.11	1.97	0.66	0.14	0.10	(2)
		Baseline (0.95 IFO/0.5 0.2% MGO)	Composite Factor	0.20	0.11	2.09	15.73	0.77	0.58

Notes:

- (1) The 2.7% sulfur content represents the assumed fuel sulfur content from the 2009 POLA EI of residual oil used by containerships.
- (2) Source: POLA 2009 Emission Inventory Report.
- (3) Source: CARB, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B.
- Emission factors for model years pre 2007 are corrected to account for the use of low-sulfur diesel fuel.
- (4) Fuel sulfur content regulated by CCR Title 13, Division 3, Chapter 5, Article 2, Section 2281.
- (5) All Containership engines use 5% 0.2% sulfur MGO and 95% 2.7% sulfur IFO from July 2008 to June 2009.
- (6) Source: Starcrest, 2009 Inventory
- (7) All Containership main engines are assumed to use "Slow" emission factors.

Table 1.3-52. Emission Factors for AMP Electricity Consumption

Emission Source	CO	VOC	NOx	SOx	PM10	PM2.5
Electricity Consumption Emissions (lb/MW-hr)	0.20	0.010	1.15	0.12	0.04	0.04

Source: SCAQMD CEQA Air Quality Handbook, Tbl. A9-11-B.

Table 1.3-53. Fuel Correction Factors for Ship Main Engines, Auxiliary Engines, Boilers

Fuel Type	CO	VOC	NOx	SOx	PM10	PM2.5
HFO (1.5% S)	1.00	1.00	1.00	0.56	0.82	0.82
MDO (1.5% S)	1.00	1.00	0.90	0.56	0.47	0.47
MGO (0.5% S)	1.00	1.00	0.94	0.18	0.25	0.25
MGO (0.2% S)	1.00	1.00	0.94	0.07	0.19	0.19
MGO (0.1% S)	1.00	1.00	0.94	0.04	0.17	0.17

Source: 2009 EI Table 3.18.

Table 1.3-54. Fuel Correction Factors for Tugboat Main & Auxiliary Engines

Fuel Type	CO	VOC	NOx	SOx	PM10	PM2.5
CARB On-Road Diesel	1.00	0.72	0.93	n/a	0.75	0.75
ULSD	1.00	0.72	0.93	n/a	0.72	0.72

Source: 2009 EI Table 4.8.

Table 1.3-55. Low-Load EF Regression Factors for OGV Main Propulsion Engines

Variable	CO	HC	NOx	SOx	PM10	PM2.5
Exponent	1.00	1.50	1.50	-	1.50	1.50
Intercept (b)	0.15	0.39	10.45	-	0.26	0.26
Coefficient (a)	0.84	0.07	0.13	1.00	0.01	0.01
Ref. EF @ 20% Load	4.33	1.13	11.85	1.00	0.32	0.32

Source: 2009 EI Table 3.8. $y = a(\text{fractional load})^x + b$. Factors are normalized by dividing by the factor @ 20% load.

Table 1.3-56. Vessel Speed Reduction Program (VSRP)
 Historical Compliance Rates for APL (Unmitigated)

Year	Compliance Rate
Year 2008+	95.0%

Source: POLA staff (1/28/10).

Note: (1) POLA recognizes the APL terminal for VSR compliance, which is defined as at least 95%. This rate is assumed to remain constant for all study years.

Table 1.3-57. IMO MARPOL Annex VI Compliance Rates (Unmitigated)

Year	% Ship Calls
Year 2008	100.0%
Year 2012	100.0%
Year 2015	100.0%
Year 2020	100.0%
Year 2025	100.0%
Year 2027	100.0%

Table 1.3-58. Annual Emissions from OGV Main Engine - Proposed Project
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.06	1.60	0.99	0.14	0.11
Containerships 5,000 TEU	9.97	4.50	128.88	74.76	10.68	8.54
Containerships 4,000 TEU	2.43	1.10	29.56	18.26	2.61	2.09
Containerships 3,000 TEU	0.20	0.09	2.18	1.31	0.20	0.16
Containerships 1,000 TEU	0.03	0.01	0.34	0.21	0.03	0.02
Subtotal	12.8	5.8	162.6	95.5	13.7	10.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.3	6.4	163.1	4.3	2.6	2.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	3.22	1.45	36.76	0.97	0.59	0.47
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.4	7.4	187.6	4.9	3.0	2.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.03	1.82	46.04	1.21	0.73	0.59
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	3.22	1.45	36.76	0.97	0.59	0.47
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.5	9.2	233.6	6.1	3.7	3.0
Project Year 2025						
Containerships 10,000 TEU	4.95	2.24	56.53	1.49	0.90	0.72
Containerships 9,000 TEU	8.07	3.64	92.08	2.42	1.47	1.18
Containerships 6,000 TEU	6.85	3.09	78.24	2.06	1.25	1.00
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	2.15	0.97	24.50	0.64	0.39	0.31
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.0	11.3	284.8	7.5	4.5	3.6
Project Year 2027						
Containerships 10,000 TEU	4.95	2.24	56.53	1.49	0.90	0.72
Containerships 9,000 TEU	8.07	3.64	92.08	2.42	1.47	1.18
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	27.3	12.3	311.7	8.2	5.0	4.0

Notes: (1) Main engines are 100 percent compliant with MARPOL ANNEX VI requirements.

(2) Main engines use slide valves.

(3) Baseline main engines: 5% use MGO and 95% use IFO from July 2008 to June 2009.

(4) Study years 2012-2027: main engines switch to residual fuel with 0.1% sulfur content at 24nm

(5) All shipping routes in the study area fall within 24nm of the coast.

(6) For study year 2012, MARPOL ANNEX VI requires 1% sulfur fuel content to 200nm.

For study year 2015, the requirement is 0.1% sulfur content.

Table 1.3-59. Annual Emissions from OGV Main Engine - Proposed Project
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	0.83	0.40	0.08	0.06
Containerships 5,000 TEU	8.82	4.56	69.01	30.84	6.29	5.03
Containerships 4,000 TEU	2.33	1.17	18.22	9.07	1.73	1.38
Containerships 3,000 TEU	0.20	0.10	1.67	0.87	0.15	0.12
Containerships 1,000 TEU	0.02	0.01	0.20	0.12	0.02	0.01
Subtotal	11.5	5.9	89.9	41.3	8.3	6.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.5	6.5	87.4	1.9	1.6	1.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	3.11	1.55	22.86	0.51	0.41	0.33
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.6	7.5	102.6	2.2	1.9	1.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	3.11	1.55	22.86	0.51	0.41	0.33
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	9.3	125.4	2.7	2.3	1.8
Project Year 2025						
Containerships 10,000 TEU	4.15	2.19	27.91	0.57	0.52	0.41
Containerships 9,000 TEU	6.76	3.57	45.47	0.94	0.84	0.67
Containerships 6,000 TEU	5.93	3.07	41.13	0.87	0.75	0.60
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	2.07	1.04	15.24	0.34	0.27	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.5	11.2	147.8	3.1	2.7	2.2
Project Year 2027						
Containerships 10,000 TEU	4.15	2.19	27.91	0.57	0.52	0.41
Containerships 9,000 TEU	6.76	3.57	45.47	0.94	0.84	0.67
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.5	12.2	160.8	3.4	2.9	2.4

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-60. Annual Emissions from OGV Main Engine - Proposed Project

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Precautionary Area						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.34	0.14	0.04	0.03
Containerships 5,000 TEU	4.15	2.37	27.83	10.61	2.73	2.18
Containerships 4,000 TEU	1.10	0.60	7.32	3.18	0.74	0.59
Containerships 3,000 TEU	0.10	0.05	0.67	0.31	0.07	0.05
Containerships 1,000 TEU	0.01	0.00	0.07	0.04	0.01	0.01
Subtotal	5.4	3.1	36.2	14.3	3.6	2.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.9	3.3	34.9	0.6	0.7	0.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	1.46	0.80	9.12	0.18	0.17	0.14
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.8	3.9	41.0	0.8	0.8	0.6
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	1.46	0.80	9.12	0.18	0.17	0.14
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	4.8	50.1	0.9	1.0	0.8
Project Year 2025						
Containerships 10,000 TEU	1.94	1.13	11.19	0.19	0.22	0.18
Containerships 9,000 TEU	3.16	1.85	18.22	0.32	0.36	0.29
Containerships 6,000 TEU	2.77	1.58	16.43	0.30	0.32	0.26
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.97	0.53	6.08	0.12	0.12	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.1	5.8	59.2	1.1	1.2	0.9
Project Year 2027						
Containerships 10,000 TEU	1.94	1.13	11.19	0.19	0.22	0.18
Containerships 9,000 TEU	3.16	1.85	18.22	0.32	0.36	0.29
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.0	6.3	64.3	1.1	1.3	1.0

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-61. Annual Emissions from OGV Main Engine - Proposed Project

Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.02	0.11	0.01	0.01	0.01
Containerships 5,000 TEU	1.40	1.46	8.85	0.93	1.13	0.90
Containerships 4,000 TEU	0.37	0.36	2.14	0.28	0.29	0.23
Containerships 3,000 TEU	0.03	0.03	0.18	0.03	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.8	1.9	11.3	1.3	1.5	1.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	2.0	11.0	0.1	0.3	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.49	0.48	2.67	0.02	0.07	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.3	2.4	12.8	0.1	0.3	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.49	0.48	2.67	0.02	0.07	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.8	2.9	15.9	0.1	0.4	0.3
Project Year 2025						
Containerships 10,000 TEU	0.66	0.70	3.73	0.02	0.10	0.08
Containerships 9,000 TEU	1.07	1.15	6.07	0.03	0.16	0.12
Containerships 6,000 TEU	0.94	0.97	5.23	0.03	0.13	0.11
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.33	0.32	1.78	0.01	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.4	3.6	19.1	0.1	0.5	0.4
Project Year 2027						
Containerships 10,000 TEU	0.66	0.70	3.73	0.02	0.10	0.08
Containerships 9,000 TEU	1.07	1.15	6.07	0.03	0.16	0.12
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.7	3.9	20.8	0.1	0.5	0.4

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-62. Annual Emissions from OGV Main Engine - Proposed Project

Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.09	0.02	0.01	0.01
Containerships 5,000 TEU	1.23	1.05	7.21	1.22	0.87	0.70
Containerships 4,000 TEU	0.33	0.26	1.78	0.37	0.22	0.18
Containerships 3,000 TEU	0.03	0.02	0.15	0.04	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.6	1.4	9.2	1.6	1.1	0.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	1.5	9.0	0.1	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.43	0.35	2.22	0.02	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	1.7	10.5	0.1	0.3	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.43	0.35	2.22	0.02	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	2.1	12.9	0.1	0.3	0.2
Project Year 2025						
Containerships 10,000 TEU	0.57	0.51	3.01	0.02	0.07	0.06
Containerships 9,000 TEU	0.94	0.83	4.90	0.04	0.12	0.10
Containerships 6,000 TEU	0.82	0.70	4.26	0.03	0.10	0.08
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.29	0.23	1.48	0.01	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.0	2.6	15.5	0.1	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	0.57	0.51	3.01	0.02	0.07	0.06
Containerships 9,000 TEU	0.94	0.83	4.90	0.04	0.12	0.10
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.2	2.8	16.9	0.1	0.4	0.3

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-63. Annual Emissions from OGV Main Engine - Proposed Project
Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.01	0.05	0.01	0.01	0.01
Containerships 5,000 TEU	0.66	0.65	4.03	0.48	0.51	0.41
Containerships 4,000 TEU	0.17	0.17	1.00	0.13	0.13	0.11
Containerships 3,000 TEU	0.01	0.01	0.09	0.01	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	0.9	0.8	5.2	0.6	0.7	0.5
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.9	5.0	0.0	0.1	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.23	0.23	1.25	0.01	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.1	1.1	5.9	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.23	0.23	1.25	0.01	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.3	1.3	7.2	0.0	0.2	0.1
Project Year 2025						
Containerships 10,000 TEU	0.31	0.30	1.67	0.01	0.04	0.03
Containerships 9,000 TEU	0.50	0.49	2.71	0.02	0.07	0.05
Containerships 6,000 TEU	0.44	0.43	2.38	0.01	0.06	0.05
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.15	0.15	0.83	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	1.6	8.6	0.0	0.2	0.2
Project Year 2027						
Containerships 10,000 TEU	0.31	0.30	1.67	0.01	0.04	0.03
Containerships 9,000 TEU	0.50	0.49	2.71	0.02	0.07	0.05
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	1.7	9.4	0.1	0.2	0.2

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

(2) Turning occurs during only one trip segment (arrival or departure).

Table 1.3-64. Max Daily Emissions from OGV Main Engine - Proposed Project
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.76	59.46	1,599.9	988.19	141.17	112.94
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.8	59.5	1,599.9	988.2	141.2	112.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.8	59.5	1,504.6	39.5	24.0	19.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.8	59.5	1,504.6	39.5	24.0	19.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	263.6	119.0	3,009.2	79.1	48.0	38.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	263.6	119.0	3,009.2	79.1	48.0	38.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	310.3	140.0	3,541.7	93.1	56.5	45.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	310.3	140.0	3,541.7	93.1	56.5	45.2
Project Year 2025						
Containerships 10,000 TEU	381.0	171.9	4,348.7	114.3	69.4	55.5
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	381.0	171.9	4,348.7	114.3	69.4	55.5
Project Year 2027						
Containerships 10,000 TEU	381.0	171.9	4,348.7	114.3	69.4	55.5
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	381.0	171.9	4,348.7	114.3	69.4	55.5

Notes: (1) Max Daily emissions assume the main engines are equipped with slide valves.
 (2) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009 .
 (3) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and no VSR at 40nm.

Table 1.3-65. Max Daily Emissions from OGV Main Engine - Proposed Project
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	113.24	58.58	833.46	396.84	80.87	64.70
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	113.2	58.6	833.5	396.8	80.9	64.7
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	114.0	59.0	791.1	16.8	14.4	11.5
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	114.0	59.0	791.1	16.8	14.4	11.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	228.0	118.0	1,582.1	33.5	28.8	23.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	228.0	118.0	1,582.1	33.5	28.8	23.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	260.1	137.5	1,748.7	36.0	32.3	25.9
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	260.1	137.5	1,748.7	36.0	32.3	25.9
Project Year 2025						
Containerships 10,000 TEU	319.4	168.8	2,147.2	44.2	39.7	31.8
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	319.4	168.8	2,147.2	44.2	39.7	31.8
Project Year 2027						
Containerships 10,000 TEU	319.4	168.8	2,147.2	44.2	39.7	31.8
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	319.4	168.8	2,147.2	44.2	39.7	31.8

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-66. Max Daily Emissions from OGV Main Engine - Proposed Project

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Precautionary Area						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.3	30.3	335.2	136.1	35.0	28.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.3	30.3	335.2	136.1	35.0	28.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.3	30.3	316.0	5.7	6.2	5.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.3	30.3	316.0	5.7	6.2	5.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	106.6	60.7	632.0	11.4	12.4	9.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	106.6	60.7	632.0	11.4	12.4	9.9
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	121.4	71.0	701.0	12.1	14.0	11.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	121.4	71.0	701.0	12.1	14.0	11.2
Project Year 2025						
Containerships 10,000 TEU	149.1	87.1	860.7	14.9	17.2	13.8
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	149.1	87.1	860.7	14.9	17.2	13.8
Project Year 2027						
Containerships 10,000 TEU	149.1	87.1	860.7	14.9	17.2	13.8
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	149.1	87.1	860.7	14.9	17.2	13.8

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-67. Max Daily Emissions from OGV Main Engine - Proposed Project
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.0	18.7	106.6	12.0	14.4	11.6
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	18.7	106.6	12.0	14.4	11.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.0	18.7	100.5	0.5	2.6	2.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	18.7	100.5	0.5	2.6	2.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	36.0	37.3	201.0	1.0	5.1	4.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	36.0	37.3	201.0	1.0	5.1	4.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	41.1	44.1	233.5	1.1	6.0	4.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	41.1	44.1	233.5	1.1	6.0	4.8
Project Year 2025						
Containerships 10,000 TEU	50.4	54.1	286.7	1.3	7.4	5.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.4	54.1	286.7	1.3	7.4	5.9
Project Year 2027						
Containerships 10,000 TEU	50.4	54.1	286.7	1.3	7.4	5.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.4	54.1	286.7	1.3	7.4	5.9

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-68. Max Daily Emissions from OGV Main Engine - Proposed Project
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.8	13.5	86.9	15.6	11.2	8.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	13.5	86.9	15.6	11.2	8.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.8	13.5	81.9	0.7	2.0	1.6
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	13.5	81.9	0.7	2.0	1.6
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	31.6	27.1	163.8	1.3	4.0	3.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	31.6	27.1	163.8	1.3	4.0	3.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	36.0	31.9	188.3	1.4	4.6	3.7
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	36.0	31.9	188.3	1.4	4.6	3.7
Project Year 2025						
Containerships 10,000 TEU	44.2	39.1	231.2	1.7	5.6	4.5
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	44.2	39.1	231.2	1.7	5.6	4.5
Project Year 2027						
Containerships 10,000 TEU	44.2	39.1	231.2	1.7	5.6	4.5
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	44.2	39.1	231.2	1.7	5.6	4.5

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-69. Max Daily Emissions from OGV Main Engine - Proposed Project
 Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.4	8.3	48.6	6.2	6.5	5.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	8.3	48.6	6.2	6.5	5.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.4	8.3	45.8	0.3	1.2	0.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	8.3	45.8	0.3	1.2	0.9
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	16.8	16.6	91.6	0.5	2.3	1.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.8	16.6	91.6	0.5	2.3	1.8
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	19.2	18.9	104.4	0.6	2.6	2.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	19.2	18.9	104.4	0.6	2.6	2.1
Project Year 2025						
Containerships 10,000 TEU	23.5	23.2	128.2	0.7	3.2	2.6
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.5	23.2	128.2	0.7	3.2	2.6
Project Year 2027						
Containerships 10,000 TEU	23.5	23.2	128.2	0.7	3.2	2.6
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.5	23.2	128.2	0.7	3.2	2.6

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) Assumes turning occurs during arrivals only.

Table 1.3-70 Max 1-Hour Emissions from OGV Main Engine - Proposed Project
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.33	25.87	696.10	429.94	61.42	49.14
Containerships 5,000 TEU	48.27	21.79	624.12	362.06	51.72	41.38
Containerships 4,000 TEU	31.93	14.41	387.72	239.47	34.21	27.37
Containerships 3,000 TEU	18.83	8.56	206.99	124.71	18.59	14.88
Containerships 1,000 TEU	10.08	4.55	122.42	75.61	10.80	8.64
Maximum	57.33	25.87	696.10	429.94	61.42	49.14
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	57.35	25.88	654.62	17.21	10.45	8.36
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	57.35	25.88	654.62	17.21	10.45	8.36
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	71.05	32.06	811.01	21.32	12.94	10.35
Project Year 2025						
Containerships 10,000 TEU	87.24	39.37	995.81	26.17	15.89	12.71
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	87.24	39.37	995.81	26.17	15.89	12.71
Project Year 2027						
Containerships 10,000 TEU	87.24	39.37	995.81	26.17	15.89	12.71
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	87.24	39.37	995.81	26.17	15.89	12.71

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Main engines in study years 2012-2027 use 0.1% sulfur fuel and slide valves.

(3) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(4) Max 1-hour emissions assume the ship does not comply with the VSRP at 40nm.

Table 1.3-71 Max 1-Hour Emissions from OGV Main Engine - Proposed Project
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	246.90	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	18.66	9.04	146.79	3.39	2.55	2.04
Containerships 1,000 TEU	5.55	2.51	61.14	1.59	0.98	0.79
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2025						
Containerships 10,000 TEU	52.76	27.77	361.89	7.55	6.65	5.32
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	52.76	27.77	361.89	7.55	6.65	5.32
Project Year 2027						
Containerships 10,000 TEU	52.76	27.77	361.89	7.55	6.65	5.32
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	52.76	27.77	361.89	7.55	6.65	5.32

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hr emissions assume the ship is 95% compliant with VSRP for all study years.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

(4) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-72 Max 1-Hour Emissions from OGV Main Engine - Proposed Project

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Precautionary Area						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.65	15.17	167.62	68.05	17.51	14.01
Containerships 5,000 TEU	23.47	13.37	157.22	59.95	15.42	12.34
Containerships 4,000 TEU	18.71	10.20	124.05	53.91	12.58	10.06
Containerships 3,000 TEU	13.61	7.12	96.02	44.44	9.45	7.56
Containerships 1,000 TEU	3.86	1.79	37.03	20.44	3.30	2.64
Maximum	26.65	15.17	167.62	68.05	17.51	14.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2025						
Containerships 10,000 TEU	37.26	21.79	215.17	3.72	4.30	3.44
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.26	21.79	215.17	3.72	4.30	3.44
Project Year 2027						
Containerships 10,000 TEU	37.26	21.79	215.17	3.72	4.30	3.44
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.26	21.79	215.17	3.72	4.30	3.44

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-73 Max 1-Hour Emissions from OGV Main Engine - Proposed Project
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	106.61	11.96	14.45	11.56
Containerships 5,000 TEU	15.87	16.45	99.99	10.54	12.73	10.18
Containerships 4,000 TEU	12.64	12.36	72.70	9.48	9.71	7.77
Containerships 3,000 TEU	9.18	8.45	51.55	7.81	6.77	5.42
Containerships 1,000 TEU	2.58	1.89	14.12	3.59	1.70	1.36
Maximum	18.01	18.67	106.61	11.96	14.45	11.56
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2025						
Containerships 10,000 TEU	25.21	27.05	143.33	0.65	3.68	2.94
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	25.21	27.05	143.33	0.65	3.68	2.94
Project Year 2027						
Containerships 10,000 TEU	25.21	27.05	143.33	0.65	3.68	2.94
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	25.21	27.05	143.33	0.65	3.68	2.94

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-74 Max 1-Hour Emissions from OGV Main Engine - Proposed Project
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	86.88	15.62	11.15	8.92
Containerships 5,000 TEU	13.91	11.92	81.49	13.76	9.82	7.86
Containerships 4,000 TEU	11.08	8.97	60.41	12.38	7.59	6.08
Containerships 3,000 TEU	8.05	6.15	43.80	10.20	5.38	4.30
Containerships 1,000 TEU	2.27	1.40	13.28	4.69	1.46	1.17
Maximum	15.78	13.53	86.88	15.62	11.15	8.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2025						
Containerships 10,000 TEU	22.09	19.57	115.60	0.85	2.82	2.26
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	22.09	19.57	115.60	0.85	2.82	2.26
Project Year 2027						
Containerships 10,000 TEU	22.09	19.57	115.60	0.85	2.82	2.26
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	22.09	19.57	115.60	0.85	2.82	2.26

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-75 Max 1-Hour Emissions from OGV Main Engine - Proposed Project
 Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	48.55	6.20	6.50	5.20
Containerships 5,000 TEU	7.41	7.30	45.54	5.46	5.73	4.58
Containerships 4,000 TEU	5.90	5.81	34.05	4.35	4.56	3.65
Containerships 3,000 TEU	4.28	4.22	24.72	3.16	3.31	2.65
Containerships 1,000 TEU	1.20	1.19	6.94	0.89	0.93	0.74
Maximum	8.41	8.29	48.55	6.20	6.50	5.20
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2025						
Containerships 10,000 TEU	11.77	11.60	64.09	0.36	1.61	1.29
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.77	11.60	64.09	0.36	1.61	1.29
Project Year 2027						
Containerships 10,000 TEU	11.77	11.60	64.09	0.36	1.61	1.29
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.77	11.60	64.09	0.36	1.61	1.29

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-76. Annual Emissions from OGV Auxiliary Engines - Proposed Project
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.11	0.11	0.01	0.01
Containerships 5,000 TEU	0.63	0.24	8.40	7.03	0.86	0.69
Containerships 4,000 TEU	0.30	0.11	3.52	3.33	0.41	0.32
Containerships 3,000 TEU	0.02	0.01	0.20	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Subtotal	1.0	0.4	12.3	10.7	1.3	1.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.1	0.4	11.7	0.5	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.39	0.15	4.37	0.18	0.09	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.3	0.5	14.6	0.6	0.3	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.39	0.15	4.37	0.18	0.09	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.6	17.0	0.7	0.4	0.3
Project Year 2025						
Containerships 10,000 TEU	0.26	0.10	2.84	0.11	0.06	0.05
Containerships 9,000 TEU	0.43	0.16	4.74	0.19	0.10	0.08
Containerships 6,000 TEU	0.49	0.19	5.45	0.22	0.11	0.09
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.26	0.10	2.92	0.12	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.6	18.0	0.7	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	0.26	0.10	2.84	0.11	0.06	0.05
Containerships 9,000 TEU	0.43	0.16	4.74	0.19	0.10	0.08
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.7	19.3	0.8	0.4	0.3

Notes: (1) Auxiliary engines use 0.1% sulfur MGO at 24nm. All routes stay within 24nm of the coast.
 (2) Baseline auxiliary engines: 5% use MGO and 95% use IFO from July 2008 to June 2009.
 (3) No VSR

Table 1.3-77. Annual Emissions from OGV Auxiliary Boilers - Proposed Project
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.00	0.00	0.02	0.15	0.01	0.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Auxiliary boilers are assumed to operate when engine load is less than 20%.

Table 1.3-78. Annual Emissions from OGV Auxiliary Engines - Proposed Project
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.15	0.13	0.02	0.01
Containerships 5,000 TEU	0.82	0.31	10.94	8.76	1.07	0.86
Containerships 4,000 TEU	0.35	0.13	4.15	3.76	0.46	0.37
Containerships 3,000 TEU	0.02	0.01	0.21	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.04	0.04	0.00	0.00
Subtotal	1.2	0.5	15.5	12.9	1.6	1.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.4	0.5	15.3	0.6	0.3	0.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.47	0.18	5.21	0.21	0.11	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.6	18.8	0.8	0.4	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.47	0.18	5.21	0.21	0.11	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.8	22.1	0.9	0.5	0.4
Project Year 2025						
Containerships 10,000 TEU	0.36	0.14	3.99	0.16	0.08	0.07
Containerships 9,000 TEU	0.60	0.23	6.64	0.27	0.14	0.11
Containerships 6,000 TEU	0.65	0.25	7.28	0.29	0.15	0.12
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.31	0.12	3.47	0.14	0.07	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.2	0.8	24.1	1.0	0.5	0.4
Project Year 2027						
Containerships 10,000 TEU	0.36	0.14	3.99	0.16	0.08	0.07
Containerships 9,000 TEU	0.60	0.23	6.64	0.27	0.14	0.11
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.3	0.9	26.0	1.0	0.5	0.4

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.
 (2) No VSR

Table 1.3-79. Annual Emissions from OGV Auxiliary Boilers - Proposed Project
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 5,000 TEU	0.05	0.02	0.49	3.71	0.18	0.14
Containerships 4,000 TEU	0.01	0.01	0.15	1.11	0.05	0.04
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Subtotal	0.06	0.03	0.67	5.00	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.18	0.06	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.03	0.65	0.22	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.18	0.06	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.80	0.27	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 9,000 TEU	0.03	0.02	0.29	0.10	0.02	0.02
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.02	0.01
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.01	0.12	0.04	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.92	0.31	0.06	0.05
Project Year 2027						
Containerships 10,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 9,000 TEU	0.03	0.02	0.29	0.10	0.02	0.02
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.97	0.32	0.07	0.05

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.
 (2) No VSR

Table 1.3-80. Annual Emissions from OGV Auxiliary Engines - Proposed Project
 Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.07	0.06	0.01	0.01
Containerships 5,000 TEU	0.40	0.15	5.27	4.21	0.52	0.41
Containerships 4,000 TEU	0.17	0.06	1.99	1.80	0.22	0.18
Containerships 3,000 TEU	0.01	0.00	0.10	0.09	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Subtotal	0.6	0.2	7.4	6.2	0.8	0.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.7	0.3	7.3	0.3	0.2	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.22	0.09	2.48	0.10	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.8	0.3	9.0	0.4	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.22	0.09	2.48	0.10	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.0	0.4	10.6	0.4	0.2	0.2
Project Year 2025						
Containerships 10,000 TEU	0.17	0.07	1.91	0.08	0.04	0.03
Containerships 9,000 TEU	0.29	0.11	3.18	0.13	0.07	0.05
Containerships 6,000 TEU	0.31	0.12	3.48	0.14	0.07	0.06
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.15	0.06	1.65	0.07	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.0	0.4	11.5	0.5	0.2	0.2
Project Year 2027						
Containerships 10,000 TEU	0.17	0.07	1.91	0.08	0.04	0.03
Containerships 9,000 TEU	0.29	0.11	3.18	0.13	0.07	0.05
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.1	0.4	12.4	0.5	0.3	0.2

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-81. Annual Emissions from OGV Auxiliary Boilers - Proposed Project
 Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 5,000 TEU	0.02	0.01	0.25	1.85	0.09	0.07
Containerships 4,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 3,000 TEU	0.00	0.00	0.01	0.07	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.03	0.02	0.33	2.49	0.12	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.01	0.00	0.09	0.03	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.02	0.32	0.11	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.01	0.00	0.09	0.03	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.04	0.02	0.39	0.13	0.03	0.02
Project Year 2025						
Containerships 10,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.46	0.15	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.48	0.16	0.03	0.02

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

Table 1.3-82. Annual Emissions from OGV Auxiliary Engines - Proposed Project
 Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.13	0.05	1.80	1.44	0.18	0.14
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	2.5	2.1	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.5	0.1	0.1	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.08	0.03	0.85	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.1	0.1	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.08	0.03	0.85	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.6	0.1	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	0.06	0.02	0.65	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.09	0.04	0.02	0.02
Containerships 6,000 TEU	0.11	0.04	1.19	0.05	0.02	0.02
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	3.9	0.2	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	0.06	0.02	0.65	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.09	0.04	0.02	0.02
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	4.2	0.2	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-83. Annual Emissions from OGV Auxiliary Boilers - Proposed Project
 Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.08	0.63	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.03	0.19	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.01	0.11	0.85	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.05	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

Table 1.3-84. Annual Emissions from OGV Auxiliary Engines - Proposed Project
 Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.12	0.05	1.57	1.26	0.15	0.12
Containerships 4,000 TEU	0.05	0.02	0.59	0.54	0.07	0.05
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	2.2	1.8	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.2	0.1	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.2	0.1	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 9,000 TEU	0.09	0.03	0.95	0.04	0.02	0.02
Containerships 6,000 TEU	0.09	0.04	1.04	0.04	0.02	0.02
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.04	0.02	0.49	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.4	0.1	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 9,000 TEU	0.09	0.03	0.95	0.04	0.02	0.02
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.7	0.1	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-85. Annual Emissions from OGV Auxiliary Boilers - Proposed Project
 Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.10	0.74	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.12	0.04	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

Table 1.3-86. Annual Emissions from OGV Auxiliary Engines - Proposed Project Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.03	0.02	0.00	0.00
Containerships 5,000 TEU	0.17	0.07	2.31	1.85	0.23	0.18
Containerships 4,000 TEU	0.05	0.02	0.57	0.51	0.06	0.05
Containerships 3,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	3.0	2.4	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.06	0.02	0.71	0.03	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.1	0.1	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.06	0.02	0.71	0.03	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.7	0.1	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	0.06	0.02	0.68	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.13	0.05	0.02	0.02
Containerships 6,000 TEU	0.11	0.04	1.23	0.05	0.03	0.02
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	4.1	0.2	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	0.06	0.02	0.68	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.13	0.05	0.02	0.02
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.2	4.5	0.2	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.
(2) Turning occurs during only one trip segment (arrival or departure).

Table 1.3-87. Annual Emissions from OGV Auxiliary Boilers - Proposed Project Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.06	0.44	0.02	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.12	0.01	0.00
Containerships 3,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.08	0.58	0.03	0.02
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.
Turning occurs during only one trip segment (arrival or departure).

Table 1.3-88. Annual Emissions from OGV Auxiliary Engines - Proposed Project

Docking

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 5,000 TEU	0.37	0.14	4.94	3.96	0.49	0.39
Containerships 4,000 TEU	0.10	0.04	1.22	1.10	0.14	0.11
Containerships 3,000 TEU	0.01	0.00	0.11	0.10	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Subtotal	0.5	0.2	6.3	5.2	0.6	0.5
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.2	5.7	0.2	0.1	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.14	0.05	1.52	0.06	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.6	0.2	6.7	0.3	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.14	0.05	1.52	0.06	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.7	0.3	7.9	0.3	0.2	0.1
Project Year 2025						
Containerships 10,000 TEU	0.13	0.05	1.45	0.06	0.03	0.02
Containerships 9,000 TEU	0.22	0.08	2.42	0.10	0.05	0.04
Containerships 6,000 TEU	0.24	0.09	2.65	0.11	0.06	0.04
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.09	0.03	1.01	0.04	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.8	0.3	8.7	0.4	0.2	0.1
Project Year 2027						
Containerships 10,000 TEU	0.13	0.05	1.45	0.06	0.03	0.02
Containerships 9,000 TEU	0.22	0.08	2.42	0.10	0.05	0.04
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.3	9.6	0.4	0.2	0.2

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-89. Annual Emissions from OGV Auxiliary Boilers - Proposed Project

Docking

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.01	0.12	0.93	0.05	0.03
Containerships 4,000 TEU	0.00	0.00	0.04	0.27	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.02	0.01	0.17	1.24	0.06	0.05
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.06	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.07	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.21	0.07	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

Table 1.3-90. Annual Emissions from OGV Auxiliary Engines - Proposed Project
Hotelling

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.12	0.05	1.47	1.33	0.16	0.13
Containerships 5,000 TEU	10.03	3.84	133.62	106.93	13.12	10.50
Containerships 4,000 TEU	3.71	1.42	43.68	39.52	4.85	3.88
Containerships 3,000 TEU	0.29	0.11	3.44	3.11	0.38	0.31
Containerships 1,000 TEU	0.02	0.01	0.19	0.17	0.02	0.02
Subtotal	14.2	5.4	182.4	151.1	18.5	14.8
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.09	6.93	200.98	8.09	4.19	3.36
Containerships 5,000 TEU	3.91	1.50	43.45	1.75	0.91	0.73
Containerships 4,000 TEU	2.09	0.80	23.23	0.94	0.48	0.39
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.1	9.2	267.7	10.8	5.6	4.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.10	3.87	112.25	4.52	2.34	1.87
Containerships 5,000 TEU	2.18	0.84	24.25	0.98	0.51	0.40
Containerships 4,000 TEU	3.50	1.34	38.83	1.56	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	6.0	175.3	7.1	3.7	2.9
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.31	0.50	14.60	0.59	0.30	0.24
Containerships 6,000 TEU	3.35	1.28	37.23	1.50	0.78	0.62
Containerships 5,000 TEU	0.73	0.28	8.05	0.32	0.17	0.13
Containerships 4,000 TEU	1.16	0.45	12.93	0.52	0.27	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.6	2.5	72.8	2.9	1.5	1.2
Project Year 2025						
Containerships 10,000 TEU	1.12	0.43	12.42	0.50	0.26	0.21
Containerships 9,000 TEU	1.68	0.65	18.71	0.75	0.39	0.31
Containerships 6,000 TEU	1.44	0.55	16.05	0.65	0.33	0.27
Containerships 5,000 TEU	0.47	0.18	5.23	0.21	0.11	0.09
Containerships 4,000 TEU	0.51	0.19	5.64	0.23	0.12	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.2	2.0	58.0	2.3	1.2	1.0
Project Year 2027						
Containerships 10,000 TEU	1.06	0.41	11.82	0.48	0.25	0.20
Containerships 9,000 TEU	1.60	0.61	17.81	0.72	0.37	0.30
Containerships 6,000 TEU	2.06	0.79	22.94	0.92	0.48	0.38
Containerships 5,000 TEU	0.45	0.17	4.99	0.20	0.10	0.08
Containerships 4,000 TEU	0.24	0.09	2.69	0.11	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.4	2.1	60.2	2.4	1.3	1.0

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-91. Annual Emissions from OGV Auxiliary Boilers - Proposed Project
Hotelling

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.09	0.66	0.03	0.02
Containerships 5,000 TEU	1.07	0.56	11.16	83.84	4.09	3.07
Containerships 4,000 TEU	0.26	0.14	2.69	20.22	0.99	0.74
Containerships 3,000 TEU	0.05	0.03	0.50	3.74	0.18	0.14
Containerships 1,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Subtotal	1.38	0.73	14.45	108.62	5.30	3.97
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.21	0.64	11.98	4.01	0.83	0.62
Containerships 5,000 TEU	0.42	0.22	4.10	1.37	0.28	0.21
Containerships 4,000 TEU	0.14	0.08	1.43	0.48	0.10	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.77	0.93	17.51	5.86	1.21	0.90
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.36	0.71	13.38	4.47	0.92	0.69
Containerships 5,000 TEU	0.46	0.24	4.58	1.53	0.32	0.24
Containerships 4,000 TEU	0.48	0.26	4.78	1.60	0.33	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.30	1.21	22.74	7.60	1.57	1.18
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.49	0.26	4.84	1.62	0.33	0.25
Containerships 6,000 TEU	1.12	0.59	11.10	3.71	0.76	0.57
Containerships 5,000 TEU	0.39	0.20	3.80	1.27	0.26	0.20
Containerships 4,000 TEU	0.40	0.21	3.98	1.33	0.27	0.21
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.40	1.27	23.72	7.93	1.63	1.23
Project Year 2025						
Containerships 10,000 TEU	0.35	0.18	3.43	1.15	0.24	0.18
Containerships 9,000 TEU	0.63	0.33	6.20	2.07	0.43	0.32
Containerships 6,000 TEU	0.48	0.26	4.78	1.60	0.33	0.25
Containerships 5,000 TEU	0.25	0.13	2.47	0.83	0.17	0.13
Containerships 4,000 TEU	0.18	0.09	1.74	0.58	0.12	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.89	0.99	18.62	6.22	1.28	0.96
Project Year 2027						
Containerships 10,000 TEU	0.33	0.17	3.26	1.09	0.22	0.17
Containerships 9,000 TEU	0.60	0.31	5.90	1.97	0.41	0.30
Containerships 6,000 TEU	0.69	0.36	6.84	2.29	0.47	0.35
Containerships 5,000 TEU	0.24	0.13	2.36	0.79	0.16	0.12
Containerships 4,000 TEU	0.08	0.04	0.83	0.28	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.94	1.02	19.18	6.41	1.32	0.99

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

(2) Boilers are assumed to operate during hotelling regardless of whether the ship uses AMP.

Table 1.3-92. Annual Emissions from OGV Auxiliary Engines - Proposed Project
Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.15	0.06	2.00	1.60	0.20	0.16
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.04	0.03	0.00	0.00
Subtotal	0.2	0.1	2.7	2.2	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.1	0.1	1.6	0.1	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.04	0.02	0.48	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.0	0.1	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.04	0.02	0.48	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.5	0.1	0.1	0.0
Project Year 2025						
Containerships 10,000 TEU	0.06	0.02	0.67	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.11	0.04	0.02	0.02
Containerships 6,000 TEU	0.04	0.02	0.49	0.02	0.01	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.03	0.01	0.32	0.01	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.3	0.1	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	0.06	0.02	0.67	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.11	0.04	0.02	0.02
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.4	0.1	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-93. Annual Emissions from OGV Auxiliary Boilers - Proposed Project
Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.02	0.01	0.16	1.24	0.06	0.05
Containerships 4,000 TEU	0.00	0.00	0.04	0.31	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Subtotal	0.02	0.01	0.21	1.57	0.08	0.06
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.17	0.06	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.22	0.07	0.02	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.22	0.07	0.02	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

Table 1.3-94. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.4	3.6	111.5	105.5	12.9	10.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.4	3.6	111.5	105.5	12.9	10.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.4	3.6	104.9	4.2	2.2	1.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.4	3.6	104.9	4.2	2.2	1.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.9	7.2	209.8	8.4	4.4	3.5
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.9	7.2	209.8	8.4	4.4	3.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	16.4	6.3	182.3	7.3	3.8	3.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.4	6.3	182.3	7.3	3.8	3.0
Project Year 2025						
Containerships 10,000 TEU	19.7	7.5	218.8	8.8	4.6	3.7
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	19.7	7.5	218.8	8.8	4.6	3.7
Project Year 2027						
Containerships 10,000 TEU	19.7	7.5	218.8	8.8	4.6	3.7
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	19.7	7.5	218.8	8.8	4.6	3.7

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and no VSR at 40nm.

Table 1.3-95. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

Table 1.3-96. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.5	4.8	147.4	133.4	16.4	13.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.5	4.8	147.4	133.4	16.4	13.1
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.6	4.8	139.9	5.6	2.9	2.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.6	4.8	139.9	5.6	2.9	2.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	25.2	9.6	279.8	11.3	5.8	4.7
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.2	9.6	279.8	11.3	5.8	4.7
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	23.0	8.8	255.5	10.3	5.3	4.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.0	8.8	255.5	10.3	5.3	4.3
Project Year 2025						
Containerships 10,000 TEU	27.6	10.6	306.7	12.3	6.4	5.1
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	27.6	10.6	306.7	12.3	6.4	5.1
Project Year 2027						
Containerships 10,000 TEU	27.6	10.6	306.7	12.3	6.4	5.1
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	27.6	10.6	306.7	12.3	6.4	5.1

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-97. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.43	33.27	1.62	1.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.43	33.27	1.62	1.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.85	0.45	8.41	2.81	0.58	0.43
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.85	0.45	8.41	2.81	0.58	0.43
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.15	0.61	11.34	3.79	0.78	0.59
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.15	0.61	11.34	3.79	0.78	0.59
Project Year 2025						
Containerships 10,000 TEU	1.15	0.61	11.34	3.79	0.78	0.59
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.15	0.61	11.34	3.79	0.78	0.59
Project Year 2027						
Containerships 10,000 TEU	1.15	0.61	11.34	3.79	0.78	0.59
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.15	0.61	11.34	3.79	0.78	0.59

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.
 (4) All study years are 95% compliant with VSR for the peak day.

Table 1.3-98. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project
 Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.0	2.3	71.0	64.2	7.9	6.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.0	2.3	71.0	64.2	7.9	6.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.0	2.3	66.9	2.7	1.4	1.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.0	2.3	66.9	2.7	1.4	1.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.0	4.6	133.8	5.4	2.8	2.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.0	4.6	133.8	5.4	2.8	2.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.0	4.2	122.4	4.9	2.6	2.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.0	4.2	122.4	4.9	2.6	2.0
Project Year 2025						
Containerships 10,000 TEU	13.2	5.1	146.9	5.9	3.1	2.5
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.2	5.1	146.9	5.9	3.1	2.5
Project Year 2027						
Containerships 10,000 TEU	13.2	5.1	146.9	5.9	3.1	2.5
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.2	5.1	146.9	5.9	3.1	2.5

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-99. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project
 Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.21	16.58	0.81	0.61
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.21	16.58	0.81	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.16	1.39	0.29	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.16	1.39	0.29	0.21
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.61	1.88	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.61	1.88	0.39	0.29
Project Year 2025						
Containerships 10,000 TEU	0.57	0.30	5.61	1.88	0.39	0.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.61	1.88	0.39	0.29
Project Year 2027						
Containerships 10,000 TEU	0.57	0.30	5.61	1.88	0.39	0.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.61	1.88	0.39	0.29

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-100. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	24.2	21.9	2.7	2.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	24.2	21.9	2.7	2.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	22.8	0.9	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	22.8	0.9	0.5	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.1	1.6	45.6	1.8	1.0	0.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.1	1.6	45.6	1.8	1.0	0.8
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.8	1.4	41.7	1.7	0.9	0.7
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.8	1.4	41.7	1.7	0.9	0.7
Project Year 2025						
Containerships 10,000 TEU	4.5	1.7	50.1	2.0	1.0	0.8
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.5	1.7	50.1	2.0	1.0	0.8
Project Year 2027						
Containerships 10,000 TEU	4.5	1.7	50.1	2.0	1.0	0.8
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.5	1.7	50.1	2.0	1.0	0.8

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-101. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.75	5.65	0.28	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.08	1.42	0.47	0.10	0.07
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.14	0.08	1.42	0.47	0.10	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2025						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2027						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-102. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.8	0.7	21.2	19.2	2.4	1.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.7	21.2	19.2	2.4	1.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.8	0.7	20.0	0.8	0.4	0.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.7	20.0	0.8	0.4	0.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.6	1.4	39.9	1.6	0.8	0.7
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.6	1.4	39.9	1.6	0.8	0.7
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.3	1.3	36.5	1.5	0.8	0.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.3	1.3	36.5	1.5	0.8	0.6
Project Year 2025						
Containerships 10,000 TEU	3.9	1.5	43.8	1.8	0.9	0.7
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.9	1.5	43.8	1.8	0.9	0.7
Project Year 2027						
Containerships 10,000 TEU	3.9	1.5	43.8	1.8	0.9	0.7
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.9	1.5	43.8	1.8	0.9	0.7

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-103. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.66	4.95	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.07	1.24	0.42	0.09	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.13	0.07	1.24	0.42	0.09	0.06
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.17	0.09	1.68	0.56	0.12	0.09
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.09	1.68	0.56	0.12	0.09
Project Year 2025						
Containerships 10,000 TEU	0.17	0.09	1.68	0.56	0.12	0.09
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.09	1.68	0.56	0.12	0.09
Project Year 2027						
Containerships 10,000 TEU	0.17	0.09	1.68	0.56	0.12	0.09
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.09	1.68	0.56	0.12	0.09

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-104. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	25.2	22.8	2.8	2.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	25.2	22.8	2.8	2.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	23.7	1.0	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	23.7	1.0	0.5	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.3	1.6	47.5	1.9	1.0	0.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.3	1.6	47.5	1.9	1.0	0.8
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.9	1.5	43.5	1.7	0.9	0.7
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.9	1.5	43.5	1.7	0.9	0.7
Project Year 2025						
Containerships 10,000 TEU	4.7	1.8	52.2	2.1	1.1	0.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.7	1.8	52.2	2.1	1.1	0.9
Project Year 2027						
Containerships 10,000 TEU	4.7	1.8	52.2	2.1	1.1	0.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.7	1.8	52.2	2.1	1.1	0.9

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-105. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.54	4.02	0.20	0.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.10	0.05	1.01	0.34	0.07	0.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	1.01	0.34	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2025						
Containerships 10,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2027						
Containerships 10,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.89	0.30	0.06	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-106. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project Docking

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.6	1.8	54.0	48.8	6.0	4.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	54.0	48.8	6.0	4.8
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.6	1.8	50.9	2.0	1.1	0.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	50.9	2.0	1.1	0.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.2	3.5	101.8	4.1	2.1	1.7
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.2	3.5	101.8	4.1	2.1	1.7
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.4	3.2	93.1	3.7	1.9	1.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	3.2	93.1	3.7	1.9	1.6
Project Year 2025						
Containerships 10,000 TEU	10.1	3.9	111.8	4.5	2.3	1.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.1	3.9	111.8	4.5	2.3	1.9
Project Year 2027						
Containerships 10,000 TEU	10.1	3.9	111.8	4.5	2.3	1.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.1	3.9	111.8	4.5	2.3	1.9

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-107. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project Docking

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.15	8.62	0.42	0.32
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.15	8.62	0.42	0.32
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.22	0.12	2.16	0.72	0.15	0.11
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2025						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2027						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-108. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.1	80.1	2,463.8	2,229.5	273.6	218.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.1	80.1	2,463.8	2,229.5	273.6	218.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.0	80.0	2,322.3	93.5	48.5	38.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.0	80.0	2,322.3	93.5	48.5	38.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	130.6	50.0	1,451.4	58.4	30.3	24.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.6	50.0	1,451.4	58.4	30.3	24.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	41.8	16.0	464.2	18.7	9.7	7.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	41.8	16.0	464.2	18.7	9.7	7.8
Project Year 2025						
Containerships 10,000 TEU	50.2	19.2	557.2	22.4	11.6	9.3
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.2	19.2	557.2	22.4	11.6	9.3
Project Year 2027						
Containerships 10,000 TEU	50.2	19.2	557.2	22.4	11.6	9.3
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.2	19.2	557.2	22.4	11.6	9.3

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (80%).

Table 1.3-109. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.03	7.39	146.85	#####	53.84	40.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.03	7.39	146.85	#####	53.84	40.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.02	7.38	138.42	46.28	9.54	7.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.02	7.38	138.42	46.28	9.54	7.15
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	17.53	9.23	173.01	57.85	11.92	8.94
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.53	9.23	173.01	57.85	11.92	8.94
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	15.58	8.21	153.82	51.43	10.60	7.95
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.58	8.21	153.82	51.43	10.60	7.95
Project Year 2025						
Containerships 10,000 TEU	15.58	8.21	153.82	51.43	10.60	7.95
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.58	8.21	153.82	51.43	10.60	7.95
Project Year 2027						
Containerships 10,000 TEU	15.58	8.21	153.82	51.43	10.60	7.95
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.58	8.21	153.82	51.43	10.60	7.95

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-110 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.55	45.94	5.60	4.48
Containerships 5,000 TEU	3.05	1.17	40.70	34.06	4.15	3.32
Containerships 4,000 TEU	3.91	1.50	46.16	43.67	5.33	4.26
Containerships 3,000 TEU	1.62	0.62	19.13	18.10	2.21	1.77
Containerships 1,000 TEU	1.07	0.41	12.70	12.01	1.46	1.17
Maximum	4.11	1.57	48.55	45.94	5.60	4.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	4.51	1.73	50.10	2.02	1.05	0.84
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.10	2.02	1.05	0.84
Project Year 2027						
Containerships 10,000 TEU	4.51	1.73	50.10	2.02	1.05	0.84
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.10	2.02	1.05	0.84

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Study years 2012-2027 assume worst case container vessel auxiliary engines use 0.1% sulfur
(3) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-111. Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.17	0.09	1.82	14.32	0.69	0.52
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.82	14.32	0.69	0.52
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(4) Auxiliary boilers are assumed to operate if the main engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-112 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.40	43.80	5.38	4.30
Containerships 5,000 TEU	3.05	1.17	40.58	32.47	3.98	3.19
Containerships 4,000 TEU	3.91	1.50	46.02	41.64	5.11	4.09
Containerships 3,000 TEU	1.62	0.62	19.07	17.26	2.12	1.69
Containerships 1,000 TEU	1.07	0.41	12.66	11.45	1.41	1.12
Maximum	4.11	1.57	48.40	43.80	5.38	4.30
Project Year 2012						

Table 1.3-113. Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.43	10.74	0.52	0.39
Containerships 5,000 TEU	0.17	0.09	1.80	13.54	0.66	0.50
Containerships 4,000 TEU	0.15	0.08	1.61	12.11	0.59	0.44
Containerships 3,000 TEU	0.17	0.09	1.82	13.65	0.67	0.50
Containerships 1,000 TEU	0.02	0.01	0.25	1.91	0.09	0.07
Maximum	0.17	0.09	1.82	13.65	0.67	0.50
Project Year 2012						

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	4.51	1.73	50.06	2.02	1.04	0.84
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.06	2.02	1.04	0.84
Project Year 2027						
Containerships 10,000 TEU	4.51	1.73	50.06	2.02	1.04	0.84
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.06	2.02	1.04	0.84

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.
 (3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2025						
Containerships 10,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Assumes worst case auxiliary boiler would use residual fuel with 0.1% sulfur.
 (3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

Table 1.3-114 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project
 Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	35.48	32.11	3.94	3.15
Containerships 5,000 TEU	2.23	0.85	29.75	23.80	2.92	2.34
Containerships 4,000 TEU	2.86	1.10	33.74	30.53	3.75	3.00
Containerships 3,000 TEU	1.19	0.45	13.98	12.65	1.55	1.24
Containerships 1,000 TEU	0.79	0.30	9.28	8.40	1.03	0.82
Maximum	3.01	1.15	35.48	32.11	3.94	3.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-

Table 1.3-115. Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project
 Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.10	8.29	0.40	0.30
Containerships 5,000 TEU	0.13	0.07	1.39	10.45	0.51	0.38
Containerships 4,000 TEU	0.12	0.06	1.24	9.34	0.46	0.34
Containerships 3,000 TEU	0.13	0.07	1.33	10.01	0.49	0.37
Containerships 1,000 TEU	0.02	0.01	0.20	1.47	0.07	0.05
Maximum	0.13	0.07	1.39	10.45	0.51	0.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2025						
Containerships 10,000 TEU	3.31	1.27	36.72	1.48	0.77	0.61
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.31	1.27	36.72	1.48	0.77	0.61
Project Year 2027						
Containerships 10,000 TEU	3.31	1.27	36.72	1.48	0.77	0.61
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.31	1.27	36.72	1.48	0.77	0.61

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2025						
Containerships 10,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2027						
Containerships 10,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

Table 1.3-116 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	1.52	0.58	20.29	16.24	1.99	1.59
Containerships 4,000 TEU	1.95	0.75	23.01	20.82	2.56	2.04
Containerships 3,000 TEU	0.81	0.31	9.54	8.63	1.06	0.85
Containerships 1,000 TEU	0.54	0.21	6.33	5.73	0.70	0.56
Maximum	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2025						
Containerships 10,000 TEU	2.25	0.86	25.05	1.01	0.52	0.42
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38

Table 1.3-117. Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	0.09	0.05	0.95	7.13	0.35	0.26
Containerships 4,000 TEU	0.08	0.04	0.85	6.37	0.31	0.23
Containerships 3,000 TEU	0.09	0.05	0.91	6.83	0.33	0.25
Containerships 1,000 TEU	0.01	0.01	0.13	1.01	0.05	0.04
Maximum	0.09	0.05	0.95	7.13	0.35	0.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.25	0.86	25.05	1.01	0.52	0.42
Project Year 2027						
Containerships 10,000 TEU	2.25	0.86	25.05	1.01	0.52	0.42
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.25	0.86	25.05	1.01	0.52	0.42

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

Table 1.3-118 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	1.33	0.51	17.75	14.21	1.74	1.39
Containerships 4,000 TEU	1.71	0.65	20.13	18.22	2.24	1.79
Containerships 3,000 TEU	0.71	0.27	8.34	7.55	0.93	0.74
Containerships 1,000 TEU	0.47	0.18	5.54	5.01	0.61	0.49
Maximum	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2025						
Containerships 10,000 TEU	1.97	0.76	21.92	0.88	0.46	0.37
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.97	0.76	21.92	0.88	0.46	0.37
Project Year 2027						
Containerships 10,000 TEU	1.97	0.76	21.92	0.88	0.46	0.37
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.97	0.76	21.92	0.88	0.46	0.37

Table 1.3-119. Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	0.08	0.04	0.83	6.24	0.30	0.23
Containerships 4,000 TEU	0.07	0.04	0.74	5.58	0.27	0.20
Containerships 3,000 TEU	0.08	0.04	0.79	5.97	0.29	0.22
Containerships 1,000 TEU	0.01	0.01	0.12	0.88	0.04	0.03
Maximum	0.08	0.04	0.83	6.24	0.30	0.23
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-120 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	1.96	0.75	26.06	20.86	2.56	2.05
Containerships 4,000 TEU	1.64	0.63	19.26	17.43	2.14	1.71
Containerships 3,000 TEU	1.29	0.50	15.25	13.80	1.69	1.36
Containerships 1,000 TEU	0.59	0.23	7.01	6.34	0.78	0.62
Maximum	2.14	0.82	26.06	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2025						
Containerships 10,000 TEU	2.35	0.90	26.08	1.05	0.54	0.44
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.35	0.90	26.08	1.05	0.54	0.44
Project Year 2027						
Containerships 10,000 TEU	2.35	0.90	26.08	1.05	0.54	0.44
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.35	0.90	26.08	1.05	0.54	0.44

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-121. Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	0.06	0.03	0.65	4.92	0.24	0.18
Containerships 4,000 TEU	0.05	0.03	0.56	4.24	0.21	0.15
Containerships 3,000 TEU	0.05	0.03	0.55	4.15	0.20	0.15
Containerships 1,000 TEU	0.02	0.01	0.25	1.88	0.09	0.07
Maximum	0.06	0.03	0.65	4.92	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2027						
Containerships 10,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

Table 1.3-122 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project
 Docking

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						

Table 1.3-123. Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project
 Docking

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						

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Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	26.99	24.42	3.00	2.40
Containerships 5,000 TEU	2.10	0.80	27.93	22.35	2.74	2.19
Containerships 4,000 TEU	1.75	0.67	20.64	18.68	2.29	1.83
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.64	0.24	7.51	6.79	0.83	0.67
Maximum	2.29	0.88	27.93	24.42	3.00	2.40
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2025						
Containerships 10,000 TEU	2.51	0.96	27.94	1.12	0.58	0.47
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.51	0.96	27.94	1.12	0.58	0.47
Project Year 2027						
Containerships 10,000 TEU	2.51	0.96	27.94	1.12	0.58	0.47
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.51	0.96	27.94	1.12	0.58	0.47

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.57	4.31	0.21	0.16
Containerships 5,000 TEU	0.07	0.04	0.70	5.27	0.26	0.19
Containerships 4,000 TEU	0.06	0.03	0.60	4.54	0.22	0.17
Containerships 3,000 TEU	0.06	0.03	0.59	4.45	0.22	0.16
Containerships 1,000 TEU	0.03	0.01	0.27	2.01	0.10	0.07
Maximum	0.07	0.04	0.70	5.27	0.26	0.19
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2027						
Containerships 10,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-124 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project
Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	38.49	34.83	4.27	3.42
Containerships 5,000 TEU	2.52	0.97	33.59	26.88	3.30	2.64
Containerships 4,000 TEU	3.33	1.27	39.20	35.47	4.35	3.48
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.82	0.31	9.69	8.77	1.08	0.86
Maximum	3.33	1.27	39.20	35.47	4.35	3.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-

Table 1.3-125. Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project
Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.29	17.24	0.84	0.63
Containerships 5,000 TEU	0.27	0.14	2.80	21.08	1.03	0.77
Containerships 4,000 TEU	0.23	0.12	2.42	18.15	0.89	0.66
Containerships 3,000 TEU	0.23	0.12	2.37	17.79	0.87	0.65
Containerships 1,000 TEU	0.10	0.05	1.07	8.05	0.39	0.29
Maximum	0.27	0.14	2.80	21.08	1.03	0.77
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-

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Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2025						
Containerships 10,000 TEU	3.12	1.20	34.68	1.40	0.72	0.58
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2027						
Containerships 10,000 TEU	3.12	1.20	34.68	1.40	0.72	0.58
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2025						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2027						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-126. Annual Emissions from Tugboat Main Engine - Proposed Project

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Containerships 5,000 TEU	1.64	0.39	5.86	0.00	0.25	0.23
Containerships 4,000 TEU	0.55	0.13	1.95	0.00	0.08	0.08
Containerships 3,000 TEU	0.06	0.02	0.23	0.00	0.01	0.01
Containerships 1,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Subtotal	2.3	0.5	8.2	0.0	0.3	0.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.67	0.38	6.56	0.00	0.26	0.24
Containerships 5,000 TEU	0.56	0.13	2.19	0.00	0.09	0.08
Containerships 4,000 TEU	0.28	0.06	1.09	0.00	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	9.8	0.0	0.4	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.77	0.33	2.07	0.00	0.04	0.04
Containerships 5,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 4,000 TEU	0.89	0.16	1.03	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.3	0.6	3.8	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 6,000 TEU	1.88	0.36	2.17	0.00	0.05	0.04
Containerships 5,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 4,000 TEU	0.94	0.18	1.08	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.1	0.8	4.7	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 9,000 TEU	1.32	0.26	1.51	0.00	0.04	0.03
Containerships 6,000 TEU	1.32	0.26	1.51	0.00	0.04	0.03
Containerships 5,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 4,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	0.9	5.3	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 9,000 TEU	1.35	0.27	1.53	0.00	0.04	0.04
Containerships 6,000 TEU	2.02	0.41	2.30	0.00	0.06	0.05
Containerships 5,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 4,000 TEU	0.34	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.1	1.0	5.7	0.0	0.1	0.1

(1) Assist tug main engines are assumed to be replaced by 1/1/2013

Table 1.3-127. Annual Emissions from Tugboat Auxiliary Engines - Proposed Project

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.22	0.05	0.43	0.00	0.02	0.02
Containerships 4,000 TEU	0.07	0.02	0.14	0.00	0.01	0.01
Containerships 3,000 TEU	0.01	0.00	0.02	0.00	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.3	0.1	0.6	0.0	0.0	0.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.15	0.03	0.42	0.00	0.02	0.01
Containerships 5,000 TEU	0.05	0.01	0.14	0.00	0.01	0.00
Containerships 4,000 TEU	0.03	0.01	0.07	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	0.6	0.0	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.19	0.04	0.18	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.09	0.02	0.09	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	0.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.19	0.04	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.10	0.02	0.09	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 9,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 6,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.1	0.4	0.0	0.0	0.0
Project Year 2027						
Containerships 10,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 9,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 6,000 TEU	0.20	0.05	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.1	0.5	0.0	0.0	0.0

(1) Assist tug auxiliary engines are assumed to be replaced by 1/1/2014.

Table 1.3-128. Max Daily Emissions from Tugboat Main Engine - Proposed Project

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.53	4.38	66.25	0.03	2.83	2.60
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.53	4.38	66.25	0.03	2.83	2.60
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	21.42	4.89	84.13	0.03	3.31	3.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.42	4.89	84.13	0.03	3.31	3.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	45.50	8.44	53.05	0.07	1.08	0.99
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	45.5	8.4	53.0	0.1	1.1	1.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	48.14	9.29	55.52	0.07	1.24	1.14
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	48.1	9.3	55.5	0.1	1.2	1.1
Project Year 2025						
Containerships 10,000 TEU	50.79	10.14	57.98	0.07	1.40	1.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.8	10.1	58.0	0.1	1.4	1.3
Project Year 2027						
Containerships 10,000 TEU	51.84	10.48	58.97	0.07	1.47	1.35
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	51.8	10.5	59.0	0.1	1.5	1.4

(1) Assist tug main engines are assumed to be replaced after a useful life of 23 yrs (in 2018).

Table 1.3-129. Max Daily Emissions from Tugboat Auxiliary Engines - Proposed Project

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.49	0.52	4.85	0.00	0.23	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.5	4.8	0.0	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.93	0.43	5.33	0.00	0.20	0.19
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.4	5.3	0.0	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.78	1.04	4.61	0.01	0.10	0.09
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.8	1.0	4.6	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.95	1.11	4.75	0.01	0.11	0.10
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.9	1.1	4.8	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	5.11	1.17	4.89	0.01	0.12	0.11
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.1	1.2	4.9	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	5.18	1.19	4.95	0.01	0.12	0.11
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.2	1.2	4.9	0.0	0.1	0.1

(1) Assist tug auxiliary engines are assumed to be replaced after a useful life of 23yrs (in 2022).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-130. Max 1-Hour Emissions from Tugboat Main Engine - Proposed Project

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 5,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 4,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 3,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 1,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Maximum	8.22	1.94	29.40	0.01	1.25	1.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 5,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 4,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.50	2.17	37.34	0.01	1.47	1.35
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 5,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 4,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.10	1.87	11.77	0.01	0.24	0.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 6,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 5,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 4,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.68	2.06	12.32	0.01	0.28	0.25
Project Year 2025						
Containerships 10,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 9,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 6,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 5,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 4,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.27	2.25	12.87	0.01	0.31	0.29
Project Year 2027						
Containerships 10,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 9,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 6,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 5,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 4,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.50	2.32	13.09	0.01	0.33	0.30

Notes: (1) Emissions assume use of two tugboats for 1 hour.
(2) Assist tug main engines are assumed to be replaced after a useful life of 23 yrs (in 2018).

Table 1.3-131. Max 1-Hour Emissions from Tugboat Auxiliary Engines - Proposed Project

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 5,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 4,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 3,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 1,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Maximum	1.11	0.23	2.15	0.00	0.10	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 5,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 4,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.86	0.19	2.37	0.00	0.09	0.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 5,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 4,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.06	0.23	1.02	0.00	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 6,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 5,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 4,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.10	0.25	1.05	0.00	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 9,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 6,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 5,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 4,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.13	0.26	1.09	0.00	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 9,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 6,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 5,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 4,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.15	0.27	1.10	0.00	0.03	0.02

Notes: (1) Emissions assume use of two tugboats for 1 hour.
(2) Assist tug auxiliary engines are assumed to be replaced after a useful life of 23yrs (in 2022).

Table 1.3-132. Annual Emissions from AMP Electricity Consumption - Proposed Project without Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.83	0.04	4.79	0.50	0.17	0.17
Containerships 5,000 TEU	0.18	0.01	1.03	0.11	0.04	0.04
Containerships 4,000 TEU	0.29	0.01	1.66	0.17	0.06	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.3	0.1	7.5	0.8	0.3	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.43	0.02	2.49	0.26	0.09	0.09
Containerships 6,000 TEU	1.11	0.06	6.36	0.66	0.22	0.22
Containerships 5,000 TEU	0.24	0.01	1.38	0.14	0.05	0.05
Containerships 4,000 TEU	0.38	0.02	2.21	0.23	0.08	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.2	0.1	12.4	1.3	0.4	0.4
Project Year 2025						
Containerships 10,000 TEU	0.37	0.02	2.12	0.22	0.07	0.07
Containerships 9,000 TEU	0.56	0.03	3.20	0.33	0.11	0.11
Containerships 6,000 TEU	0.48	0.02	2.74	0.29	0.10	0.10
Containerships 5,000 TEU	0.16	0.01	0.89	0.09	0.03	0.03
Containerships 4,000 TEU	0.17	0.01	0.96	0.10	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.1	9.9	1.0	0.3	0.3
Project Year 2027						
Containerships 10,000 TEU	0.35	0.02	2.02	0.21	0.07	0.07
Containerships 9,000 TEU	0.53	0.03	3.04	0.32	0.11	0.11
Containerships 6,000 TEU	0.68	0.03	3.92	0.41	0.14	0.14
Containerships 5,000 TEU	0.15	0.01	0.85	0.09	0.03	0.03
Containerships 4,000 TEU	0.08	0.00	0.46	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.1	10.3	1.1	0.4	0.4

Table 1.3-133. Max Daily Emissions from AMP Electricity Consumption - Proposed Project

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.77	0.54	61.96	6.46	2.15	2.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.8	0.5	62.0	6.5	2.2	2.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	13.79	0.69	79.27	8.27	2.76	2.75
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.8	0.7	79.3	8.3	2.8	2.8
Project Year 2025						
Containerships 10,000 TEU	16.55	0.83	95.13	9.93	3.31	3.30
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.5	0.8	95.1	9.9	3.3	3.3
Project Year 2027						
Containerships 10,000 TEU	16.55	0.83	95.13	9.93	3.31	3.30
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.5	0.8	95.1	9.9	3.3	3.3

Table 1.3-134. Summary of Annual Marine Vessel Emissions without Mitigation

Proposed Project

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	13.7	6.1	174.8	106.4	15.0	12.0
Ships - 20nm to PA	12.8	6.4	106.1	59.2	10.1	8.1
Ships - PA	6.0	3.3	44.0	23.0	4.5	3.6
Ships - Harbor Transit	3.8	3.4	25.5	8.4	3.1	2.5
Ships - Turning & Docking	1.6	1.1	14.7	10.1	1.7	1.3
Ships - Anchoring	0.2	0.1	2.9	3.8	0.4	0.3
Ships - Hotelling	15.5	6.2	196.8	259.7	23.8	18.8
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.6	0.6	8.8	0.0	0.4	0.3
Total	56.3	27.2	573.7	470.5	58.9	46.9
Project Year 2012						
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	25.9	10.2	285.2	16.6	6.8	5.4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.7	0.6	10.5	0.0	0.4	0.4
Total	70.5	33.2	656.4	26.0	13.8	11.0
Project Year 2015						
Ships - AQMD 40nm to 20nm	17.7	7.9	202.2	5.5	3.3	2.6
Ships - 20nm to PA	16.4	8.2	122.1	3.2	2.3	1.8
Ships - PA	7.7	4.2	50.3	1.2	1.0	0.8
Ships - Harbor Transit	4.9	4.3	29.3	0.5	0.7	0.6
Ships - Turning & Docking	2.0	1.4	15.9	0.5	0.4	0.3
Ships - Anchoring	0.2	0.1	2.1	0.1	0.0	0.0
Ships - Hotelling	18.1	7.3	198.1	14.7	5.2	4.1
AMP - Hotelling	1.3	0.1	7.5	0.8	0.3	0.3
Tugboats	3.6	0.7	4.1	0.0	0.1	0.1
Total	71.8	34.1	631.6	26.4	13.3	10.6
Project Year 2020						
Ships - AQMD 40nm to 20nm	22.0	9.8	250.6	6.8	4.1	3.3
Ships - 20nm to PA	20.1	10.1	148.3	3.8	2.8	2.2
Ships - PA	9.4	5.2	61.1	1.5	1.2	1.0
Ships - Harbor Transit	6.0	5.3	35.8	0.5	0.9	0.7
Ships - Turning & Docking	2.4	1.7	19.1	0.6	0.4	0.4
Ships - Anchoring	0.2	0.1	2.7	0.2	0.1	0.1
Ships - Hotelling	9.0	3.8	96.5	10.9	3.2	2.4
AMP - Hotelling	2.2	0.1	12.4	1.3	0.4	0.4
Tugboats	4.5	0.9	5.1	0.0	0.1	0.1
Total	75.7	37.0	631.6	25.6	13.2	10.6
Project Year 2025						
Ships - AQMD 40nm to 20nm	26.6	11.9	302.8	8.2	4.9	3.9
Ships - 20nm to PA	23.8	12.1	172.8	4.4	3.3	2.6
Ships - PA	11.1	6.2	71.1	1.7	1.4	1.2
Ships - Harbor Transit	7.1	6.4	42.3	0.6	1.0	0.8
Ships - Turning & Docking	2.8	2.0	21.8	0.7	0.5	0.4
Ships - Anchoring	0.3	0.1	3.5	0.2	0.1	0.1
Ships - Hotelling	7.1	3.0	76.7	8.6	2.5	1.9
AMP - Hotelling	1.7	0.1	9.9	1.0	0.3	0.3
Tugboats	5.1	1.0	5.7	0.0	0.1	0.1
Total	85.6	42.9	706.7	25.3	14.2	11.4
Project Year 2027						
Ships - AQMD 40nm to 20nm	29.0	13.0	330.9	9.0	5.4	4.3
Ships - 20nm to PA	25.9	13.2	187.7	4.7	3.6	2.8
Ships - PA	12.1	6.8	77.2	1.8	1.6	1.2
Ships - Harbor Transit	7.7	7.0	46.0	0.7	1.1	0.9
Ships - Turning & Docking	3.0	2.2	23.7	0.7	0.6	0.4
Ships - Anchoring	0.3	0.1	3.6	0.2	0.1	0.1
Ships - Hotelling	7.4	3.1	79.4	8.8	2.6	2.0
AMP - Hotelling	1.8	0.1	10.3	1.1	0.4	0.4
Tugboats	5.6	1.1	6.2	0.0	0.2	0.1
Total	92.8	46.6	765.2	27.0	15.4	12.3

Table 1.3-135. Summary of Maximum Daily Marine Vessel Emissions without Mitigation

Proposed Project

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	283	126	3,219	88	52	42
Ships - 20nm to PA	254	128	1,870	48	35	28
Ships - PA	119	66	770	18	15	12
Ships - Harbor Transit	76	67	453	7	11	9
Ships - Turning & Docking	31	22	244	8	6	4
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	148	59	1,624	116	42	33
AMP - Hotelling	11	1	62	6	2	2
Tugboats	50	9	58	0	1	1
Total	971	478	8,300	290	165	132
Project Year 2020						
Ships - AQMD 40nm to 20nm	327	146	3,724	100	60	48
Ships - 20nm to PA	284	147	2,016	50	38	31
Ships - PA	133	75	829	19	17	14
Ships - Harbor Transit	84	79	504	7	12	10
Ships - Turning & Docking	32	24	244	7	6	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	57	24	618	70	20	16
AMP - Hotelling	14	1	79	8	3	3
Tugboats	53	10	60	0	1	1
Total	984	507	8,073	262	158	127
Project Year 2025						
Ships - AQMD 40nm to 20nm	401	179	4,568	123	74	59
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	66	27	711	74	22	17
AMP - Hotelling	17	1	95	10	3	3
Tugboats	56	11	63	0	2	1
Total	1,192	617	9,825	306	191	153
Project Year 2027						
Ships - AQMD 40nm to 20nm	401	179	4,568	123	74	59
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	66	27	711	74	22	17
AMP - Hotelling	17	1	95	10	3	3
Tugboats	57	12	64	0	2	1
Total	1,193	618	9,826	306	191	153

Table 1.3-136. Summary of Average Daily Marine Vessel Emissions without Mitigation

Proposed Project

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	75	34	958	583	82	66
Ships - 20nm to PA	70	35	581	324	55	44
Ships - PA	33	18	241	126	24	20
Ships - Harbor Transit	21	19	140	46	17	14
Ships - Turning & Docking	9	6	81	55	9	7
Ships - Anchoring	1	0	16	21	2	2
Ships - Hotelling	85	34	1,079	1,423	131	103
AMP - Hotelling	-	-	-	-	-	-
Tugboats	14	3	48	0	2	2
Total	308	149	3,144	2,578	323	257
Project Year 2012						
Ships - AQMD 40nm to 20nm	84	38	958	26	16	12
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	142	56	1,563	91	37	29
AMP - Hotelling	-	-	-	-	-	-
Tugboats	15	3	57	0	2	2
Total	386	182	3,597	142	76	60
Project Year 2015						
Ships - AQMD 40nm to 20nm	97	43	1,108	30	18	14
Ships - 20nm to PA	90	45	669	17	13	10
Ships - PA	42	23	276	7	6	4
Ships - Harbor Transit	27	24	160	2	4	3
Ships - Turning & Docking	11	8	87	3	2	2
Ships - Anchoring	1	0	11	1	0	0
Ships - Hotelling	99	40	1,085	80	29	22
AMP - Hotelling	7	0	41	4	1	1
Tugboats	20	4	23	0	0	0
Total	394	187	3,461	145	73	58
Project Year 2020						
Ships - AQMD 40nm to 20nm	121	54	1,373	37	22	18
Ships - 20nm to PA	110	55	813	21	15	12
Ships - PA	52	28	335	8	7	5
Ships - Harbor Transit	33	29	196	3	5	4
Ships - Turning & Docking	13	9	105	3	2	2
Ships - Anchoring	1	1	15	1	0	0
Ships - Hotelling	49	21	529	60	17	13
AMP - Hotelling	12	1	68	7	2	2
Tugboats	25	5	28	0	1	1
Total	415	203	3,461	140	72	58
Project Year 2025						
Ships - AQMD 40nm to 20nm	146	65	1,659	45	27	22
Ships - 20nm to PA	130	66	947	24	18	14
Ships - PA	61	34	390	9	8	6
Ships - Harbor Transit	39	35	232	3	6	5
Ships - Turning & Docking	15	11	119	4	3	2
Ships - Anchoring	2	1	19	1	0	0
Ships - Hotelling	39	16	420	47	14	11
AMP - Hotelling	9	0	54	6	2	2
Tugboats	28	6	31	0	1	1
Total	469	235	3,872	139	78	62
Project Year 2027						
Ships - AQMD 40nm to 20nm	159	71	1,813	49	29	24
Ships - 20nm to PA	142	72	1,029	26	19	16
Ships - PA	66	37	423	10	9	7
Ships - Harbor Transit	42	38	252	4	6	5
Ships - Turning & Docking	17	12	130	4	3	2
Ships - Anchoring	2	1	20	1	0	0
Ships - Hotelling	40	17	435	48	14	11
AMP - Hotelling	10	0	56	6	2	2
Tugboats	30	6	34	0	1	1
Total	509	255	4,193	148	84	67

Table 1.3-137. Summary of Maximum Hourly Marine Vessel Emissions without Mitigation

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Proposed Project						
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	199	112	1,581	40	30	24
Project Year 2020						
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	228	131	1,820	45	35	28
Project Year 2025						
Ships - AQMD 40nm to 20nm	92	41	1,046	28	17	14
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	274	160	2,194	53	42	33
Project Year 2027						
Ships - AQMD 40nm to 20nm	92	41	1,046	28	17	14
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	275	160	2,194	53	42	33

Table 1.3-138. AMP Compliance Rates
 Proposed Project with and without Mitigation

Project Year	Unmitigated Compliance Rate	Mitigated Compliance Rate
Project Year Baseline	0%	0%
Project Year 2012	0%	0%
Project Year 2014	50%	50%
Project Year 2015	50%	50%
Project Year 2017	50%	70%
Project Year 2020	80%	80%
Project Year 2025	80%	80%
Project Year 2027	80%	95%

Source: 17 CCR 93118.3, POLA

Table 1.3-139. Vessel Speed Reduction Program (VSRP) Compliance Rates
 Proposed Project with Mitigation

Year	Compliance Rate	Compliance Boundary (nm)
Year 2008 - 2012	95%	20
Year 2014	95%	40

Notes: (1) POLA recognizes APL for VSR compliance, which is defined as a compliance rate of at least 95%.

(2) VSR mitigation measure starting in 2009 applies from 40 nm to the PA.

Table 1.3-140. Annual Emissions from OGV Main Engine - Proposed Project with Mitigation
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.06	1.60	0.99	0.14	0.11
Containerships 5,000 TEU	9.97	4.50	128.88	74.76	10.68	8.54
Containerships 4,000 TEU	2.43	1.10	29.56	18.26	2.61	2.09
Containerships 3,000 TEU	0.20	0.09	2.18	1.31	0.20	0.16
Containerships 1,000 TEU	0.03	0.01	0.34	0.21	0.03	0.02
Subtotal	12.76	5.76	162.56	95.53	13.66	10.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.29	6.45	163.05	4.29	2.60	2.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.86	5.10	68.41	1.45	1.25	1.00
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	3.44	1.72	25.35	0.56	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.19	8.32	113.80	2.43	2.06	1.65
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.98	25.21	0.52	0.47	0.37
Containerships 6,000 TEU	9.86	5.10	68.41	1.45	1.25	1.00
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	3.44	1.72	25.35	0.56	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	19.94	10.30	139.01	2.95	2.53	2.02
Project Year 2025						
Containerships 10,000 TEU	4.60	2.43	30.95	0.64	0.57	0.46
Containerships 9,000 TEU	7.50	3.96	50.41	1.04	0.93	0.75
Containerships 6,000 TEU	6.57	3.40	45.61	0.97	0.83	0.67
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	2.30	1.15	16.90	0.37	0.30	0.24
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.86	12.44	163.91	3.44	3.00	2.40
Project Year 2027						
Containerships 10,000 TEU	4.60	2.43	30.95	0.64	0.57	0.46
Containerships 9,000 TEU	7.50	3.96	50.41	1.04	0.93	0.75
Containerships 6,000 TEU	9.86	5.10	68.41	1.45	1.25	1.00
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	26.00	13.57	178.26	3.74	3.27	2.61

Notes: (1) Mitigation measures include VSR, slide valves, and low sulfur fuel.

Table 1.3-141. Annual Emissions from OGV Main Engine - Proposed Project with Mitigation
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	0.83	0.40	0.08	0.06
Containerships 5,000 TEU	8.82	4.56	69.01	30.84	6.29	5.03
Containerships 4,000 TEU	2.33	1.17	18.22	9.07	1.73	1.38
Containerships 3,000 TEU	0.20	0.10	1.67	0.87	0.15	0.12
Containerships 1,000 TEU	0.02	0.01	0.20	0.12	0.02	0.01
Subtotal	11.48	5.89	89.93	41.29	8.27	6.62
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.53	6.47	87.40	1.86	1.59	1.27
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	3.11	1.55	22.86	0.51	0.41	0.33
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.61	7.50	102.64	2.20	1.86	1.49
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	3.11	1.55	22.86	0.51	0.41	0.33
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.99	9.29	125.37	2.66	2.28	1.83
Project Year 2025						
Containerships 10,000 TEU	4.15	2.19	27.91	0.57	0.52	0.41
Containerships 9,000 TEU	6.76	3.57	45.47	0.94	0.84	0.67
Containerships 6,000 TEU	5.93	3.07	41.13	0.87	0.75	0.60
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	2.07	1.04	15.24	0.34	0.27	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.52	11.22	147.83	3.10	2.71	2.17
Project Year 2027						
Containerships 10,000 TEU	4.15	2.19	27.91	0.57	0.52	0.41
Containerships 9,000 TEU	6.76	3.57	45.47	0.94	0.84	0.67
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.45	12.24	160.78	3.37	2.95	2.36

Notes: (1) Mitigation measures include VSR, slide valves, and low sulfur fuel.

Table 1.3-142. Annual Emissions from OGV Main Engine - Proposed Project with Mitigation
 Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.34	0.14	0.04	0.03
Containerships 5,000 TEU	4.15	2.37	27.83	10.61	2.73	2.18
Containerships 4,000 TEU	1.10	0.60	7.32	3.18	0.74	0.59
Containerships 3,000 TEU	0.10	0.05	0.67	0.31	0.07	0.05
Containerships 1,000 TEU	0.01	0.00	0.07	0.04	0.01	0.01
Subtotal	5.42	3.05	36.23	14.28	3.58	2.86
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.86	3.33	34.92	0.63	0.68	0.55
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	1.46	0.80	9.12	0.18	0.17	0.14
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.84	3.86	41.00	0.75	0.80	0.64
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	1.46	0.80	9.12	0.18	0.17	0.14
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.41	4.78	50.12	0.91	0.98	0.79
Project Year 2025						
Containerships 10,000 TEU	1.94	1.13	11.19	0.19	0.22	0.18
Containerships 9,000 TEU	3.16	1.85	18.22	0.32	0.36	0.29
Containerships 6,000 TEU	2.77	1.58	16.43	0.30	0.32	0.26
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.97	0.53	6.08	0.12	0.12	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.06	5.78	59.16	1.05	1.17	0.93
Project Year 2027						
Containerships 10,000 TEU	1.94	1.13	11.19	0.19	0.22	0.18
Containerships 9,000 TEU	3.16	1.85	18.22	0.32	0.36	0.29
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.96	6.30	64.34	1.14	1.27	1.02

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-143. Annual Emissions from OGV Main Engine - Proposed Project with Mitigation
 Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.02	0.11	0.01	0.01	0.01
Containerships 5,000 TEU	1.40	1.46	8.85	0.93	1.13	0.90
Containerships 4,000 TEU	0.37	0.36	2.14	0.28	0.29	0.23
Containerships 3,000 TEU	0.03	0.03	0.18	0.03	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.83	1.87	11.30	1.25	1.45	1.16
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.98	2.04	11.03	0.06	0.28	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.49	0.48	2.67	0.02	0.07	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.31	2.37	12.82	0.07	0.33	0.26
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.49	0.48	2.67	0.02	0.07	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.84	2.94	15.85	0.08	0.40	0.32
Project Year 2025						
Containerships 10,000 TEU	0.66	0.70	3.73	0.02	0.10	0.08
Containerships 9,000 TEU	1.07	1.15	6.07	0.03	0.16	0.12
Containerships 6,000 TEU	0.94	0.97	5.23	0.03	0.13	0.11
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.33	0.32	1.78	0.01	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.40	3.57	19.11	0.09	0.49	0.39
Project Year 2027						
Containerships 10,000 TEU	0.66	0.70	3.73	0.02	0.10	0.08
Containerships 9,000 TEU	1.07	1.15	6.07	0.03	0.16	0.12
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.70	3.89	20.83	0.10	0.53	0.43

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-144. Annual Emissions from OGV Main Engine - Proposed Project with Mitigation
 Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.09	0.02	0.01	0.01
Containerships 5,000 TEU	1.23	1.05	7.21	1.22	0.87	0.70
Containerships 4,000 TEU	0.33	0.26	1.78	0.37	0.22	0.18
Containerships 3,000 TEU	0.03	0.02	0.15	0.04	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.60	1.36	9.25	1.64	1.12	0.90
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.74	1.48	9.01	0.07	0.22	0.17
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.43	0.35	2.22	0.02	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.02	1.71	10.49	0.09	0.25	0.20
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.43	0.35	2.22	0.02	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.49	2.13	12.93	0.10	0.31	0.25
Project Year 2025						
Containerships 10,000 TEU	0.57	0.51	3.01	0.02	0.07	0.06
Containerships 9,000 TEU	0.94	0.83	4.90	0.04	0.12	0.10
Containerships 6,000 TEU	0.82	0.70	4.26	0.03	0.10	0.08
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.29	0.23	1.48	0.01	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.98	2.58	15.52	0.12	0.38	0.30
Project Year 2027						
Containerships 10,000 TEU	0.57	0.51	3.01	0.02	0.07	0.06
Containerships 9,000 TEU	0.94	0.83	4.90	0.04	0.12	0.10
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.25	2.82	16.91	0.13	0.41	0.33

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-145. Annual Emissions from OGV Main Engine - Proposed Project with Mitigation Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.01	0.05	0.01	0.01	0.01
Containerships 5,000 TEU	0.66	0.65	4.03	0.48	0.51	0.41
Containerships 4,000 TEU	0.17	0.17	1.00	0.13	0.13	0.11
Containerships 3,000 TEU	0.01	0.01	0.09	0.01	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	0.85	0.84	5.18	0.63	0.66	0.53
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.93	0.91	5.04	0.03	0.13	0.10
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.23	0.23	1.25	0.01	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.08	1.06	5.87	0.03	0.15	0.12
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.23	0.23	1.25	0.01	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.33	1.31	7.23	0.04	0.18	0.15
Project Year 2025						
Containerships 10,000 TEU	0.31	0.30	1.67	0.01	0.04	0.03
Containerships 9,000 TEU	0.50	0.49	2.71	0.02	0.07	0.05
Containerships 6,000 TEU	0.44	0.43	2.38	0.01	0.06	0.05
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.15	0.15	0.83	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.59	1.56	8.64	0.05	0.22	0.17
Project Year 2027						
Containerships 10,000 TEU	0.31	0.30	1.67	0.01	0.04	0.03
Containerships 9,000 TEU	0.50	0.49	2.71	0.02	0.07	0.05
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.73	1.70	9.42	0.05	0.24	0.19

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.
 Turning occurs during only one trip segment (arrival or departure).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-147. Annual Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	1.00	2.00
Containerships 6,000 TEU	0.01	0.00	0.11	0.11	0.01	0.01
Containerships 5,000 TEU	0.63	0.24	8.40	7.03	0.86	0.69
Containerships 4,000 TEU	0.30	0.11	3.52	3.33	0.41	0.32
Containerships 3,000 TEU	0.02	0.01	0.20	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Subtotal	0.96	0.37	12.27	10.69	2.30	3.04
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.05	0.40	11.69	0.47	0.24	0.20
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.09	0.42	12.10	0.49	0.25	0.20
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.52	0.20	5.78	0.23	0.12	0.10
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.72	20.87	0.84	0.44	0.35
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.13	3.68	0.15	0.08	0.06
Containerships 6,000 TEU	1.09	0.42	12.10	0.49	0.25	0.20
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.52	0.20	5.78	0.23	0.12	0.10
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.21	0.85	24.55	0.99	0.51	0.41
Project Year 2025						
Containerships 10,000 TEU	0.40	0.15	4.42	0.18	0.09	0.07
Containerships 9,000 TEU	0.66	0.25	7.37	0.30	0.15	0.12
Containerships 6,000 TEU	0.73	0.28	8.07	0.32	0.17	0.13
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.35	0.13	3.85	0.16	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.40	0.92	26.70	1.07	0.56	0.45
Project Year 2027						
Containerships 10,000 TEU	0.40	0.15	4.42	0.18	0.09	0.07
Containerships 9,000 TEU	0.66	0.25	7.37	0.30	0.15	0.12
Containerships 6,000 TEU	1.09	0.42	12.10	0.49	0.25	0.20
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.59	0.99	28.80	1.16	0.60	0.48

Notes: (1) Mitigation measures include VSR and low sulfur fuel.

Table 1.3-148. Annual Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.00	0.00	0.02	0.15	0.01	0.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.04	0.02	0.36	0.12	0.03	0.02
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.20	0.07	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.72	0.24	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.36	0.12	0.03	0.02
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.20	0.07	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.88	0.30	0.06	0.05
Project Year 2025						
Containerships 10,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 9,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 6,000 TEU	0.02	0.01	0.24	0.08	0.02	0.01
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	1.02	0.34	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 9,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 6,000 TEU	0.04	0.02	0.36	0.12	0.03	0.02
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.07	0.36	0.07	0.06

Notes: (1) Auxiliary boilers are assumed to operate when engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-149. Annual Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.15	0.13	0.02	0.01
Containerships 5,000 TEU	0.82	0.31	10.94	8.76	1.07	0.86
Containerships 4,000 TEU	0.35	0.13	4.15	3.76	0.46	0.37
Containerships 3,000 TEU	0.02	0.01	0.21	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.04	0.04	0.00	0.00
Subtotal	1.21	0.46	15.49	12.87	1.58	1.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.38	0.53	15.35	0.62	0.32	0.26
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.47	0.18	5.21	0.21	0.11	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.69	0.65	18.82	0.76	0.39	0.31
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.47	0.18	5.21	0.21	0.11	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.99	0.76	22.14	0.89	0.46	0.37
Project Year 2025						
Containerships 10,000 TEU	0.36	0.14	3.99	0.16	0.08	0.07
Containerships 9,000 TEU	0.60	0.23	6.64	0.27	0.14	0.11
Containerships 6,000 TEU	0.65	0.25	7.28	0.29	0.15	0.12
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.31	0.12	3.47	0.14	0.07	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.17	0.83	24.08	0.97	0.50	0.40
Project Year 2027						
Containerships 10,000 TEU	0.36	0.14	3.99	0.16	0.08	0.07
Containerships 9,000 TEU	0.60	0.23	6.64	0.27	0.14	0.11
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.34	0.90	25.98	1.05	0.54	0.43

Notes: (1) Mitigation measures include VSR and low sulfur fuel.

Table 1.3-150. Annual Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 5,000 TEU	0.05	0.02	0.49	3.71	0.18	0.14
Containerships 4,000 TEU	0.01	0.01	0.15	1.11	0.05	0.04
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Subtotal	0.06	0.03	0.67	5.00	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.18	0.06	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.03	0.65	0.22	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.18	0.06	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.80	0.27	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 9,000 TEU	0.03	0.02	0.29	0.10	0.02	0.02
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.02	0.01
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.01	0.12	0.04	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.92	0.31	0.06	0.05
Project Year 2027						
Containerships 10,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 9,000 TEU	0.03	0.02	0.29	0.10	0.02	0.02
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.97	0.32	0.07	0.05

Auxiliary boilers are assumed not to operate in the fairway.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-151. Annual Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.07	0.06	0.01	0.01
Containerships 5,000 TEU	0.40	0.15	5.27	4.21	0.52	0.41
Containerships 4,000 TEU	0.17	0.06	1.99	1.80	0.22	0.18
Containerships 3,000 TEU	0.01	0.00	0.10	0.09	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Subtotal	0.58	0.22	7.44	6.18	0.76	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.66	0.25	7.33	0.30	0.15	0.12
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.22	0.09	2.48	0.10	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.81	0.31	8.99	0.36	0.19	0.15
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.22	0.09	2.48	0.10	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.95	0.36	10.58	0.43	0.22	0.18
Project Year 2025						
Containerships 10,000 TEU	0.17	0.07	1.91	0.08	0.04	0.03
Containerships 9,000 TEU	0.29	0.11	3.18	0.13	0.07	0.05
Containerships 6,000 TEU	0.31	0.12	3.48	0.14	0.07	0.06
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.15	0.06	1.65	0.07	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.04	0.40	11.51	0.46	0.24	0.19
Project Year 2027						
Containerships 10,000 TEU	0.17	0.07	1.91	0.08	0.04	0.03
Containerships 9,000 TEU	0.29	0.11	3.18	0.13	0.07	0.05
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.12	0.43	12.42	0.50	0.26	0.21

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-152. Annual Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 5,000 TEU	0.02	0.01	0.25	1.85	0.09	0.07
Containerships 4,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 3,000 TEU	0.00	0.00	0.01	0.07	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.03	0.02	0.33	2.49	0.12	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.01	0.00	0.09	0.03	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.02	0.32	0.11	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.01	0.00	0.09	0.03	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.04	0.02	0.39	0.13	0.03	0.02
Project Year 2025						
Containerships 10,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.46	0.15	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.48	0.16	0.03	0.02

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-153. Annual Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.13	0.05	1.80	1.44	0.18	0.14
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.20	0.08	2.54	2.11	0.26	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.23	0.09	2.50	0.10	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.08	0.03	0.85	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.11	3.07	0.12	0.06	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.08	0.03	0.85	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.32	0.12	3.61	0.15	0.08	0.06
Project Year 2025						
Containerships 10,000 TEU	0.06	0.02	0.65	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.09	0.04	0.02	0.02
Containerships 6,000 TEU	0.11	0.04	1.19	0.05	0.02	0.02
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.35	0.14	3.93	0.16	0.08	0.07
Project Year 2027						
Containerships 10,000 TEU	0.06	0.02	0.65	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.09	0.04	0.02	0.02
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.38	0.15	4.24	0.17	0.09	0.07

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-154. Annual Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.08	0.63	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.03	0.19	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.01	0.11	0.85	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.05	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-155. Annual Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.12	0.05	1.57	1.26	0.15	0.12
Containerships 4,000 TEU	0.05	0.02	0.59	0.54	0.07	0.05
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.17	0.07	2.22	1.85	0.23	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.20	0.08	2.19	0.09	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.24	0.09	2.68	0.11	0.06	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.11	3.16	0.13	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 9,000 TEU	0.09	0.03	0.95	0.04	0.02	0.02
Containerships 6,000 TEU	0.09	0.04	1.04	0.04	0.02	0.02
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.04	0.02	0.49	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.31	0.12	3.44	0.14	0.07	0.06
Project Year 2027						
Containerships 10,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 9,000 TEU	0.09	0.03	0.95	0.04	0.02	0.02
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.33	0.13	3.71	0.15	0.08	0.06

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-156. Annual Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.10	0.74	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.12	0.04	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-157. Annual Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.03	0.02	0.00	0.00
Containerships 5,000 TEU	0.17	0.07	2.31	1.85	0.23	0.18
Containerships 4,000 TEU	0.05	0.02	0.57	0.51	0.06	0.05
Containerships 3,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.23	0.09	2.96	2.44	0.30	0.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.24	0.09	2.65	0.11	0.06	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.06	0.02	0.71	0.03	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.11	3.13	0.13	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.06	0.02	0.71	0.03	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.33	0.13	3.69	0.15	0.08	0.06
Project Year 2025						
Containerships 10,000 TEU	0.06	0.02	0.68	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.13	0.05	0.02	0.02
Containerships 6,000 TEU	0.11	0.04	1.23	0.05	0.03	0.02
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.37	0.14	4.08	0.16	0.09	0.07
Project Year 2027						
Containerships 10,000 TEU	0.06	0.02	0.68	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.13	0.05	0.02	0.02
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.40	0.15	4.46	0.18	0.09	0.07

Notes: (1) Mitigation measures include low sulfur fuel.
Turning occurs during only one trip segment (arrival or departure).

Table 1.3-158. Annual Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.06	0.44	0.02	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.12	0.01	0.00
Containerships 3,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.08	0.58	0.03	0.02
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.
Turning occurs during only one trip segment (arrival or departure).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-159. Annual Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation Docking

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 5,000 TEU	0.37	0.14	4.94	3.96	0.49	0.39
Containerships 4,000 TEU	0.10	0.04	1.22	1.10	0.14	0.11
Containerships 3,000 TEU	0.01	0.00	0.11	0.10	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Subtotal	0.49	0.19	6.34	5.22	0.64	0.51
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.51	0.20	5.69	0.23	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.14	0.05	1.52	0.06	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.60	0.23	6.70	0.27	0.14	0.11
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.14	0.05	1.52	0.06	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.71	0.27	7.91	0.32	0.17	0.13
Project Year 2025						
Containerships 10,000 TEU	0.13	0.05	1.45	0.06	0.03	0.02
Containerships 9,000 TEU	0.22	0.08	2.42	0.10	0.05	0.04
Containerships 6,000 TEU	0.24	0.09	2.65	0.11	0.06	0.04
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.09	0.03	1.01	0.04	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.79	0.30	8.74	0.35	0.18	0.15
Project Year 2027						
Containerships 10,000 TEU	0.13	0.05	1.45	0.06	0.03	0.02
Containerships 9,000 TEU	0.22	0.08	2.42	0.10	0.05	0.04
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.86	0.33	9.56	0.38	0.20	0.16

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-160. Annual Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation Docking

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.01	0.12	0.93	0.05	0.03
Containerships 4,000 TEU	0.00	0.00	0.04	0.27	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.02	0.01	0.17	1.24	0.06	0.05
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.06	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.07	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.21	0.07	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-161. Annual Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation Hotelling

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.12	0.05	1.47	1.33	0.16	0.13
Containerships 5,000 TEU	10.03	3.84	133.62	106.93	13.12	10.50
Containerships 4,000 TEU	3.71	1.42	43.68	39.52	4.85	3.88
Containerships 3,000 TEU	0.29	0.11	3.44	3.11	0.38	0.31
Containerships 1,000 TEU	0.02	0.01	0.19	0.17	0.02	0.02
Subtotal	14.17	5.43	182.39	151.06	18.54	14.83
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.09	6.93	200.98	8.09	4.19	3.36
Containerships 5,000 TEU	3.91	1.50	43.45	1.75	0.91	0.73
Containerships 4,000 TEU	2.09	0.80	23.23	0.94	0.48	0.39
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.09	9.23	267.65	10.78	5.59	4.47
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.10	3.87	112.25	4.52	2.34	1.87
Containerships 5,000 TEU	2.18	0.84	24.25	0.98	0.51	0.40
Containerships 4,000 TEU	3.50	1.34	38.83	1.56	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.78	6.04	175.33	7.06	3.66	2.93
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.31	0.50	14.60	0.59	0.30	0.24
Containerships 6,000 TEU	3.35	1.28	37.23	1.50	0.78	0.62
Containerships 5,000 TEU	0.73	0.28	8.05	0.32	0.17	0.13
Containerships 4,000 TEU	1.16	0.45	12.93	0.52	0.27	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.55	2.51	72.81	2.93	1.52	1.22
Project Year 2025						
Containerships 10,000 TEU	1.12	0.43	12.42	0.50	0.26	0.21
Containerships 9,000 TEU	1.68	0.65	18.71	0.75	0.39	0.31
Containerships 6,000 TEU	1.44	0.55	16.05	0.65	0.33	0.27
Containerships 5,000 TEU	0.47	0.18	5.23	0.21	0.11	0.09
Containerships 4,000 TEU	0.51	0.19	5.64	0.23	0.12	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.23	2.00	58.05	2.34	1.21	0.97
Project Year 2027						
Containerships 10,000 TEU	0.27	0.10	2.95	0.12	0.06	0.05
Containerships 9,000 TEU	0.40	0.15	4.45	0.18	0.09	0.07
Containerships 6,000 TEU	0.52	0.20	5.73	0.23	0.12	0.10
Containerships 5,000 TEU	0.11	0.04	1.25	0.05	0.03	0.02
Containerships 4,000 TEU	0.06	0.02	0.67	0.03	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.36	0.52	15.06	0.61	0.31	0.25

Notes: (1) Mitigation measures include AMP and low sulfur fuel (for non-AMP ships).

Table 1.3-162. Annual Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation Hotelling

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.09	0.66	0.03	0.02
Containerships 5,000 TEU	1.07	0.56	11.16	83.84	4.09	3.07
Containerships 4,000 TEU	0.26	0.14	2.69	20.22	0.99	0.74
Containerships 3,000 TEU	0.05	0.03	0.50	3.74	0.18	0.14
Containerships 1,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Subtotal	1.38	0.73	14.45	108.62	5.30	3.97
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.21	0.64	11.98	4.01	0.83	0.62
Containerships 5,000 TEU	0.42	0.22	4.10	1.37	0.28	0.21
Containerships 4,000 TEU	0.14	0.08	1.43	0.48	0.10	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.77	0.93	17.51	5.86	1.21	0.90
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.36	0.71	13.38	4.47	0.92	0.69
Containerships 5,000 TEU	0.46	0.24	4.58	1.53	0.32	0.24
Containerships 4,000 TEU	0.48	0.26	4.78	1.60	0.33	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.30	1.21	22.74	7.60	1.57	1.18
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.49	0.26	4.84	1.62	0.33	0.25
Containerships 6,000 TEU	1.12	0.59	11.10	3.71	0.76	0.57
Containerships 5,000 TEU	0.39	0.20	3.80	1.27	0.26	0.20
Containerships 4,000 TEU	0.40	0.21	3.98	1.33	0.27	0.21
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.40	1.27	23.72	7.93	1.63	1.23
Project Year 2025						
Containerships 10,000 TEU	0.35	0.18	3.43	1.15	0.24	0.18
Containerships 9,000 TEU	0.63	0.33	6.20	2.07	0.43	0.32
Containerships 6,000 TEU	0.48	0.26	4.78	1.60	0.33	0.25
Containerships 5,000 TEU	0.25	0.13	2.47	0.83	0.17	0.13
Containerships 4,000 TEU	0.18	0.09	1.74	0.58	0.12	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.89	0.99	18.62	6.22	1.28	0.96
Project Year 2027						
Containerships 10,000 TEU	0.33	0.17	3.26	1.09	0.22	0.17
Containerships 9,000 TEU	0.60	0.31	5.90	1.97	0.41	0.30
Containerships 6,000 TEU	0.69	0.36	6.84	2.29	0.47	0.35
Containerships 5,000 TEU	0.24	0.13	2.36	0.79	0.16	0.12
Containerships 4,000 TEU	0.08	0.04	0.83	0.28	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.94	1.02	19.18	6.41	1.32	0.99

Notes: (1) Mitigation measures include low sulfur fuel.

(2) Boilers are assumed to operate during hotelling regardless of whether the ship uses AMP.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-163. Annual Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.15	0.06	2.00	1.60	0.20	0.16
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.04	0.03	0.00	0.00
Subtotal	0.21	0.08	2.71	2.24	0.27	0.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.15	0.06	1.63	0.07	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.04	0.02	0.48	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.18	0.07	1.96	0.08	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.04	0.02	0.48	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.23	0.09	2.51	0.10	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	0.06	0.02	0.67	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.11	0.04	0.02	0.02
Containerships 6,000 TEU	0.04	0.02	0.49	0.02	0.01	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.03	0.01	0.32	0.01	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.30	0.11	3.32	0.13	0.07	0.06
Project Year 2027						
Containerships 10,000 TEU	0.06	0.02	0.67	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.11	0.04	0.02	0.02
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.31	0.12	3.41	0.14	0.07	0.06

Notes: (1) Mitigation measures include low sulfur fuel.
(2) AMP mitigation would not apply during anchoring.

Table 1.3-164. Annual Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.02	0.01	0.16	1.24	0.06	0.05
Containerships 4,000 TEU	0.00	0.00	0.04	0.31	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Subtotal	0.02	0.01	0.21	1.57	0.08	0.06
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.17	0.06	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.22	0.07	0.02	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.22	0.07	0.02	0.01

Notes: (1) Mitigation measures include low sulfur fuel.
(2) AMP mitigation would not apply during anchoring.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-165. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.44	3.61	111.54	105.53	12.87	10.30
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.44	3.61	111.54	105.53	12.87	10.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.44	3.62	104.89	4.22	2.19	1.75
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.44	3.62	104.89	4.22	2.19	1.75
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	27.93	10.69	310.27	12.49	6.47	5.18
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	27.93	10.69	310.27	12.49	6.47	5.18
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.50	9.77	283.32	11.41	5.91	4.73
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.50	9.77	283.32	11.41	5.91	4.73
Project Year 2025						
Containerships 10,000 TEU	30.61	11.72	340.03	13.69	7.10	5.68
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	30.61	11.72	340.03	13.69	7.10	5.68
Project Year 2027						
Containerships 10,000 TEU	30.61	11.72	340.03	13.69	7.10	5.68
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	30.61	11.72	340.03	13.69	7.10	5.68

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.

(2) Study years 2015-2027 assume 0.1% sulfur fuel at 24nm and VSR at 40nm. In 2012, VSR starts at 20nm

Table 1.3-166. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.94	0.50	9.32	3.12	0.64	0.48
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.94	0.50	9.32	3.12	0.64	0.48
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.27	0.67	12.58	4.21	0.87	0.65
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.27	0.67	12.58	4.21	0.87	0.65
Project Year 2025						
Containerships 10,000 TEU	1.27	0.67	12.58	4.21	0.87	0.65
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.27	0.67	12.58	4.21	0.87	0.65
Project Year 2027						
Containerships 10,000 TEU	1.27	0.67	12.58	4.21	0.87	0.65
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.27	0.67	12.58	4.21	0.87	0.65

Notes: (1) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-167. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.51	4.79	147.42	133.39	16.37	13.10
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.51	4.79	147.42	133.39	16.37	13.10
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.59	4.82	139.92	5.63	2.92	2.34
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.59	4.82	139.92	5.63	2.92	2.34
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	25.19	9.65	279.83	11.27	5.84	4.67
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.19	9.65	279.83	11.27	5.84	4.67
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	23.00	8.81	255.53	10.29	5.33	4.27
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.00	8.81	255.53	10.29	5.33	4.27
Project Year 2025						
Containerships 10,000 TEU	27.61	10.57	306.68	12.35	6.40	5.12
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	27.61	10.57	306.68	12.35	6.40	5.12
Project Year 2027						
Containerships 10,000 TEU	27.61	10.57	306.68	12.35	6.40	5.12
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	27.61	10.57	306.68	12.35	6.40	5.12

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-168. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.43	33.27	1.62	1.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.43	33.27	1.62	1.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.85	0.45	8.41	2.81	0.58	0.43
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.85	0.45	8.41	2.81	0.58	0.43
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.15	0.61	11.34	3.79	0.78	0.59
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.15	0.61	11.34	3.79	0.78	0.59
Project Year 2025						
Containerships 10,000 TEU	1.15	0.61	11.34	3.79	0.78	0.59
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.15	0.61	11.34	3.79	0.78	0.59
Project Year 2027						
Containerships 10,000 TEU	1.15	0.61	11.34	3.79	0.78	0.59
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.15	0.61	11.34	3.79	0.78	0.59

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.
(4) All study years are 95% compliant with VSR for the peak day.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-169. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.02	2.31	70.97	64.22	7.88	6.30
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.02	2.31	70.97	64.22	7.88	6.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.02	2.31	66.89	2.69	1.40	1.12
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.02	2.31	66.89	2.69	1.40	1.12
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.04	4.61	133.79	5.39	2.79	2.23
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.04	4.61	133.79	5.39	2.79	2.23
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.02	4.22	122.37	4.93	2.55	2.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.02	4.22	122.37	4.93	2.55	2.04
Project Year 2025						
Containerships 10,000 TEU	13.22	5.06	146.87	5.91	3.06	2.45
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.22	5.06	146.87	5.91	3.06	2.45
Project Year 2027						
Containerships 10,000 TEU	13.22	5.06	146.87	5.91	3.06	2.45
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.22	5.06	146.87	5.91	3.06	2.45

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-170. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.21	16.58	0.81	0.61
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.21	16.58	0.81	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.16	1.39	0.29	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.16	1.39	0.29	0.21
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.61	1.88	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.61	1.88	0.39	0.29
Project Year 2025						
Containerships 10,000 TEU	0.57	0.30	5.61	1.88	0.39	0.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.61	1.88	0.39	0.29
Project Year 2027						
Containerships 10,000 TEU	0.57	0.30	5.61	1.88	0.39	0.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.61	1.88	0.39	0.29

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-171. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.76	1.44	41.74	1.68	0.87	0.70
Project Year 2025						
Containerships 10,000 TEU	4.51	1.73	50.10	2.02	1.05	0.84
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.51	1.73	50.10	2.02	1.05	0.84
Project Year 2027						
Containerships 10,000 TEU	4.51	1.73	50.10	2.02	1.05	0.84
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.51	1.73	50.10	2.02	1.05	0.84

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-172. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.75	5.65	0.28	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.08	1.42	0.47	0.10	0.07
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.14	0.08	1.42	0.47	0.10	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2025						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2027						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-173. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.59	1.38	39.93	1.61	0.83	0.67
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.59	1.38	39.93	1.61	0.83	0.67
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.29	1.26	36.53	1.47	0.76	0.61
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.29	1.26	36.53	1.47	0.76	0.61
Project Year 2025						
Containerships 10,000 TEU	3.95	1.51	43.84	1.76	0.91	0.73
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.95	1.51	43.84	1.76	0.91	0.73
Project Year 2027						
Containerships 10,000 TEU	3.95	1.51	43.84	1.76	0.91	0.73
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.95	1.51	43.84	1.76	0.91	0.73

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-174. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.66	4.95	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.07	1.24	0.42	0.09	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.13	0.07	1.24	0.42	0.09	0.06
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.17	0.09	1.68	0.56	0.12	0.09
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.09	1.68	0.56	0.12	0.09
Project Year 2025						
Containerships 10,000 TEU	0.17	0.09	1.68	0.56	0.12	0.09
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.09	1.68	0.56	0.12	0.09
Project Year 2027						
Containerships 10,000 TEU	0.17	0.09	1.68	0.56	0.12	0.09
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.09	1.68	0.56	0.12	0.09

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-175. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.14	0.82	25.19	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.28	1.64	47.50	1.91	0.99	0.79
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.28	1.64	47.50	1.91	0.99	0.79
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.91	1.50	43.45	1.75	0.91	0.73
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.91	1.50	43.45	1.75	0.91	0.73
Project Year 2025						
Containerships 10,000 TEU	4.69	1.80	52.15	2.10	1.09	0.87
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.69	1.80	52.15	2.10	1.09	0.87
Project Year 2027						
Containerships 10,000 TEU	4.69	1.80	52.15	2.10	1.09	0.87
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.69	1.80	52.15	2.10	1.09	0.87

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-176. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.54	4.02	0.20	0.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.10	0.05	1.01	0.34	0.07	0.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	1.01	0.34	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2025						
Containerships 10,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2027						
Containerships 10,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.89	0.30	0.06	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-177. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation Docking

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.58	1.75	53.98	48.84	5.99	4.80
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.58	1.75	53.98	48.84	5.99	4.80
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.58	1.75	50.89	2.05	1.06	0.85
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.58	1.75	50.89	2.05	1.06	0.85
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.16	3.51	101.78	4.10	2.12	1.70
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.16	3.51	101.78	4.10	2.12	1.70
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.38	3.21	93.11	3.75	1.94	1.55
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.38	3.21	93.11	3.75	1.94	1.55
Project Year 2025						
Containerships 10,000 TEU	10.06	3.85	111.75	4.50	2.33	1.87
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.06	3.85	111.75	4.50	2.33	1.87
Project Year 2027						
Containerships 10,000 TEU	10.06	3.85	111.75	4.50	2.33	1.87
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.06	3.85	111.75	4.50	2.33	1.87

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-178. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation Docking

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.15	8.62	0.42	0.32
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.15	8.62	0.42	0.32
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.22	0.12	2.16	0.72	0.15	0.11
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2025						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2027						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-179. Max Daily Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation Hotelling

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.11	80.07	2,463.84	2,229.46	273.60	218.88
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.11	80.07	2,463.84	2,229.46	273.60	218.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.05	80.05	2,322.34	93.50	48.46	38.77
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.05	80.05	2,322.34	93.50	48.46	38.77
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	128.85	49.34	1,431.43	57.63	29.87	23.90
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	128.85	49.34	1,431.43	57.63	29.87	23.90
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	41.16	15.76	457.25	18.41	9.54	7.63
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	41.16	15.76	457.25	18.41	9.54	7.63
Project Year 2025						
Containerships 10,000 TEU	49.40	18.92	548.78	22.09	11.45	9.16
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	49.40	18.92	548.78	22.09	11.45	9.16
Project Year 2027						
Containerships 10,000 TEU	12.35	4.73	137.19	5.52	2.86	2.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.35	4.73	137.19	5.52	2.86	2.29

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (95%).

Table 1.3-180. Max Daily Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation Hotelling

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.03	7.39	146.85	1,103.49	53.84	40.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.03	7.39	146.85	1,103.49	53.84	40.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.02	7.38	138.42	46.28	9.54	7.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.02	7.38	138.42	46.28	9.54	7.15
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	17.29	9.10	170.63	57.05	11.76	8.82
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.29	9.10	170.63	57.05	11.76	8.82
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	15.35	8.08	151.50	50.65	10.44	7.83
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.35	8.08	151.50	50.65	10.44	7.83
Project Year 2025						
Containerships 10,000 TEU	15.35	8.08	151.50	50.65	10.44	7.83
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.35	8.08	151.50	50.65	10.44	7.83
Project Year 2027						
Containerships 10,000 TEU	15.35	8.08	151.50	50.65	10.44	7.83
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.35	8.08	151.50	50.65	10.44	7.83

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-181 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.55	45.94	5.60	4.48
Containerships 5,000 TEU	3.05	1.17	40.70	34.06	4.15	3.32
Containerships 4,000 TEU	3.91	1.50	46.16	43.67	5.33	4.26
Containerships 3,000 TEU	1.62	0.62	19.13	18.10	2.21	1.77
Containerships 1,000 TEU	1.07	0.41	12.70	12.01	1.46	1.17
Maximum	4.11	1.57	48.55	45.94	5.60	4.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	4.51	1.73	50.10	2.02	1.05	0.84
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.10	2.02	1.05	0.84
Project Year 2027						
Containerships 10,000 TEU	4.51	1.73	50.10	2.02	1.05	0.84
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.10	2.02	1.05	0.84

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Study years 2012-2027 assume worst case container vessel auxiliary engines use 0.1% sulfur fuel.
 (3) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-182 Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.17	0.09	1.82	14.32	0.69	0.52
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.82	14.32	0.69	0.52
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2025						
Containerships 10,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
 (3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (4) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-183 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.40	43.80	5.38	4.30
Containerships 5,000 TEU	3.05	1.17	40.58	32.47	3.98	3.19
Containerships 4,000 TEU	3.91	1.50	46.02	41.64	5.11	4.09
Containerships 3,000 TEU	1.62	0.62	19.07	17.26	2.12	1.69
Containerships 1,000 TEU	1.07	0.41	12.66	11.45	1.41	1.12
Maximum	4.11	1.57	48.40	43.80	5.38	4.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	4.51	1.73	50.06	2.02	1.04	0.84
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.06	2.02	1.04	0.84
Project Year 2027						
Containerships 10,000 TEU	4.51	1.73	50.06	2.02	1.04	0.84
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.06	2.02	1.04	0.84

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.
 (3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

Table 1.3-184 Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.43	10.74	0.52	0.39
Containerships 5,000 TEU	0.17	0.09	1.80	13.54	0.66	0.50
Containerships 4,000 TEU	0.15	0.08	1.61	12.11	0.59	0.44
Containerships 3,000 TEU	0.17	0.09	1.82	13.65	0.67	0.50
Containerships 1,000 TEU	0.02	0.01	0.25	1.91	0.09	0.07
Maximum	0.17	0.09	1.82	13.65	0.67	0.50
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2025						
Containerships 10,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Assumes worst case auxiliary boiler would use residual fuel with 0.1% sulfur.
 (3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-185 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	35.48	32.11	3.94	3.15
Containerships 5,000 TEU	2.23	0.85	29.75	23.80	2.92	2.34
Containerships 4,000 TEU	2.86	1.10	33.74	30.53	3.75	3.00
Containerships 3,000 TEU	1.19	0.45	13.98	12.65	1.55	1.24
Containerships 1,000 TEU	0.79	0.30	9.28	8.40	1.03	0.82
Maximum	3.01	1.15	35.48	32.11	3.94	3.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2025						
Containerships 10,000 TEU	3.31	1.27	36.72	1.48	0.77	0.61
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.31	1.27	36.72	1.48	0.77	0.61
Project Year 2027						
Containerships 10,000 TEU	3.31	1.27	36.72	1.48	0.77	0.61
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.31	1.27	36.72	1.48	0.77	0.61

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-186 Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.10	8.29	0.40	0.30
Containerships 5,000 TEU	0.13	0.07	1.39	10.45	0.51	0.38
Containerships 4,000 TEU	0.12	0.06	1.24	9.34	0.46	0.34
Containerships 3,000 TEU	0.13	0.07	1.33	10.01	0.49	0.37
Containerships 1,000 TEU	0.02	0.01	0.20	1.47	0.07	0.05
Maximum	0.13	0.07	1.39	10.45	0.51	0.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2025						
Containerships 10,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2027						
Containerships 10,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-187 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	1.52	0.58	20.29	16.24	1.99	1.59
Containerships 4,000 TEU	1.95	0.75	23.01	20.82	2.56	2.04
Containerships 3,000 TEU	0.81	0.31	9.54	8.63	1.06	0.85
Containerships 1,000 TEU	0.54	0.21	6.33	5.73	0.70	0.56
Maximum	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2025						
Containerships 10,000 TEU	2.25	0.86	25.05	1.01	0.52	0.42
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.25	0.86	25.05	1.01	0.52	0.42
Project Year 2027						
Containerships 10,000 TEU	2.25	0.86	25.05	1.01	0.52	0.42
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.25	0.86	25.05	1.01	0.52	0.42

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-188 Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	0.09	0.05	0.95	7.13	0.35	0.26
Containerships 4,000 TEU	0.08	0.04	0.85	6.37	0.31	0.23
Containerships 3,000 TEU	0.09	0.05	0.91	6.83	0.33	0.25
Containerships 1,000 TEU	0.01	0.01	0.13	1.01	0.05	0.04
Maximum	0.09	0.05	0.95	7.13	0.35	0.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-189 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	1.33	0.51	17.75	14.21	1.74	1.39
Containerships 4,000 TEU	1.71	0.65	20.13	18.22	2.24	1.79
Containerships 3,000 TEU	0.71	0.27	8.34	7.55	0.93	0.74
Containerships 1,000 TEU	0.47	0.18	5.54	5.01	0.61	0.49
Maximum	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2025						
Containerships 10,000 TEU	1.97	0.76	21.92	0.88	0.46	0.37
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.97	0.76	21.92	0.88	0.46	0.37
Project Year 2027						
Containerships 10,000 TEU	1.97	0.76	21.92	0.88	0.46	0.37
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.97	0.76	21.92	0.88	0.46	0.37

Notes: (1) For the baseline, assume the ship does not comply with VSR, and auxiliary engines use 0.2% S MGO April 2008, 2.7% S IFO for May/June 2008, and 5% MGO and 95% IFO July 2008 to March 2009.
(2) For 2012-2027, max daily emissions assume auxiliary engines use fuel with 0.1% sulfur.
use fuel with 0.1% sulfur.

Table 1.3-190 Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	0.08	0.04	0.83	6.24	0.30	0.23
Containerships 4,000 TEU	0.07	0.04	0.74	5.58	0.27	0.20
Containerships 3,000 TEU	0.08	0.04	0.79	5.97	0.29	0.22
Containerships 1,000 TEU	0.01	0.01	0.12	0.88	0.04	0.03
Maximum	0.08	0.04	0.83	6.24	0.30	0.23
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-191 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	1.96	0.75	26.06	20.86	2.56	2.05
Containerships 4,000 TEU	1.64	0.63	19.26	17.43	2.14	1.71
Containerships 3,000 TEU	1.29	0.50	15.25	13.80	1.69	1.36
Containerships 1,000 TEU	0.59	0.23	7.01	6.34	0.78	0.62
Maximum	2.14	0.82	26.06	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2025						
Containerships 10,000 TEU	2.35	0.90	26.08	1.05	0.54	0.44
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.35	0.90	26.08	1.05	0.54	0.44
Project Year 2027						
Containerships 10,000 TEU	2.35	0.90	26.08	1.05	0.54	0.44
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.35	0.90	26.08	1.05	0.54	0.44

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-192 Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	0.06	0.03	0.65	4.92	0.24	0.18
Containerships 4,000 TEU	0.05	0.03	0.56	4.24	0.21	0.15
Containerships 3,000 TEU	0.05	0.03	0.55	4.15	0.20	0.15
Containerships 1,000 TEU	0.02	0.01	0.25	1.88	0.09	0.07
Maximum	0.06	0.03	0.65	4.92	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2027						
Containerships 10,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-193 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation Docking

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	26.99	24.42	3.00	2.40
Containerships 5,000 TEU	2.10	0.80	27.93	22.35	2.74	2.19
Containerships 4,000 TEU	1.75	0.67	20.64	18.68	2.29	1.83
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.64	0.24	7.51	6.79	0.83	0.67
Maximum	2.29	0.88	27.93	24.42	3.00	2.40
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2025						
Containerships 10,000 TEU	2.51	0.96	27.94	1.12	0.58	0.47
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.51	0.96	27.94	1.12	0.58	0.47
Project Year 2027						
Containerships 10,000 TEU	2.51	0.96	27.94	1.12	0.58	0.47
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.51	0.96	27.94	1.12	0.58	0.47

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-194 Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation Docking

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.57	4.31	0.21	0.16
Containerships 5,000 TEU	0.07	0.04	0.70	5.27	0.26	0.19
Containerships 4,000 TEU	0.06	0.03	0.60	4.54	0.22	0.17
Containerships 3,000 TEU	0.06	0.03	0.59	4.45	0.22	0.16
Containerships 1,000 TEU	0.03	0.01	0.27	2.01	0.10	0.07
Maximum	0.07	0.04	0.70	5.27	0.26	0.19
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2027						
Containerships 10,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

Proposed Project

December 2011

Table 1.3-195 Max 1-Hour Emissions from OGV Auxiliary Engines - Proposed Project with Mitigation Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	38.49	34.83	4.27	3.42
Containerships 5,000 TEU	2.52	0.97	33.59	26.88	3.30	2.64
Containerships 4,000 TEU	3.33	1.27	39.20	35.47	4.35	3.48
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.82	0.31	9.69	8.77	1.08	0.86
Maximum	3.33	1.27	39.20	35.47	4.35	3.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2025						
Containerships 10,000 TEU	3.12	1.20	34.68	1.40	0.72	0.58
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2027						
Containerships 10,000 TEU	3.12	1.20	34.68	1.40	0.72	0.58
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.
(3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (95%).

Table 1.3-196 Max 1-Hour Emissions from OGV Auxiliary Boilers - Proposed Project with Mitigation Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.29	17.24	0.84	0.63
Containerships 5,000 TEU	0.27	0.14	2.80	21.08	1.03	0.77
Containerships 4,000 TEU	0.23	0.12	2.42	18.15	0.89	0.66
Containerships 3,000 TEU	0.23	0.12	2.37	17.79	0.87	0.65
Containerships 1,000 TEU	0.10	0.05	1.07	8.05	0.39	0.29
Maximum	0.27	0.14	2.80	21.08	1.03	0.77
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2025						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2027						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

Table 1.3-197. Annual Emissions from Tugboat Main Engine - Proposed Project with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Containerships 5,000 TEU	1.64	0.39	5.86	0.00	0.25	0.23
Containerships 4,000 TEU	0.55	0.13	1.95	0.00	0.08	0.08
Containerships 3,000 TEU	0.06	0.02	0.23	0.00	0.01	0.01
Containerships 1,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Subtotal	2.3	0.5	8.2	0.0	0.3	0.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.67	0.38	6.56	0.00	0.26	0.24
Containerships 5,000 TEU	0.56	0.13	2.19	0.00	0.09	0.08
Containerships 4,000 TEU	0.28	0.06	1.09	0.00	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	9.8	0.0	0.4	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.77	0.33	2.07	0.00	0.04	0.04
Containerships 5,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 4,000 TEU	0.89	0.16	1.03	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.3	0.6	3.8	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 6,000 TEU	1.88	0.36	2.17	0.00	0.05	0.04
Containerships 5,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 4,000 TEU	0.94	0.18	1.08	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.1	0.8	4.7	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 9,000 TEU	1.32	0.26	1.51	0.00	0.04	0.03
Containerships 6,000 TEU	1.32	0.26	1.51	0.00	0.04	0.03
Containerships 5,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 4,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	0.9	5.3	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 9,000 TEU	1.35	0.27	1.53	0.00	0.04	0.04
Containerships 6,000 TEU	2.02	0.41	2.30	0.00	0.06	0.05
Containerships 5,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 4,000 TEU	0.34	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.1	1.0	5.7	0.0	0.1	0.1

Table 1.3-198. Annual Emissions from Tugboat Aux. Engines - Proposed Project with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.22	0.05	0.43	0.00	0.02	0.02
Containerships 4,000 TEU	0.07	0.02	0.14	0.00	0.01	0.01
Containerships 3,000 TEU	0.01	0.00	0.02	0.00	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.3	0.1	0.6	0.0	0.0	0.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.15	0.03	0.42	0.00	0.02	0.01
Containerships 5,000 TEU	0.05	0.01	0.14	0.00	0.01	0.00
Containerships 4,000 TEU	0.03	0.01	0.07	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	0.6	0.0	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.19	0.04	0.18	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.09	0.02	0.09	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	0.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.19	0.04	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.10	0.02	0.09	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 9,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 6,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.1	0.4	0.0	0.0	0.0
Project Year 2027						
Containerships 10,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 9,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 6,000 TEU	0.20	0.05	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.1	0.5	0.0	0.0	0.0

Table 1.3-199. Max Daily Emissions from Tugboat Main Engine - Proposed Project

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.53	4.38	66.25	0.03	2.83	2.60
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.5	4.4	66.2	0.0	2.8	2.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	21.42	4.89	84.13	0.03	3.31	3.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.4	4.9	84.1	0.0	3.3	3.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	45.50	8.44	53.05	0.07	1.08	0.99
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	45.5	8.4	53.0	0.1	1.1	1.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	48.14	9.29	55.52	0.07	1.24	1.14
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	48.1	9.3	55.5	0.1	1.2	1.1
Project Year 2025						
Containerships 10,000 TEU	50.79	10.14	57.98	0.07	1.40	1.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.8	10.1	58.0	0.1	1.4	1.3
Project Year 2027						
Containerships 10,000 TEU	51.84	10.48	58.97	0.07	1.47	1.35
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	51.8	10.5	59.0	0.1	1.5	1.4

Table 1.3-200. Max Daily Emissions from Tugboat Auxiliary Engines - Proposed Project

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.49	0.52	4.85	0.00	0.23	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.5	4.8	0.0	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.93	0.43	5.33	0.00	0.20	0.19
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.4	5.3	0.0	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.78	1.04	4.61	0.01	0.10	0.09
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.8	1.0	4.6	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.95	1.11	4.75	0.01	0.11	0.10
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.9	1.1	4.8	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	5.11	1.17	4.89	0.01	0.12	0.11
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.1	1.2	4.9	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	5.18	1.19	4.95	0.01	0.12	0.11
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.2	1.2	4.9	0.0	0.1	0.1

Table 1.3-201 Max 1-Hr Emissions from Tugboat Main Engine - Proposed Project with Mitigation

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 5,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 4,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 3,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 1,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Maximum	8.22	1.94	29.40	0.01	1.25	1.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 5,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 4,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.50	2.17	37.34	0.01	1.47	1.35
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 5,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 4,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.10	1.87	11.77	0.01	0.24	0.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 6,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 5,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 4,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.68	2.06	12.32	0.01	0.28	0.25
Project Year 2025						
Containerships 10,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 9,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 6,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 5,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 4,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.27	2.25	12.87	0.01	0.31	0.29
Project Year 2027						
Containerships 10,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 9,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 6,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 5,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 4,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.50	2.32	13.09	0.01	0.33	0.30

Notes: (1) Emissions assume use of two tugboats for 1 hour.

Table 1.3-202 Max 1-Hour Emissions from Tugboat Aux. Engines - Proposed Project with Mitigation

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 5,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 4,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 3,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 1,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Maximum	1.11	0.23	2.15	0.00	0.10	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 5,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 4,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.86	0.19	2.37	0.00	0.09	0.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 5,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 4,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.06	0.23	1.02	0.00	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 6,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 5,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 4,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.10	0.25	1.05	0.00	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 9,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 6,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 5,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 4,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.13	0.26	1.09	0.00	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 9,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 6,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 5,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 4,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.15	0.27	1.10	0.00	0.03	0.02

Notes: (1) Emissions assume use of two tugboats for 1 hour.

Table 1.3-203. Annual Emissions from AMP Electricity Consumption - Proposed Project with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.83	0.04	4.79	0.50	0.17	0.17
Containerships 5,000 TEU	0.18	0.01	1.03	0.11	0.04	0.04
Containerships 4,000 TEU	0.29	0.01	1.66	0.17	0.06	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.3	0.1	7.5	0.8	0.3	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.43	0.02	2.49	0.26	0.09	0.09
Containerships 6,000 TEU	1.11	0.06	6.36	0.66	0.22	0.22
Containerships 5,000 TEU	0.24	0.01	1.38	0.14	0.05	0.05
Containerships 4,000 TEU	0.38	0.02	2.21	0.23	0.08	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.2	0.1	12.4	1.3	0.4	0.4
Project Year 2025						
Containerships 10,000 TEU	0.37	0.02	2.12	0.22	0.07	0.07
Containerships 9,000 TEU	0.56	0.03	3.20	0.33	0.11	0.11
Containerships 6,000 TEU	0.48	0.02	2.74	0.29	0.10	0.10
Containerships 5,000 TEU	0.16	0.01	0.89	0.09	0.03	0.03
Containerships 4,000 TEU	0.17	0.01	0.96	0.10	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.1	9.9	1.0	0.3	0.3
Project Year 2027						
Containerships 10,000 TEU	0.42	0.02	2.40	0.25	0.08	0.08
Containerships 9,000 TEU	0.63	0.03	3.61	0.38	0.13	0.13
Containerships 6,000 TEU	0.81	0.04	4.65	0.49	0.16	0.16
Containerships 5,000 TEU	0.18	0.01	1.01	0.11	0.04	0.04
Containerships 4,000 TEU	0.09	0.00	0.55	0.06	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.1	12.2	1.3	0.4	0.4

Note: These emissions represent regional power plant emissions associated with AMP generation.

Table 1.3-204. Max Daily Emissions from AMP Electricity Consumption - Proposed Project with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.6	0.5	61.1	6.4	2.1	2.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.6	0.5	61.1	6.4	2.1	2.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	13.6	0.7	78.1	8.1	2.7	2.7
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.6	0.7	78.1	8.1	2.7	2.7
Project Year 2025						
Containerships 10,000 TEU	16.3	0.8	93.7	9.8	3.3	3.3
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.3	0.8	93.7	9.8	3.3	3.3
Project Year 2027						
Containerships 10,000 TEU	19.4	1.0	111.3	11.6	3.9	3.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	19.4	1.0	111.3	11.6	3.9	3.9

Notes: (1) These emissions represent regional power plant emissions associated with AMP generation.

(2) Peak Day AMP usage is assumed to be equivalent to annual AMP usage.

Table 1.3-205. Summary of Annual Marine Vessel Emissions with Mitigation

Proposed Project with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	13.7	6.1	174.8	106.4	16.0	14.0
Ships - 20nm to PA	12.8	6.4	106.1	59.2	10.1	8.1
Ships - PA	6.0	3.3	44.0	23.0	4.5	3.6
Ships - Harbor Transit	3.8	3.4	25.5	8.4	3.1	2.5
Ships - Turning & Docking	1.6	1.1	14.7	10.1	1.7	1.3
Ships - Anchoring	0.2	0.1	2.9	3.8	0.4	0.3
Ships - Hotelling	15.5	6.2	196.8	259.7	23.8	18.8
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.6	0.6	8.8	0.0	0.4	0.3
Total	56.3	27.2	573.7	470.5	59.9	48.9
Project Year 2012						
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	25.9	10.2	285.2	16.6	6.8	5.4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.7	0.6	10.5	0.0	0.4	0.4
Total	70.5	33.2	656.4	26.0	13.8	11.0
Project Year 2015						
Ships - AQMD 40nm to 20nm	18.1	9.1	135.4	3.5	2.5	2.0
Ships - 20nm to PA	16.4	8.2	122.1	3.2	2.3	1.8
Ships - PA	7.7	4.2	50.3	1.2	1.0	0.8
Ships - Harbor Transit	4.9	4.3	29.3	0.5	0.7	0.6
Ships - Turning & Docking	2.0	1.4	15.9	0.5	0.4	0.3
Ships - Anchoring	0.2	0.1	2.1	0.1	0.0	0.0
Ships - Hotelling	18.1	7.3	198.1	14.7	5.2	4.1
AMP - Hotelling	1.3	0.1	7.5	0.8	0.3	0.3
Tugboats	3.6	0.7	4.1	0.0	0.1	0.1
Total	72.2	35.2	564.8	24.4	12.6	10.0
Project Year 2020						
Ships - AQMD 40nm to 20nm	22.2	11.2	164.4	4.2	3.1	2.5
Ships - 20nm to PA	20.1	10.1	148.3	3.8	2.8	2.2
Ships - PA	9.4	5.2	61.1	1.5	1.2	1.0
Ships - Harbor Transit	6.0	5.3	35.8	0.5	0.9	0.7
Ships - Turning & Docking	2.4	1.7	19.1	0.6	0.4	0.4
Ships - Anchoring	0.2	0.1	2.7	0.2	0.1	0.1
Ships - Hotelling	9.0	3.8	96.5	10.9	3.2	2.4
AMP - Hotelling	2.2	0.1	12.4	1.3	0.4	0.4
Tugboats	4.5	0.9	5.1	0.0	0.1	0.1
Total	75.9	38.4	545.5	23.0	12.2	9.8
Project Year 2025						
Ships - AQMD 40nm to 20nm	26.4	13.4	191.6	4.9	3.6	2.9
Ships - 20nm to PA	23.8	12.1	172.8	4.4	3.3	2.6
Ships - PA	11.1	6.2	71.1	1.7	1.4	1.2
Ships - Harbor Transit	7.1	6.4	42.3	0.6	1.0	0.8
Ships - Turning & Docking	2.8	2.0	21.8	0.7	0.5	0.4
Ships - Anchoring	0.3	0.1	3.5	0.2	0.1	0.1
Ships - Hotelling	7.1	3.0	76.7	8.6	2.5	1.9
AMP - Hotelling	1.7	0.1	9.9	1.0	0.3	0.3
Tugboats	5.1	1.0	5.7	0.0	0.1	0.1
Total	85.4	44.4	595.5	22.0	12.9	10.4
Project Year 2027						
Ships - AQMD 40nm to 20nm	28.7	14.6	208.1	5.3	3.9	3.2
Ships - 20nm to PA	25.9	13.2	187.7	4.7	3.6	2.8
Ships - PA	12.1	6.8	77.2	1.8	1.6	1.2
Ships - Harbor Transit	7.7	7.0	46.0	0.7	1.1	0.9
Ships - Turning & Docking	3.0	2.2	23.7	0.7	0.6	0.4
Ships - Anchoring	0.3	0.1	3.6	0.2	0.1	0.1
Ships - Hotelling	3.3	1.5	34.2	7.0	1.6	1.2
AMP - Hotelling	2.1	0.1	12.2	1.3	0.4	0.4
Tugboats	5.6	1.1	6.2	0.0	0.2	0.1
Total	88.7	46.7	599.2	21.7	13.0	10.5

AMP Hotelling emissions include the emissions generated by regional power plants to generate the electricity consumed by the ships while hotelling.

Table 1.3-206. Summary of Maximum Daily Marine Vessel Emissions with Mitigation

Proposed Project with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	282	142	2,074	53	39	31
Ships - 20nm to PA	254	128	1,870	48	35	28
Ships - PA	119	66	770	18	15	12
Ships - Harbor Transit	76	67	453	7	11	9
Ships - Turning & Docking	31	22	244	8	6	4
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	146	58	1,602	115	42	33
AMP - Hotelling	11	1	61	6	2	2
Tugboats	50	9	58	0	1	1
Total	968	493	7,132	254	151	121
Project Year 2020						
Ships - AQMD 40nm to 20nm	315	163	2,235	56	43	34
Ships - 20nm to PA	284	147	2,016	50	38	31
Ships - PA	133	75	829	19	17	14
Ships - Harbor Transit	84	79	504	7	12	10
Ships - Turning & Docking	32	24	244	7	6	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	57	24	609	69	20	15
AMP - Hotelling	14	1	78	8	3	3
Tugboats	53	10	60	0	1	1
Total	972	523	6,574	216	140	112
Project Year 2025						
Ships - AQMD 40nm to 20nm	386	200	2,733	67	52	42
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	65	27	700	73	22	17
AMP - Hotelling	-	-	-	-	-	-
Tugboats	56	11	63	0	2	1
Total	1,160	636	7,885	239	165	132
Project Year 2027						
Ships - AQMD 40nm to 20nm	386	200	2,733	67	52	42
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	28	13	289	56	13	10
AMP - Hotelling	19	1	111	12	4	4
Tugboats	57	12	64	0	2	1
Total	1,143	623	7,586	234	160	129

Table 1.3-207. Summary of Average Daily Marine Vessel Emissions with Mitigation

Proposed Project with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	75	34	958	583	87	77
Ships - 20nm to PA	70	35	581	324	55	44
Ships - PA	33	18	241	126	24	20
Ships - Harbor Transit	21	19	140	46	17	14
Ships - Turning & Docking	9	6	81	55	9	7
Ships - Anchoring	1	0	16	21	2	2
Ships - Hotelling	85	34	1,079	1,423	131	103
AMP - Hotelling	-	-	-	-	-	-
Tugboats	14	3	48	0	2	2
Total	308	149	3,144	2,578	328	268
Project Year 2012						
Ships - AQMD 40nm to 20nm	84	38	958	26	16	12
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	142	56	1,563	91	37	29
AMP - Hotelling	-	-	-	-	-	-
Tugboats	15	3	57	0	2	2
Total	386	182	3,597	142	76	60
Project Year 2015						
Ships - AQMD 40nm to 20nm	99	50	742	19	14	11
Ships - 20nm to PA	90	45	669	17	13	10
Ships - PA	42	23	276	7	6	4
Ships - Harbor Transit	27	24	160	2	4	3
Ships - Turning & Docking	11	8	87	3	2	2
Ships - Anchoring	1	0	11	1	0	0
Ships - Hotelling	99	40	1,085	80	29	22
AMP - Hotelling	7	0	41	4	1	1
Tugboats	20	4	23	0	0	0
Total	396	193	3,095	134	69	55
Project Year 2020						
Ships - AQMD 40nm to 20nm	122	61	901	23	17	14
Ships - 20nm to PA	110	55	813	21	15	12
Ships - PA	52	28	335	8	7	5
Ships - Harbor Transit	33	29	196	3	5	4
Ships - Turning & Docking	13	9	105	3	2	2
Ships - Anchoring	1	1	15	1	0	0
Ships - Hotelling	49	21	529	60	17	13
AMP - Hotelling	12	1	68	7	2	2
Tugboats	25	5	28	0	1	1
Total	416	210	2,989	126	67	54
Project Year 2025						
Ships - AQMD 40nm to 20nm	144	74	1,050	27	20	16
Ships - 20nm to PA	130	66	947	24	18	14
Ships - PA	61	34	390	9	8	6
Ships - Harbor Transit	39	35	232	3	6	5
Ships - Turning & Docking	15	11	119	4	3	2
Ships - Anchoring	2	1	19	1	0	0
Ships - Hotelling	39	16	420	47	14	11
AMP - Hotelling	9	0	54	6	2	2
Tugboats	28	6	31	0	1	1
Total	468	243	3,263	120	71	57
Project Year 2027						
Ships - AQMD 40nm to 20nm	157	80	1,141	29	22	17
Ships - 20nm to PA	142	72	1,029	26	19	16
Ships - PA	66	37	423	10	9	7
Ships - Harbor Transit	42	38	252	4	6	5
Ships - Turning & Docking	17	12	130	4	3	2
Ships - Anchoring	2	1	20	1	0	0
Ships - Hotelling	18	8	188	38	9	7
AMP - Hotelling	12	1	67	7	2	2
Tugboats	30	6	34	0	1	1
Total	486	256	3,283	119	71	57

Table 1.3-208. Summary of Maximum Hourly Marine Vessel Emissions with Mitigation

Proposed Project Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	42	21	312	8	6	5
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	179	106	1,192	29	25	20
Project Year 2020						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	200	122	1,306	31	27	22
Project Year 2025						
Ships - AQMD 40nm to 20nm	58	30	415	10	8	6
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	240	148	1,562	35	33	26
Project Year 2027						
Ships - AQMD 40nm to 20nm	58	30	415	10	8	6
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	240	148	1,563	35	33	26

Table 1.3-209. Annual Ship Visit Data - NEPA Baseline/Alt 2

Project Scenario/Ship Type	Annual Ship Calls	Annual Anchorage Calls (1)	Engine Year (2)	Avg Hotelling per Ship (hr)
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	2	-	2008	38.2
Containerships 5,000 TEU	177	11	1998	44.9
Containerships 4,000 TEU	59	8	2002	37.8
Containerships 3,000 TEU	7	-	2004	60.1
Containerships 1,000 TEU	2	1	2002	19.3
Total	247	20		n/a
Project Year 2012				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	-	-	2007	-
Containerships 6,000 TEU	156	16	2003	71.0
Containerships 5,000 TEU	52	5	2002	59.7
Containerships 4,000 TEU	26	3	2000	48.3
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	234	23		n/a
Project Year 2015				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	-	-	2007	-
Containerships 6,000 TEU	156	16	2003	69.7
Containerships 5,000 TEU	52	5	2002	58.6
Containerships 4,000 TEU	26	3	2000	47.5
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	234	23		n/a
Project Year 2020				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	-	-	2007	-
Containerships 6,000 TEU	156	16	2003	72.7
Containerships 5,000 TEU	52	5	2002	61.0
Containerships 4,000 TEU	26	3	2000	49.4
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	234	23		n/a
Project Year 2025				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	52	5	2007	77.1
Containerships 6,000 TEU	156	16	2003	52.4
Containerships 5,000 TEU	52	5	2002	44.2
Containerships 4,000 TEU	26	3	2000	35.9
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	286	29		n/a
Project Year 2027				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	52	5	2007	78.3
Containerships 6,000 TEU	156	16	2003	53.2
Containerships 5,000 TEU	52	5	2002	44.8
Containerships 4,000 TEU	26	3	2000	36.5
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	286	29		n/a

(1) Anchor calls in 2015-2027 are assumed to be 10 percent of total calls at berth for each study year.
(2) For future study years, engine year is taken from the POLA 2009 EI, Table 3.25

Table 1.3-210. Peak Day Ship Visit Data - NEPA Baseline/Alt 2

Project Scenario/Ship Type	Peak Day Arrivals	Peak Day Departures	Peak Day At Berth	Peak Day Hotelling (hr)	
				Unmitigated	Mitigated (2)
Baseline					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU				-	-
Containerships 6,000 TEU	1	1	1	64.0	64.0
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.0	64.0
Project Year 2012					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU				-	-
Containerships 6,000 TEU	1	1	1	64.0	64.0
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.0	64.0
Project Year 2015					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU				-	-
Containerships 6,000 TEU	1	1	1	64.0	63.4
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.0	63.4
Project Year 2020					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU				-	-
Containerships 6,000 TEU	1	1	1	64.0	63.4
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.0	63.4
Project Year 2025					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU	1	1	1	64.2	63.6
Containerships 6,000 TEU				-	-
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.2	63.6
Project Year 2027					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU	1	1	1	64.2	63.6
Containerships 6,000 TEU				-	-
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.2	63.6

Notes: (1) Hotelling time equals 24 hours minus vessel transit time within the SCAB. Because the Vessel Speed Reduction (VSR) program increases transit time, the hotelling times are shorter when VSR is implemented as mitigation.
(2) For the Mitigated Project, 95% VSR is assumed out to 40nm. 95% VSR is assumed out to 20nm for the unmitigated project.
(3) Peak daily arrivals and departures provided by APL.

Table 1.3-211. OGV Main Engine Usage per One-Way Transit: Baseline

Vessel Type	Propulsion Max kW	Speed (Kts)	Load Factor	Distance (nm/trip)	Duration (hr/trip)	Energy Consumed (kW-hr/trip)
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (1)						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	18.1	0.31	20.73	1.15	21,345
Containerships 5,000 TEU	53,032	17.8	0.30	20.73	1.17	18,247
Containerships 4,000 TEU	42,216	16.1	0.25	20.73	1.29	13,370
Containerships 3,000 TEU	30,647	13.8	0.18	20.73	1.51	8,115
Containerships 1,000 TEU	8,610	15.1	0.38	20.73	1.37	4,487
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR						
Doesn't apply to the baseline						
Fairway: 20nm to Precautionary Area, Without VSR						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	18.1	0.31	18.58	1.03	19,131
Containerships 5,000 TEU	53,032	17.8	0.30	18.58	1.05	16,355
Containerships 4,000 TEU	42,216	16.1	0.25	18.58	1.16	11,984
Containerships 3,000 TEU	30,647	13.8	0.18	18.58	1.35	7,273
Containerships 1,000 TEU	8,610	15.1	0.38	18.58	1.23	4,022
Fairway: 20nm to Precautionary Area, With VSR						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	12.0	0.09	18.58	1.55	8,456
Containerships 5,000 TEU	53,032	12.0	0.09	18.58	1.55	7,449
Containerships 4,000 TEU	42,216	12.0	0.10	18.58	1.55	6,699
Containerships 3,000 TEU	30,647	12.0	0.12	18.58	1.55	5,522
Containerships 1,000 TEU	8,610	12.0	0.19	18.58	1.55	2,540
Precautionary Area						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	11.0	0.07	8.06	0.73	3,083
Containerships 5,000 TEU	53,032	11.0	0.07	8.06	0.73	2,716
Containerships 4,000 TEU	42,216	11.0	0.08	8.06	0.73	2,442
Containerships 3,000 TEU	30,647	11.0	0.09	8.06	0.73	2,014
Containerships 1,000 TEU	8,610	11.0	0.15	8.06	0.73	926
Harbor Transit Inbound						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	7.0	0.02	3.50	0.50	542
Containerships 5,000 TEU	53,032	7.0	0.02	3.50	0.50	477
Containerships 4,000 TEU	42,216	7.0	0.02	3.50	0.50	429
Containerships 3,000 TEU	30,647	7.0	0.02	3.50	0.50	354
Containerships 1,000 TEU	8,610	7.0	0.04	3.50	0.50	163
Harbor Transit Outbound						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	8.0	0.03	3.50	0.44	708
Containerships 5,000 TEU	53,032	8.0	0.03	3.50	0.44	624
Containerships 4,000 TEU	42,216	8.0	0.03	3.50	0.44	561
Containerships 3,000 TEU	30,647	8.0	0.03	3.50	0.44	462
Containerships 1,000 TEU	8,610	8.0	0.06	3.50	0.44	213
Turning						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.23	281
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.23	247
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.23	197
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.23	143
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.23	40
Docking						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.25	301
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.25	265
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.25	211
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.25	153
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.25	43

Source: POLA 2009 Emission Inventory Report.

(1) VSR = vessel speed reduction (speed reduced to 12 knots).

(2) Turning time and turning and docking load factors from 2008 POLA EI, Section 3.5.6.

(3) Harbor transit distance and turning time assumed from China Shipping EIR.

Table 1.3-212. OGV Auxiliary Engine Usage per One-Way Transit: Baseline

Vessel Type	Auxiliary kW per Vessel (1)	Hours/Transit	kW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.15	1,946
Containerships 5,000 TEU	1,256	1.17	1,464
Containerships 4,000 TEU	1,611	1.29	2,081
Containerships 3,000 TEU	667	1.51	1,005
Containerships 1,000 TEU	443	1.37	608
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR			
Doesn't apply to the baseline			
Fairway: 20nm to Precautionary Area, Without VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.03	1,744
Containerships 5,000 TEU	1,256	1.05	1,313
Containerships 4,000 TEU	1,611	1.16	1,865
Containerships 3,000 TEU	667	1.35	901
Containerships 1,000 TEU	443	1.23	545
Fairway: 20nm to Precautionary Area, With VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.55	2,623
Containerships 5,000 TEU	1,256	1.55	1,945
Containerships 4,000 TEU	1,611	1.55	2,494
Containerships 3,000 TEU	667	1.55	1,034
Containerships 1,000 TEU	443	1.55	686
Precautionary Area			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.73	1,242
Containerships 5,000 TEU	1,256	0.73	921
Containerships 4,000 TEU	1,611	0.73	1,181
Containerships 3,000 TEU	667	0.73	489
Containerships 1,000 TEU	443	0.73	325
Harbor Transit Inbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.50	847
Containerships 5,000 TEU	1,256	0.50	628
Containerships 4,000 TEU	1,611	0.50	805
Containerships 3,000 TEU	667	0.50	334
Containerships 1,000 TEU	443	0.50	222
Harbor Transit Outbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.44	741
Containerships 5,000 TEU	1,256	0.44	549
Containerships 4,000 TEU	1,611	0.44	705
Containerships 3,000 TEU	667	0.44	292
Containerships 1,000 TEU	443	0.44	194
Turning			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	3,778	0.23	882
Containerships 5,000 TEU	3,457	0.23	807
Containerships 4,000 TEU	2,889	0.23	674
Containerships 3,000 TEU	2,288	0.23	534
Containerships 1,000 TEU	1,051	0.23	245
Docking			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	3,778	0.25	945
Containerships 5,000 TEU	3,457	0.25	864
Containerships 4,000 TEU	2,889	0.25	722
Containerships 3,000 TEU	2,288	0.25	572
Containerships 1,000 TEU	1,051	0.25	263

(1) Auxiliary engine data provided by Starcrest.

Table 1.3-213. OGV Auxiliary Boiler Usage per One-Way Transit: Baseline

Vessel Type	Boiler kW	Hours/Transit	kW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.15	-
Containerships 5,000 TEU	411	1.17	-
Containerships 4,000 TEU	367	1.29	-
Containerships 3,000 TEU	394	1.51	593
Containerships 1,000 TEU	58	1.37	-
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR (2)			
Doesn't apply to the baseline			
Fairway: 20nm to Precautionary Area, Without VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.03	-
Containerships 5,000 TEU	411	1.05	-
Containerships 4,000 TEU	367	1.16	-
Containerships 3,000 TEU	394	1.35	531
Containerships 1,000 TEU	58	1.23	-
Fairway: 20nm to Precautionary Area, With VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.55	505
Containerships 5,000 TEU	411	1.55	636
Containerships 4,000 TEU	367	1.55	569
Containerships 3,000 TEU	394	1.55	610
Containerships 1,000 TEU	58	1.55	90
Precautionary Area			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.73	239
Containerships 5,000 TEU	411	0.73	301
Containerships 4,000 TEU	367	0.73	269
Containerships 3,000 TEU	394	0.73	289
Containerships 1,000 TEU	58	0.73	43
Harbor Transit Inbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.50	163
Containerships 5,000 TEU	411	0.50	205
Containerships 4,000 TEU	367	0.50	184
Containerships 3,000 TEU	394	0.50	197
Containerships 1,000 TEU	58	0.50	29
Harbor Transit Outbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.44	143
Containerships 5,000 TEU	411	0.44	180
Containerships 4,000 TEU	367	0.44	161
Containerships 3,000 TEU	394	0.44	172
Containerships 1,000 TEU	58	0.44	25
Turning			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	0.23	116
Containerships 5,000 TEU	608	0.23	142
Containerships 4,000 TEU	523	0.23	122
Containerships 3,000 TEU	513	0.23	120
Containerships 1,000 TEU	232	0.23	54
Docking			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	0.25	124
Containerships 5,000 TEU	608	0.25	152
Containerships 4,000 TEU	523	0.25	131
Containerships 3,000 TEU	513	0.25	128
Containerships 1,000 TEU	232	0.25	58

(1) The boiler is assumed to be operated under engine loads less than 20% (Starcrest, 2009).

(2) Boilers are assumed to not have an applied load factor.

Table 1.3-214. OGV Main Engine Usage per One-Way Transit: 2012-2027

Vessel Type	Propulsion Max kW	Speed (Kts)	Load Factor	Distance (nm/trip)	Duration (hr/trip)	Energy Consumed (KW-hr/trip)
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (1)						
Containerships 10,000 TEU	84,280	19.0	0.34	20.74	1.09	30,860
Containerships 9,000 TEU	68,639	19.0	0.34	20.74	1.09	25,133
Containerships 6,000 TEU	60,199	18.1	0.31	20.74	1.15	21,354
Containerships 5,000 TEU	53,032	17.8	0.30	20.74	1.17	18,255
Containerships 4,000 TEU	42,216	16.1	0.25	20.74	1.29	13,376
Containerships 3,000 TEU	30,647	13.8	0.18	20.74	1.51	8,118
Containerships 1,000 TEU	8,610	15.1	0.38	20.74	1.37	4,489
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR						
Containerships 10,000 TEU	84,280	12.0	0.08	20.74	1.73	12,310
Containerships 9,000 TEU	68,639	12.0	0.08	20.74	1.73	10,025
Containerships 6,000 TEU	60,199	12.0	0.09	20.74	1.73	9,438
Containerships 5,000 TEU	53,032	12.0	0.09	20.74	1.73	8,315
Containerships 4,000 TEU	42,216	12.0	0.10	20.74	1.73	7,477
Containerships 3,000 TEU	30,647	12.0	0.12	20.74	1.73	6,164
Containerships 1,000 TEU	8,610	12.0	0.19	20.74	1.73	2,835
Fairway: 20nm to Precautionary Area, Without VSR						
Containerships 10,000 TEU	84,280	19.0	0.34	18.71	0.98	27,832
Containerships 9,000 TEU	68,639	19.0	0.34	18.71	0.98	22,667
Containerships 6,000 TEU	60,199	18.1	0.31	18.71	1.04	19,259
Containerships 5,000 TEU	53,032	17.8	0.30	18.71	1.05	16,464
Containerships 4,000 TEU	42,216	16.1	0.25	18.71	1.17	12,064
Containerships 3,000 TEU	30,647	13.8	0.18	18.71	1.36	7,322
Containerships 1,000 TEU	8,610	15.1	0.38	18.71	1.24	4,049
Fairway: 20nm to Precautionary Area, With VSR						
Containerships 10,000 TEU	84,280	12.0	0.08	18.71	1.56	11,102
Containerships 9,000 TEU	68,639	12.0	0.08	18.71	1.56	9,042
Containerships 6,000 TEU	60,199	12.0	0.09	18.71	1.56	8,512
Containerships 5,000 TEU	53,032	12.0	0.09	18.71	1.56	7,499
Containerships 4,000 TEU	42,216	12.0	0.10	18.71	1.56	6,744
Containerships 3,000 TEU	30,647	12.0	0.12	18.71	1.56	5,559
Containerships 1,000 TEU	8,610	12.0	0.19	18.71	1.56	2,557
Precautionary Area						
Containerships 10,000 TEU	84,280	11.0	0.07	8.06	0.73	4,020
Containerships 9,000 TEU	68,639	11.0	0.07	8.06	0.73	3,274
Containerships 6,000 TEU	60,199	11.0	0.07	8.06	0.73	3,082
Containerships 5,000 TEU	53,032	11.0	0.07	8.06	0.73	2,715
Containerships 4,000 TEU	42,216	11.0	0.08	8.06	0.73	2,442
Containerships 3,000 TEU	30,647	11.0	0.09	8.06	0.73	2,013
Containerships 1,000 TEU	8,610	11.0	0.15	8.06	0.73	926
Harbor Transit Inbound						
Containerships 10,000 TEU	84,280	7.0	0.02	3.50	0.50	707
Containerships 9,000 TEU	68,639	7.0	0.02	3.50	0.50	576
Containerships 6,000 TEU	60,199	7.0	0.02	3.50	0.50	542
Containerships 5,000 TEU	53,032	7.0	0.02	3.50	0.50	477
Containerships 4,000 TEU	42,216	7.0	0.02	3.50	0.50	429
Containerships 3,000 TEU	30,647	7.0	0.02	3.50	0.50	354
Containerships 1,000 TEU	8,610	7.0	0.04	3.50	0.50	163
Harbor Transit Outbound						
Containerships 10,000 TEU	84,280	8.0	0.03	3.50	0.44	923
Containerships 9,000 TEU	68,639	8.0	0.03	3.50	0.44	752
Containerships 6,000 TEU	60,199	8.0	0.03	3.50	0.44	708
Containerships 5,000 TEU	53,032	8.0	0.03	3.50	0.44	624
Containerships 4,000 TEU	42,216	8.0	0.03	3.50	0.44	561
Containerships 3,000 TEU	30,647	8.0	0.03	3.50	0.44	462
Containerships 1,000 TEU	8,610	8.0	0.06	3.50	0.44	213
Turning						
Containerships 10,000 TEU	84,280	n/a	0.02	n/a	0.23	393
Containerships 9,000 TEU	68,639	n/a	0.02	n/a	0.23	320
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.23	281
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.23	247
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.23	197
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.23	143
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.23	40
Docking						
Containerships 10,000 TEU	84,280	n/a	0.02	n/a	0.25	421
Containerships 9,000 TEU	68,639	n/a	0.02	n/a	0.25	343
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.25	301
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.25	265
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.25	211
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.25	153
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.25	43

Source: POLA 2009 Emission Inventory Report.

(1) VSR = vessel speed reduction (speed reduced to 12 knots).

(2) Turning time and turning and docking load factors from 2008 POLA EI, Section 3.5.6.

(3) Harbor transit distance and turning time assumed from China Shipping EIR.

Table 1.3-215. OGV Auxiliary Engine Usage per One-Way Transit: 2012-2027

Vessel Type	Auxiliary kW per Vessel (1)	Load Factor (2)	Hours/Transit	KW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR				
Containerships 10,000 TEU	14,000	0.13	1.09	2,030
Containerships 9,000 TEU	11,665	0.13	1.09	1,692
Containerships 6,000 TEU	1,694	NA	1.15	1,947
Containerships 5,000 TEU	1,256	NA	1.17	1,465
Containerships 4,000 TEU	1,611	NA	1.29	2,081
Containerships 3,000 TEU	667	NA	1.51	1,005
Containerships 1,000 TEU	443	NA	1.37	609
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR				
Containerships 10,000 TEU	14,000	0.13	1.73	3,215
Containerships 9,000 TEU	11,665	0.13	1.73	2,678
Containerships 6,000 TEU	1,694	NA	1.73	2,928
Containerships 5,000 TEU	1,256	NA	1.73	2,171
Containerships 4,000 TEU	1,611	NA	1.73	2,784
Containerships 3,000 TEU	667	NA	1.73	1,154
Containerships 1,000 TEU	443	NA	1.73	766
Fairway: 20nm to Precautionary Area, Without VSR				
Containerships 10,000 TEU	14,000	0.13	0.98	1,831
Containerships 9,000 TEU	11,665	0.13	0.98	1,526
Containerships 6,000 TEU	1,694	NA	1.04	1,756
Containerships 5,000 TEU	1,256	NA	1.05	1,321
Containerships 4,000 TEU	1,611	NA	1.17	1,877
Containerships 3,000 TEU	667	NA	1.36	907
Containerships 1,000 TEU	443	NA	1.24	549
Fairway: 20nm to Precautionary Area, With VSR				
Containerships 10,000 TEU	14,000	0.13	1.56	2,899
Containerships 9,000 TEU	11,665	0.13	1.56	2,416
Containerships 6,000 TEU	1,694	NA	1.56	2,641
Containerships 5,000 TEU	1,256	NA	1.56	1,958
Containerships 4,000 TEU	1,611	NA	1.56	2,511
Containerships 3,000 TEU	667	NA	1.56	1,041
Containerships 1,000 TEU	443	NA	1.56	691
Precautionary Area				
Containerships 10,000 TEU	14,000	0.13	0.73	1,363
Containerships 9,000 TEU	11,665	0.13	0.73	1,136
Containerships 6,000 TEU	1,694	NA	0.73	1,241
Containerships 5,000 TEU	1,256	NA	0.73	920
Containerships 4,000 TEU	1,611	NA	0.73	1,180
Containerships 3,000 TEU	667	NA	0.73	489
Containerships 1,000 TEU	443	NA	0.73	325
Harbor Transit Inbound				
Containerships 10,000 TEU	14,000	0.13	0.50	930
Containerships 9,000 TEU	11,665	0.13	0.50	775
Containerships 6,000 TEU	1,694	NA	0.50	847
Containerships 5,000 TEU	1,256	NA	0.50	628
Containerships 4,000 TEU	1,611	NA	0.50	805
Containerships 3,000 TEU	667	NA	0.50	334
Containerships 1,000 TEU	443	NA	0.50	222
Harbor Transit Outbound				
Containerships 10,000 TEU	14,000	0.13	0.44	814
Containerships 9,000 TEU	11,665	0.13	0.44	678
Containerships 6,000 TEU	1,694	NA	0.44	741
Containerships 5,000 TEU	1,256	NA	0.44	549
Containerships 4,000 TEU	1,611	NA	0.44	705
Containerships 3,000 TEU	667	NA	0.44	292
Containerships 1,000 TEU	443	NA	0.44	194
Turning				
Containerships 10,000 TEU	14,000	0.30	0.23	968
Containerships 9,000 TEU	11,665	0.30	0.23	806
Containerships 6,000 TEU	3,778	NA	0.23	882
Containerships 5,000 TEU	3,457	NA	0.23	807
Containerships 4,000 TEU	2,889	NA	0.23	674
Containerships 3,000 TEU	2,288	NA	0.23	534
Containerships 1,000 TEU	1,051	NA	0.23	245
Docking				
Containerships 10,000 TEU	14,000	0.30	0.25	1,037
Containerships 9,000 TEU	11,665	0.30	0.25	864
Containerships 6,000 TEU	3,778	NA	0.25	945
Containerships 5,000 TEU	3,457	NA	0.25	864
Containerships 4,000 TEU	2,889	NA	0.25	722
Containerships 3,000 TEU	2,288	NA	0.25	572
Containerships 1,000 TEU	1,051	NA	0.25	263

(1) Containership 10,000 kW provided by APL. Containership 9,000 data from the POLA 2009 Emission Inventory Report. Containership 1,000 to 6,000 data provided by Starcrest.

(2) Derived from POLA 2009 EI Table 3.13 and Table 3.26

Table 1.3-216. OGV Auxiliary Boiler Usage per One-Way Transit:2012-2027

Vessel Type	Boiler kW	Hours/Transit	KW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (2)			
Containerships 10,000 TEU	440	1.09	-
Containerships 9,000 TEU	440	1.09	-
Containerships 6,000 TEU	326	1.15	-
Containerships 5,000 TEU	411	1.17	-
Containerships 4,000 TEU	367	1.29	-
Containerships 3,000 TEU	394	1.51	593
Containerships 1,000 TEU	58	1.37	-
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR (2)			
Containerships 10,000 TEU	440	1.73	761
Containerships 9,000 TEU	440	1.73	761
Containerships 6,000 TEU	326	1.73	564
Containerships 5,000 TEU	411	1.73	710
Containerships 4,000 TEU	367	1.73	635
Containerships 3,000 TEU	394	1.73	680
Containerships 1,000 TEU	58	1.73	100
Fairway: 20nm to Precautionary Area, Without VSR (2)			
Containerships 10,000 TEU	440	0.98	-
Containerships 9,000 TEU	440	0.98	-
Containerships 6,000 TEU	326	1.04	-
Containerships 5,000 TEU	411	1.05	-
Containerships 4,000 TEU	367	1.17	-
Containerships 3,000 TEU	394	1.36	535
Containerships 1,000 TEU	58	1.24	-
Fairway: 20nm to Precautionary Area, With VSR (2)			
Containerships 10,000 TEU	440	1.56	686
Containerships 9,000 TEU	440	1.56	686
Containerships 6,000 TEU	326	1.56	508
Containerships 5,000 TEU	411	1.56	641
Containerships 4,000 TEU	367	1.56	573
Containerships 3,000 TEU	394	1.56	614
Containerships 1,000 TEU	58	1.56	90
Precautionary Area			
Containerships 10,000 TEU	440	0.73	322
Containerships 9,000 TEU	440	0.73	322
Containerships 6,000 TEU	326	0.73	239
Containerships 5,000 TEU	411	0.73	301
Containerships 4,000 TEU	367	0.73	269
Containerships 3,000 TEU	394	0.73	288
Containerships 1,000 TEU	58	0.73	43
Harbor Transit Inbound			
Containerships 10,000 TEU	440	0.50	220
Containerships 9,000 TEU	440	0.50	220
Containerships 6,000 TEU	326	0.50	163
Containerships 5,000 TEU	411	0.50	205
Containerships 4,000 TEU	367	0.50	184
Containerships 3,000 TEU	394	0.50	197
Containerships 1,000 TEU	58	0.50	29
Harbor Transit Outbound			
Containerships 10,000 TEU	440	0.44	193
Containerships 9,000 TEU	440	0.44	193
Containerships 6,000 TEU	326	0.44	143
Containerships 5,000 TEU	411	0.44	180
Containerships 4,000 TEU	367	0.44	161
Containerships 3,000 TEU	394	0.44	172
Containerships 1,000 TEU	58	0.44	25
Turning			
Containerships 10,000 TEU	440	0.23	103
Containerships 9,000 TEU	440	0.23	103
Containerships 6,000 TEU	497	0.23	116
Containerships 5,000 TEU	608	0.23	142
Containerships 4,000 TEU	523	0.23	122
Containerships 3,000 TEU	513	0.23	120
Containerships 1,000 TEU	232	0.23	54
Docking			
Containerships 10,000 TEU	440	0.25	110
Containerships 9,000 TEU	440	0.25	110
Containerships 6,000 TEU	497	0.25	124
Containerships 5,000 TEU	608	0.25	152
Containerships 4,000 TEU	523	0.25	131
Containerships 3,000 TEU	513	0.25	128
Containerships 1,000 TEU	232	0.25	58

(1) Boilers for Containerships 9,000 to 10,000 data from the POLA 2009 Emission Inventory Report. Boiler data for Containerships 1,000 to 6,000 provided by Starcrest.

(2) Boilers assumed to operate under engine loads less than 20% (Starcrest, 2009).

(3) Boilers are assumed to not have an applied load factor.

Table 1.3-217. OGV Hotelling Aux. Gen. Usage per Ship Visit (Assuming No AMP)
CEQA Baseline & NEPA Baseline/AIT 2

Vessel Type	Auxiliary kW per Vessel	Load Factor (1)	Hours/ Visit	kW-Hrs/ Visit
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	1,347	NA	38.2	51,455
Containerships 5,000 TEU	1,040	NA	44.9	46,729
Containerships 4,000 TEU	1,372	NA	37.8	51,814
Containerships 3,000 TEU	572	NA	60.1	34,377
Containerships 1,000 TEU	339	NA	19.3	6,543
Project Year 2012				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	-	-
Containerships 6,000 TEU	1,347	NA	71.0	95,642
Containerships 5,000 TEU	1,040	NA	59.7	62,031
Containerships 4,000 TEU	1,372	NA	48.3	66,315
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2015				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	-	-
Containerships 6,000 TEU	1,347	NA	69.7	93,925
Containerships 5,000 TEU	1,040	NA	58.6	60,927
Containerships 4,000 TEU	1,372	NA	47.5	65,149
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2020				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	-	-
Containerships 6,000 TEU	1,347	NA	72.7	97,862
Containerships 5,000 TEU	1,040	NA	61.0	63,459
Containerships 4,000 TEU	1,372	NA	49.4	67,822
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2025				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	77.1	82,713
Containerships 6,000 TEU	1,347	NA	52.4	70,597
Containerships 5,000 TEU	1,040	NA	44.2	45,924
Containerships 4,000 TEU	1,372	NA	35.9	49,309
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2027				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	78.3	83,993
Containerships 6,000 TEU	1,347	NA	53.2	71,669
Containerships 5,000 TEU	1,040	NA	44.8	46,613
Containerships 4,000 TEU	1,372	NA	36.5	50,037
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-

(1) Derived from POLA 2009 EI Table 3.13 and Table 3.26

Table 1.3-218. OGV Hotelling Auxiliary Boiler Usage per Ship Visit
CEQA Baseline & NEPA Baseline/AIT 2

Vessel Type	Boiler kW	Hours/ Visit	kW-Hrs/ Visit
Baseline			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	38.2	18,985
Containerships 5,000 TEU	608	44.9	27,313
Containerships 4,000 TEU	523	37.8	19,763
Containerships 3,000 TEU	513	60.1	30,830
Containerships 1,000 TEU	232	19.3	4,478
Project Year 2012			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	-	-
Containerships 6,000 TEU	497	71.0	35,289
Containerships 5,000 TEU	608	59.7	36,257
Containerships 4,000 TEU	523	48.3	25,293
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2015			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	-	-
Containerships 6,000 TEU	497	69.7	34,655
Containerships 5,000 TEU	608	58.6	35,611
Containerships 4,000 TEU	523	47.5	24,849
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2020			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	-	-
Containerships 6,000 TEU	497	72.7	36,108
Containerships 5,000 TEU	608	61.0	37,091
Containerships 4,000 TEU	523	49.4	25,868
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2025			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	77.1	33,931
Containerships 6,000 TEU	497	52.4	26,048
Containerships 5,000 TEU	608	44.2	26,842
Containerships 4,000 TEU	523	35.9	18,807
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2027			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	78.3	34,456
Containerships 6,000 TEU	497	53.2	26,444
Containerships 5,000 TEU	608	44.8	27,245
Containerships 4,000 TEU	523	36.5	19,085
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-

**Table 1.3-219. OGV Anchoring Auxiliary Engine Usage per Ship Visit
CEQA Baseline & NEPA Baseline/Alt 2**

Vessel Type	Auxiliary kW per Vessel (1)	Load Factor (2)	Hours/ Visit	kW-Hrs/ Visit
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	1,694	NA	2.1	3,557
Containerships 5,000 TEU	1,053	NA	10.7	11,229
Containerships 4,000 TEU	1,378	NA	4.3	5,913
Containerships 3,000 TEU	NA	NA	NA	-
Containerships 1,000 TEU	443	NA	5.6	2,481
Project Year 2012				
Containerships 10,000 TEU	-	-	7.4	-
Containerships 9,000 TEU	-	-	7.4	-
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2015				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	-	0.09	7.4	-
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2020				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	-	0.09	7.4	-
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2025				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2027				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-

Note: (1) Average anchoring time was derived from actual anchoring data for APL ship visits for 2008 and 2009, provided by Starcrest.

- (2) Anchoring times assumed for the baseline are carried through 2027.
- (3) Anchoring times for OGVs larger than 6,000 TEU are assumed to be equal to the average for all sizes.

**Table 1.3-220. OGV Anchoring Auxiliary Boiler Usage per Ship Visit
CEQA Baseline & NEPA Baseline/Alt 2**

Vessel Type	Boiler kW	Hours/ Visit	kW-Hrs/ Visit
Baseline			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	2.1	1,044
Containerships 5,000 TEU	608	10.7	6,482
Containerships 4,000 TEU	523	4.3	2,246
Containerships 3,000 TEU	NA	NA	-
Containerships 1,000 TEU	232	5.6	1,299
Project Year 2012			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	-	7.4	-
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2015			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	-	7.4	-
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2020			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	-	7.4	-
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2025			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2027			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-

Table 1.3-221. Tugboat Main Engine Usage during Assists

Vessel Type	Tugboat Avg Hp (1)	Load Factor (1)	Hours/ Assist (2)	Tugboats per Assist	hp-Hrs/ Assist
Containerships 10,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 9,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 6,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 5,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 4,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 3,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 1,000 TEU	1,934	0.31	1.13	2	1,351

(1) Source: POLA 2009 Emission Inventory Report.

(2) Time spent operating per vessel trip. Equal to vessel "Harbor" transit times 1.3 to account for tug movement and assist time. Vessel turning time is divided by a factor of 2 because tugboats are assumed to assist containerships while turning to dock but not while turning to leave the berth.

Table 1.3-222. Tugboat Auxiliary Engine Usage during Assists

Vessel Type	Aux Engine Avg Hp (1)	Load Factor (1)	Hours/ Assist	Tugboats per Assist	hp-Hrs/ Assist
Containerships 10,000 TEU	149	0.43	1.13	2	144
Containerships 9,000 TEU	149	0.43	1.13	2	144
Containerships 6,000 TEU	149	0.43	1.13	2	144
Containerships 5,000 TEU	149	0.43	1.13	2	144
Containerships 4,000 TEU	149	0.43	1.13	2	144
Containerships 3,000 TEU	149	0.43	1.13	2	144
Containerships 1,000 TEU	149	0.43	1.13	2	144

(1) Source: POLA 2009 Emission Inventory Report.

Table 1.3-223. Emission Factors for Commercial Marine Vessels

Engine Type	Fuel Type	Description	CO	VOC	NOx	SOx	PM10	PM2.5	Notes
Main Propulsion Engine									
OGV Main Engines (g/kw-hr)	Residual Oil (2.7% S)	Slow speed diesel ≤ 1999	1.40	0.63	18.10	10.50	1.50	1.20	(1)
		Slow speed diesel 2000+	1.40	0.63	17.00	10.50	1.50	1.20	(1)
	MGO (0.2% S)	Slow speed diesel ≤ 1999	1.40	0.63	17.01	0.74	0.29	0.23	(2)
		Slow speed diesel 2000+	1.40	0.63	15.98	0.74	0.29	0.23	(2)
	MGO (0.1% S)	Slow speed diesel ≤ 1999	1.40	0.63	17.01	0.42	0.26	0.20	(2)
		Slow speed diesel 2000+	1.40	0.63	15.98	0.42	0.26	0.20	(2)
	Baseline	Slow speed diesel ≤ 1999	1.40	0.63	18.05	10.01	1.44	1.15	(5)
	(0.95 IFO, 0.5 0.2% MGO)	Slow speed diesel 2000+	1.40	0.63	16.95	10.01	1.44	1.15	(5)
Tugboat Main Engines (Medium Speed Diesel) (g/hp-hr)	Baseline Fleet		3.11	0.74	11.12	0.01	0.47	0.44	(6)
	CARB (15 ppm S)	2008	3.45	0.77	13.64	0.01	0.51	0.47	(3,4)
	CARB (15 ppm S)	2012	3.60	0.82	14.12	0.01	0.56	0.51	(3,4)
	CARB (15 ppm S)	2015	3.82	0.71	4.45	0.01	0.09	0.08	(3,4)
	CARB (15 ppm S)	2020	4.04	0.78	4.66	0.01	0.10	0.10	(3,4)
	CARB (15 ppm S)	2025	4.26	0.85	4.87	0.01	0.12	0.11	(3,4)
	CARB (15 ppm S)	2027	4.35	0.88	4.95	0.01	0.12	0.11	(3,4)
Auxiliary Engine									
OGV Auxiliary Engines (g/kw-hr)	Residual Oil (2.7% S)	Medium speed diesel ≤ 1999	1.10	0.42	14.70	12.30	1.50	1.20	(1)
		Medium speed diesel 2000+	1.10	0.42	13.00	12.30	1.50	1.20	(2)
	MGO (0.2% S)	Medium speed diesel ≤ 1999	1.10	0.42	13.82	0.86	0.29	0.23	(2)
		Medium speed diesel 2000+	1.10	0.42	12.22	0.86	0.29	0.23	(2)
	MGO (0.1% S)	Medium speed diesel ≤ 1999	1.10	0.42	13.82	0.49	0.26	0.20	(2)
		Medium speed diesel 2000+	1.10	0.42	12.22	0.49	0.26	0.20	(2)
	Baseline	Medium speed diesel ≤ 1999	1.10	0.42	14.66	11.73	1.44	1.15	(5)
	(0.95 IFO, 0.5 0.2% MGO)	Medium speed diesel 2000+	1.10	0.42	12.96	11.73	1.44	1.15	(5)
Tugboat Auxiliary Engines (High Speed Diesel) (g/hp-hr)	Baseline Fleet		3.92	0.81	7.62	0.01	0.36	0.33	(6)
	CARB (15 ppm S)	2008	2.97	0.65	8.23	0.01	0.30	0.28	(3,4)
	CARB (15 ppm S)	2012	3.03	0.68	8.38	0.01	0.32	0.29	(3,4)
	CARB (15 ppm S)	2015	3.76	0.82	3.62	0.01	0.08	0.07	(3,4)
	CARB (15 ppm S)	2020	3.89	0.87	3.73	0.01	0.09	0.08	(3,4)
	CARB (15 ppm S)	2025	4.02	0.92	3.84	0.01	0.09	0.09	(3,4)
	CARB (15 ppm S)	2027	4.07	0.94	3.89	0.01	0.10	0.09	(3,4)
Auxiliary Boiler									
Auxiliary Boilers (g/kw-hr)	Residual Oil (2.7% S)	Current in-use average	0.20	0.11	2.10	16.50	0.80	0.60	(1)
	MDO (0.5% S)	Low sulfur fuel	0.20	0.11	1.97	10.00	0.20	0.15	(2)
	MGO (0.2% S)	Low sulfur fuel	0.20	0.11	1.97	1.16	0.15	0.11	(2)
	MGO (0.1% S)	Low sulfur fuel	0.20	0.11	1.97	0.66	0.14	0.10	(2)
		Baseline (0.95 IFO/0.5 0.2% MGO)	Composite Factor	0.20	0.11	2.09	15.73	0.77	0.58

Notes:

- (1) The 2.7% sulfur content represents the assumed fuel sulfur content from the 2009 POLA EI of residual oil used by containerships.
- (2) Source: POLA 2009 Emission Inventory Report.
- (3) Source: CARB, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B.
- Emission factors for model years pre 2007 are corrected to account for the use of low-sulfur diesel fuel.
- (4) Fuel sulfur content regulated by CCR Title 13, Division 3, Chapter 5, Article 2, Section 2281.
- (5) All Containership engines use 5% 0.2% sulfur MGO and 95% 2.7% sulfur IFO from July 2008 to June 2009.
- (6) Source: Starcrest, 2009 Inventory
- (7) All Containership main engines are assumed to use "Slow" emission factors.

Table 1.3-224. Emission Factors for AMP Electricity Consumption

Emission Source	CO	VOC	NOx	SOx	PM10	PM2.5
Electricity Consumption Emissions (lb/MW-hr)	0.20	0.010	1.15	0.12	0.04	0.04

Source: SCAQMD CEQA Air Quality Handbook, Tbl. A9-11-B.

Table 1.3-225. Fuel Correction Factors for Ship Main Engines, Auxiliary Engines, Boilers

Fuel Type	CO	VOC	NOx	SOx	PM10	PM2.5
HFO (1.5% S)	1.00	1.00	1.00	0.56	0.82	0.82
MDO (1.5% S)	1.00	1.00	0.90	0.56	0.47	0.47
MGO (0.5% S)	1.00	1.00	0.94	0.18	0.25	0.25
MGO (0.2% S)	1.00	1.00	0.94	0.07	0.19	0.19
MGO (0.1% S)	1.00	1.00	0.94	0.04	0.17	0.17

Source: 2009 EI Table 3.18.

Table 1.3-226. Fuel Correction Factors for Tugboat Main & Auxiliary Engines

Fuel Type	CO	VOC	NOx	SOx	PM10	PM2.5
CARB On-Road Diesel	1.00	0.72	0.93	n/a	0.75	0.75
ULSD	1.00	0.72	0.93	n/a	0.72	0.72

Source: 2009 EI Table 4.8.

Table 1.3-227. Low-Load EF Regression Factors for OGV Main Propulsion Engines

Variable	CO	HC	NOx	SOx	PM10	PM2.5
Exponent	1.00	1.50	1.50	-	1.50	1.50
Intercept (b)	0.15	0.39	10.45	-	0.26	0.26
Coefficient (a)	0.84	0.07	0.13	1.00	0.01	0.01
Ref. EF @ 20% Load	4.33	1.13	11.85	1.00	0.32	0.32

Source: 2009 EI Table 3.8. $y = a (\text{fractional load})^x + b$. Factors are normalized by dividing by the factor @ 20% load.

Table 1.3-228. Vessel Speed Reduction Program (VSRP)

Historical Compliance Rates for APL (Unmitigated)

Year	Compliance Rate
Year 2008+	95.0%

Source: POLA staff (1/28/10).

Note: (1) POLA recognizes the APL terminal for VSR compliance, which is defined as at least 95%. This rate is assumed to remain constant for all study years.

Table 1.3-229. IMO MARPOL Annex VI Compliance Rates (Unmitigated)

Year	% Ship Calls
Year 2008	100.0%
Year 2012	100.0%
Year 2015	100.0%
Year 2020	100.0%
Year 2025	100.0%
Year 2027	100.0%

Table 1.3-230. Annual Emissions from OGV Main Engine - NEPA Baseline/Alt 2
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.06	1.60	0.99	0.14	0.11
Containerships 5,000 TEU	9.97	4.50	128.88	74.76	10.68	8.54
Containerships 4,000 TEU	2.43	1.10	29.56	18.26	2.61	2.09
Containerships 3,000 TEU	0.20	0.09	2.18	1.31	0.20	0.16
Containerships 1,000 TEU	0.03	0.01	0.34	0.21	0.03	0.02
Subtotal	12.8	5.8	162.6	95.5	13.7	10.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.3	6.4	163.1	4.3	2.6	2.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.3	6.4	163.1	4.3	2.6	2.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.3	6.4	163.1	4.3	2.6	2.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.03	1.82	46.04	1.21	0.73	0.59
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.3	8.3	209.1	5.5	3.3	2.7
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.03	1.82	46.04	1.21	0.73	0.59
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.3	8.3	209.1	5.5	3.3	2.7

Notes: (1) Main engines are 100 percent compliant with MARPOL ANNEX VI requirements.
 (2) Main engines use slide valves.
 (3) Baseline main engines: 5% use MGO and 95% use IFO from July 2008 to June 2009.
 (4) Study years 2012-2027: main engines switch to residual fuel with 0.1% sulfur content at 2
 (5) All shipping routes in the study area fall within 24nm of the coast.
 (6) For study year 2012, MARPOL ANNEX VI requires 1% sulfur fuel content to 200nm.
 For study year 2015, the requirement is 0.1% sulfur content.

Table 1.3-231. Annual Emissions from OGV Main Engine - NEPA Baseline/Alt 2
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	0.83	0.40	0.08	0.06
Containerships 5,000 TEU	8.82	4.56	69.01	30.84	6.29	5.03
Containerships 4,000 TEU	2.33	1.17	18.22	9.07	1.73	1.38
Containerships 3,000 TEU	0.20	0.10	1.67	0.87	0.15	0.12
Containerships 1,000 TEU	0.02	0.01	0.20	0.12	0.02	0.01
Subtotal	11.5	5.9	89.9	41.3	8.3	6.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.5	6.5	87.4	1.9	1.6	1.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.5	6.5	87.4	1.9	1.6	1.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.5	6.5	87.4	1.9	1.6	1.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.9	8.3	110.1	2.3	2.0	1.6
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.9	8.3	110.1	2.3	2.0	1.6

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-232. Annual Emissions from OGV Main Engine - NEPA Baseline/Alt 2

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Precautionary Area						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.34	0.14	0.04	0.03
Containerships 5,000 TEU	4.15	2.37	27.83	10.61	2.73	2.18
Containerships 4,000 TEU	1.10	0.60	7.32	3.18	0.74	0.59
Containerships 3,000 TEU	0.10	0.05	0.67	0.31	0.07	0.05
Containerships 1,000 TEU	0.01	0.00	0.07	0.04	0.01	0.01
Subtotal	5.4	3.1	36.2	14.3	3.6	2.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.9	3.3	34.9	0.6	0.7	0.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.9	3.3	34.9	0.6	0.7	0.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.9	3.3	34.9	0.6	0.7	0.5
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	7.4	4.2	44.0	0.8	0.9	0.7
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	7.4	4.2	44.0	0.8	0.9	0.7

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-233. Annual Emissions from OGV Main Engine - NEPA Baseline/Alt 2

Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.02	0.11	0.01	0.01	0.01
Containerships 5,000 TEU	1.40	1.46	8.85	0.93	1.13	0.90
Containerships 4,000 TEU	0.37	0.36	2.14	0.28	0.29	0.23
Containerships 3,000 TEU	0.03	0.03	0.18	0.03	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.8	1.9	11.3	1.3	1.5	1.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	2.0	11.0	0.1	0.3	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	2.0	11.0	0.1	0.3	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	2.0	11.0	0.1	0.3	0.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	2.6	14.1	0.1	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	2.6	14.1	0.1	0.4	0.3

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-234. Annual Emissions from OGV Main Engine - NEPA Baseline/Alt 2
 Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.09	0.02	0.01	0.01
Containerships 5,000 TEU	1.23	1.05	7.21	1.22	0.87	0.70
Containerships 4,000 TEU	0.33	0.26	1.78	0.37	0.22	0.18
Containerships 3,000 TEU	0.03	0.02	0.15	0.04	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.6	1.4	9.2	1.6	1.1	0.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	1.5	9.0	0.1	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	1.5	9.0	0.1	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	1.5	9.0	0.1	0.2	0.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.2	1.9	11.5	0.1	0.3	0.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.2	1.9	11.5	0.1	0.3	0.2

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-235. Annual Emissions from OGV Main Engine - NEPA Baseline/Alt 2
 Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.01	0.05	0.01	0.01	0.01
Containerships 5,000 TEU	0.66	0.65	4.03	0.48	0.51	0.41
Containerships 4,000 TEU	0.17	0.17	1.00	0.13	0.13	0.11
Containerships 3,000 TEU	0.01	0.01	0.09	0.01	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	0.9	0.8	5.2	0.6	0.7	0.5
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.9	5.0	0.0	0.1	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.9	5.0	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.9	5.0	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.2	1.2	6.4	0.0	0.2	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.2	1.2	6.4	0.0	0.2	0.1

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements
 (2) Turning occurs during only one trip segment (arrival or departure).

Table 1.3-236. Max Daily Emissions from OGV Main Engine - NEPA Baseline/Alt 2
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.76	59.46	1,599.9	988.19	141.17	112.94
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.8	59.5	1,599.9	988.2	141.2	112.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.8	59.5	1,504.6	39.5	24.0	19.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.8	59.5	1,504.6	39.5	24.0	19.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.8	59.5	1,504.6	39.5	24.0	19.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.8	59.5	1,504.6	39.5	24.0	19.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.8	59.5	1,504.6	39.5	24.0	19.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.8	59.5	1,504.6	39.5	24.0	19.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	155.1	70.0	1,770.8	46.5	28.3	22.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	155.1	70.0	1,770.8	46.5	28.3	22.6
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	155.1	70.0	1,770.8	46.5	28.3	22.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	155.1	70.0	1,770.8	46.5	28.3	22.6

Notes: (1) Max Daily emissions assume the main engines are equipped with slide valves.
 (2) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009 .
 (3) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and no VSR at 40nm.

Table 1.3-237. Max Daily Emissions from OGV Main Engine - NEPA Baseline/Alt 2
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	113.24	58.58	833.46	396.84	80.87	64.70
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	113.2	58.6	833.5	396.8	80.9	64.7
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	114.0	59.0	791.1	16.8	14.4	11.5
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	114.0	59.0	791.1	16.8	14.4	11.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	114.0	59.0	791.1	16.8	14.4	11.5
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	114.0	59.0	791.1	16.8	14.4	11.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	114.0	59.0	791.1	16.8	14.4	11.5
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	114.0	59.0	791.1	16.8	14.4	11.5
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.1	68.7	874.4	18.0	16.2	12.9
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.1	68.7	874.4	18.0	16.2	12.9
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.1	68.7	874.4	18.0	16.2	12.9
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.1	68.7	874.4	18.0	16.2	12.9

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-238. Max Daily Emissions from OGV Main Engine - NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Precautionary Area						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.3	30.3	335.2	136.1	35.0	28.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.3	30.3	335.2	136.1	35.0	28.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.3	30.3	316.0	5.7	6.2	5.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.3	30.3	316.0	5.7	6.2	5.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.3	30.3	316.0	5.7	6.2	5.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.3	30.3	316.0	5.7	6.2	5.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.3	30.3	316.0	5.7	6.2	5.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.3	30.3	316.0	5.7	6.2	5.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.7	35.5	350.5	6.1	7.0	5.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.7	35.5	350.5	6.1	7.0	5.6
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.7	35.5	350.5	6.1	7.0	5.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.7	35.5	350.5	6.1	7.0	5.6

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-239. Max Daily Emissions from OGV Main Engine - NEPA Baseline/Alt 2
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.0	18.7	106.6	12.0	14.4	11.6
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	18.7	106.6	12.0	14.4	11.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.0	18.7	100.5	0.5	2.6	2.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	18.7	100.5	0.5	2.6	2.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.0	18.7	100.5	0.5	2.6	2.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	18.7	100.5	0.5	2.6	2.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.0	18.7	100.5	0.5	2.6	2.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	18.7	100.5	0.5	2.6	2.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.5	22.0	116.7	0.5	3.0	2.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.5	22.0	116.7	0.5	3.0	2.4
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.5	22.0	116.7	0.5	3.0	2.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.5	22.0	116.7	0.5	3.0	2.4

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-240. Max Daily Emissions from OGV Main Engine - NEPA Baseline/Alt 2
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.8	13.5	86.9	15.6	11.2	8.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	13.5	86.9	15.6	11.2	8.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.8	13.5	81.9	0.7	2.0	1.6
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	13.5	81.9	0.7	2.0	1.6
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.8	13.5	81.9	0.7	2.0	1.6
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	13.5	81.9	0.7	2.0	1.6
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.8	13.5	81.9	0.7	2.0	1.6
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	13.5	81.9	0.7	2.0	1.6
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	18.0	15.9	94.1	0.7	2.3	1.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	15.9	94.1	0.7	2.3	1.8
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	18.0	15.9	94.1	0.7	2.3	1.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	15.9	94.1	0.7	2.3	1.8

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-241. Max Daily Emissions from OGV Main Engine - NEPA Baseline/Alt 2
 Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.4	8.3	48.6	6.2	6.5	5.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	8.3	48.6	6.2	6.5	5.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.4	8.3	45.8	0.3	1.2	0.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	8.3	45.8	0.3	1.2	0.9
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.4	8.3	45.8	0.3	1.2	0.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	8.3	45.8	0.3	1.2	0.9
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.4	8.3	45.8	0.3	1.2	0.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	8.3	45.8	0.3	1.2	0.9
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.6	9.4	52.2	0.3	1.3	1.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.6	9.4	52.2	0.3	1.3	1.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.6	9.4	52.2	0.3	1.3	1.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.6	9.4	52.2	0.3	1.3	1.1

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) Assumes turning occurs during arrivals only.

Table 1.3-242 Max 1-Hour Emissions from OGV Main Engine - NEPA Baseline/Alt 2
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.33	25.87	696.10	429.94	61.42	49.14
Containerships 5,000 TEU	48.27	21.79	624.12	362.06	51.72	41.38
Containerships 4,000 TEU	31.93	14.41	387.72	239.47	34.21	27.37
Containerships 3,000 TEU	18.83	8.56	206.99	124.71	18.59	14.88
Containerships 1,000 TEU	10.08	4.55	122.42	75.61	10.80	8.64
Maximum	57.33	25.87	696.10	429.94	61.42	49.14
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	57.35	25.88	654.62	17.21	10.45	8.36
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	57.35	25.88	654.62	17.21	10.45	8.36
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	57.35	25.88	654.62	17.21	10.45	8.36
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	71.05	32.06	811.01	21.32	12.94	10.35
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	71.05	32.06	811.01	21.32	12.94	10.35

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Main engines in study years 2012-2027 use 0.1% sulfur fuel and slide valves.

(3) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(4) Max 1-hour emissions assume the ship does not comply with the VSRP at 40nm.

Table 1.3-243 Max 1-Hour Emissions from OGV Main Engine - NEPA Baseline/Alt 2
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	246.90	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	18.66	9.04	146.79	3.39	2.55	2.04
Containerships 1,000 TEU	5.55	2.51	61.14	1.59	0.98	0.79
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hr emissions assume the ship is 95% compliant with VSRP for all study years.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

(4) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-244 Max 1-Hour Emissions from OGV Main Engine - NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Precautionary Area						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.65	15.17	167.62	68.05	17.51	14.01
Containerships 5,000 TEU	23.47	13.37	157.22	59.95	15.42	12.34
Containerships 4,000 TEU	18.71	10.20	124.05	53.91	12.58	10.06
Containerships 3,000 TEU	13.61	7.12	96.02	44.44	9.45	7.56
Containerships 1,000 TEU	3.86	1.79	37.03	20.44	3.30	2.64
Maximum	26.65	15.17	167.62	68.05	17.51	14.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-245 Max 1-Hour Emissions from OGV Main Engine - NEPA Baseline/Alt 2

Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	106.61	11.96	14.45	11.56
Containerships 5,000 TEU	15.87	16.45	99.99	10.54	12.73	10.18
Containerships 4,000 TEU	12.64	12.36	72.70	9.48	9.71	7.77
Containerships 3,000 TEU	9.18	8.45	51.55	7.81	6.77	5.42
Containerships 1,000 TEU	2.58	1.89	14.12	3.59	1.70	1.36
Maximum	18.01	18.67	106.61	11.96	14.45	11.56
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-246 Max 1-Hour Emissions from OGV Main Engine - NEPA Baseline/Alt 2
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	86.88	15.62	11.15	8.92
Containerships 5,000 TEU	13.91	11.92	81.49	13.76	9.82	7.86
Containerships 4,000 TEU	11.08	8.97	60.41	12.38	7.59	6.08
Containerships 3,000 TEU	8.05	6.15	43.80	10.20	5.38	4.30
Containerships 1,000 TEU	2.27	1.40	13.28	4.69	1.46	1.17
Maximum	15.78	13.53	86.88	15.62	11.15	8.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-247 Max 1-Hour Emissions from OGV Main Engine - NEPA Baseline/Alt 2
 Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	48.55	6.20	6.50	5.20
Containerships 5,000 TEU	7.41	7.30	45.54	5.46	5.73	4.58
Containerships 4,000 TEU	5.90	5.81	34.05	4.35	4.56	3.65
Containerships 3,000 TEU	4.28	4.22	24.72	3.16	3.31	2.65
Containerships 1,000 TEU	1.20	1.19	6.94	0.89	0.93	0.74
Maximum	8.41	8.29	48.55	6.20	6.50	5.20
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-248. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.11	0.11	0.01	0.01
Containerships 5,000 TEU	0.63	0.24	8.40	7.03	0.86	0.69
Containerships 4,000 TEU	0.30	0.11	3.52	3.33	0.41	0.32
Containerships 3,000 TEU	0.02	0.01	0.20	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Subtotal	1.0	0.4	12.3	10.7	1.3	1.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.1	0.4	11.7	0.5	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.1	0.4	11.7	0.5	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.1	0.4	11.7	0.5	0.2	0.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.3	0.5	14.1	0.6	0.3	0.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.3	0.5	14.1	0.6	0.3	0.2

Notes: (1) Auxiliary engines use 0.1% sulfur MGO at 24nm. All routes stay within 24nm of the coast.
(2) Baseline auxiliary engines: 5% use MGO and 95% use IFO from July 2008 to June 2009.
(3) No VSR

n

Table 1.3-249. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.00	0.00	0.02	0.15	0.01	0.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Auxiliary boilers are assumed to operate when engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-250. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.15	0.13	0.02	0.01
Containerships 5,000 TEU	0.82	0.31	10.94	8.76	1.07	0.86
Containerships 4,000 TEU	0.35	0.13	4.15	3.76	0.46	0.37
Containerships 3,000 TEU	0.02	0.01	0.21	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.04	0.04	0.00	0.00
Subtotal	1.2	0.5	15.5	12.9	1.6	1.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.4	0.5	15.3	0.6	0.3	0.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.4	0.5	15.3	0.6	0.3	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.4	0.5	15.3	0.6	0.3	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.6	18.7	0.8	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.6	18.7	0.8	0.4	0.3

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.
(2) No VSR

Table 1.3-251. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 5,000 TEU	0.05	0.02	0.49	3.71	0.18	0.14
Containerships 4,000 TEU	0.01	0.01	0.15	1.11	0.05	0.04
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Subtotal	0.06	0.03	0.67	5.00	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.67	0.23	0.05	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.67	0.23	0.05	0.03

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.
(2) No VSR

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-252. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.07	0.06	0.01	0.01
Containerships 5,000 TEU	0.40	0.15	5.27	4.21	0.52	0.41
Containerships 4,000 TEU	0.17	0.06	1.99	1.80	0.22	0.18
Containerships 3,000 TEU	0.01	0.00	0.10	0.09	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Subtotal	0.6	0.2	7.4	6.2	0.8	0.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.7	0.3	7.3	0.3	0.2	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.7	0.3	7.3	0.3	0.2	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.7	0.3	7.3	0.3	0.2	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.8	0.3	8.9	0.4	0.2	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.8	0.3	8.9	0.4	0.2	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-253. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 5,000 TEU	0.02	0.01	0.25	1.85	0.09	0.07
Containerships 4,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 3,000 TEU	0.00	0.00	0.01	0.07	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.03	0.02	0.33	2.49	0.12	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.02	0.33	0.11	0.02	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.02	0.33	0.11	0.02	0.02

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-254. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.13	0.05	1.80	1.44	0.18	0.14
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	2.5	2.1	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.5	0.1	0.1	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.5	0.1	0.1	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.5	0.1	0.1	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.0	0.1	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.0	0.1	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-255. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.08	0.63	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.03	0.19	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.01	0.11	0.85	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-256. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.12	0.05	1.57	1.26	0.15	0.12
Containerships 4,000 TEU	0.05	0.02	0.59	0.54	0.07	0.05
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	2.2	1.8	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.2	0.1	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.2	0.1	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.2	0.1	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-257. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.10	0.74	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-258. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.03	0.02	0.00	0.00
Containerships 5,000 TEU	0.17	0.07	2.31	1.85	0.23	0.18
Containerships 4,000 TEU	0.05	0.02	0.57	0.51	0.06	0.05
Containerships 3,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	3.0	2.4	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.2	0.1	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.2	0.1	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.
(2) Turning occurs during only one trip segment (arrival or departure).

Table 1.3-259. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.06	0.44	0.02	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.12	0.01	0.00
Containerships 3,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.08	0.58	0.03	0.02
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.07	0.02	0.01	0.00
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.07	0.02	0.01	0.00

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.
Turning occurs during only one trip segment (arrival or departure).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-260. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 5,000 TEU	0.37	0.14	4.94	3.96	0.49	0.39
Containerships 4,000 TEU	0.10	0.04	1.22	1.10	0.14	0.11
Containerships 3,000 TEU	0.01	0.00	0.11	0.10	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Subtotal	0.5	0.2	6.3	5.2	0.6	0.5
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.2	5.7	0.2	0.1	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.2	5.7	0.2	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.2	5.7	0.2	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.6	0.2	6.9	0.3	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.6	0.2	6.9	0.3	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-261. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.01	0.12	0.93	0.05	0.03
Containerships 4,000 TEU	0.00	0.00	0.04	0.27	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.02	0.01	0.17	1.24	0.06	0.05
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-262. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2

Hotelling

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.12	0.05	1.47	1.33	0.16	0.13
Containerships 5,000 TEU	10.03	3.84	133.62	106.93	13.12	10.50
Containerships 4,000 TEU	3.71	1.42	43.68	39.52	4.85	3.88
Containerships 3,000 TEU	0.29	0.11	3.44	3.11	0.38	0.31
Containerships 1,000 TEU	0.02	0.01	0.19	0.17	0.02	0.02
Subtotal	14.2	5.4	182.4	151.1	18.5	14.8
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.09	6.93	200.98	8.09	4.19	3.36
Containerships 5,000 TEU	3.91	1.50	43.45	1.75	0.91	0.73
Containerships 4,000 TEU	2.09	0.80	23.23	0.94	0.48	0.39
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.1	9.2	267.7	10.8	5.6	4.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.88	3.40	98.69	3.97	2.06	1.65
Containerships 5,000 TEU	1.92	0.74	21.34	0.86	0.45	0.36
Containerships 4,000 TEU	1.03	0.39	11.41	0.46	0.24	0.19
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.8	4.5	131.4	5.3	2.7	2.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.70	1.42	41.13	1.66	0.86	0.69
Containerships 5,000 TEU	0.80	0.31	8.89	0.36	0.19	0.15
Containerships 4,000 TEU	0.43	0.16	4.75	0.19	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.9	1.9	54.8	2.2	1.1	0.9
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.04	0.40	11.59	0.47	0.24	0.19
Containerships 6,000 TEU	2.67	1.02	29.67	1.19	0.62	0.50
Containerships 5,000 TEU	0.58	0.22	6.43	0.26	0.13	0.11
Containerships 4,000 TEU	0.31	0.12	3.45	0.14	0.07	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	51.1	2.1	1.1	0.9
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.06	0.41	11.77	0.47	0.25	0.20
Containerships 6,000 TEU	2.71	1.04	30.12	1.21	0.63	0.50
Containerships 5,000 TEU	0.59	0.23	6.53	0.26	0.14	0.11
Containerships 4,000 TEU	0.32	0.12	3.50	0.14	0.07	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.7	1.8	51.9	2.1	1.1	0.9

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-263. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2

Hotelling

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.09	0.66	0.03	0.02
Containerships 5,000 TEU	1.07	0.56	11.16	83.84	4.09	3.07
Containerships 4,000 TEU	0.26	0.14	2.69	20.22	0.99	0.74
Containerships 3,000 TEU	0.05	0.03	0.50	3.74	0.18	0.14
Containerships 1,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Subtotal	1.38	0.73	14.45	108.62	5.30	3.97
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.21	0.64	11.98	4.01	0.83	0.62
Containerships 5,000 TEU	0.42	0.22	4.10	1.37	0.28	0.21
Containerships 4,000 TEU	0.14	0.08	1.43	0.48	0.10	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.77	0.93	17.51	5.86	1.21	0.90
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.19	0.63	11.76	3.93	0.81	0.61
Containerships 5,000 TEU	0.41	0.21	4.03	1.35	0.28	0.21
Containerships 4,000 TEU	0.14	0.07	1.41	0.47	0.10	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.74	0.92	17.20	5.75	1.18	0.89
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.24	0.65	12.26	4.10	0.84	0.63
Containerships 5,000 TEU	0.43	0.22	4.20	1.40	0.29	0.22
Containerships 4,000 TEU	0.15	0.08	1.46	0.49	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.82	0.96	17.92	5.99	1.23	0.93
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.39	0.20	3.84	1.28	0.26	0.20
Containerships 6,000 TEU	0.90	0.47	8.84	2.96	0.61	0.46
Containerships 5,000 TEU	0.31	0.16	3.04	1.02	0.21	0.16
Containerships 4,000 TEU	0.11	0.06	1.06	0.36	0.07	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.70	0.90	16.78	5.61	1.16	0.87
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.40	0.21	3.90	1.30	0.27	0.20
Containerships 6,000 TEU	0.91	0.48	8.98	3.00	0.62	0.46
Containerships 5,000 TEU	0.31	0.16	3.08	1.03	0.21	0.16
Containerships 4,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.73	0.91	17.04	5.70	1.17	0.88

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

(2) Boilers are assumed to operate during hotelling regardless of whether the ship uses AMP.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-264. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2

Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.15	0.06	2.00	1.60	0.20	0.16
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.04	0.03	0.00	0.00
Subtotal	0.2	0.1	2.7	2.2	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.1	0.1	1.6	0.1	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.1	0.1	1.6	0.1	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.1	0.1	1.6	0.1	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.2	0.1	0.0	0.0
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.2	0.1	0.0	0.0

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-265. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2

Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.02	0.01	0.16	1.24	0.06	0.05
Containerships 4,000 TEU	0.00	0.00	0.04	0.31	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Subtotal	0.02	0.01	0.21	1.57	0.08	0.06
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.15	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.15	0.05	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-266. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.4	3.6	111.5	105.5	12.9	10.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.4	3.6	111.5	105.5	12.9	10.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.4	3.6	104.9	4.2	2.2	1.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.4	3.6	104.9	4.2	2.2	1.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.4	3.6	104.9	4.2	2.2	1.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.4	3.6	104.9	4.2	2.2	1.8
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.4	3.6	104.9	4.2	2.2	1.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.4	3.6	104.9	4.2	2.2	1.8
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.2	3.1	91.1	3.7	1.9	1.5
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.2	3.1	91.1	3.7	1.9	1.5
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.2	3.1	91.1	3.7	1.9	1.5
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.2	3.1	91.1	3.7	1.9	1.5

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and no VSR at 40nm.

Table 1.3-267. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-268. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.5	4.8	147.4	133.4	16.4	13.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.5	4.8	147.4	133.4	16.4	13.1
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.6	4.8	139.9	5.6	2.9	2.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.6	4.8	139.9	5.6	2.9	2.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.6	4.8	139.9	5.6	2.9	2.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.6	4.8	139.9	5.6	2.9	2.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.6	4.8	139.9	5.6	2.9	2.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.6	4.8	139.9	5.6	2.9	2.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.5	4.4	127.8	5.1	2.7	2.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.5	4.4	127.8	5.1	2.7	2.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.5	4.4	127.8	5.1	2.7	2.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.5	4.4	127.8	5.1	2.7	2.1

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-269. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.43	33.27	1.62	1.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.43	33.27	1.62	1.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.
(4) All study years are 95% compliant with VSR for the peak day.

Table 1.3-270. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.0	2.3	71.0	64.2	7.9	6.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.0	2.3	71.0	64.2	7.9	6.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.0	2.3	66.9	2.7	1.4	1.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.0	2.3	66.9	2.7	1.4	1.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.0	2.3	66.9	2.7	1.4	1.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.0	2.3	66.9	2.7	1.4	1.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.0	2.3	66.9	2.7	1.4	1.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.0	2.3	66.9	2.7	1.4	1.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.5	2.1	61.2	2.5	1.3	1.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.5	2.1	61.2	2.5	1.3	1.0
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.5	2.1	61.2	2.5	1.3	1.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.5	2.1	61.2	2.5	1.3	1.0

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-271. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.21	16.58	0.81	0.61
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.21	16.58	0.81	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-272. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	24.2	21.9	2.7	2.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	24.2	21.9	2.7	2.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	22.8	0.9	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	22.8	0.9	0.5	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	22.8	0.9	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	22.8	0.9	0.5	0.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	22.8	0.9	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	22.8	0.9	0.5	0.4
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.9	0.7	20.9	0.8	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.7	20.9	0.8	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.9	0.7	20.9	0.8	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.7	20.9	0.8	0.4	0.3

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-273. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.75	5.65	0.28	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-274. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.8	0.7	21.2	19.2	2.4	1.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.7	21.2	19.2	2.4	1.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.8	0.7	20.0	0.8	0.4	0.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.7	20.0	0.8	0.4	0.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.8	0.7	20.0	0.8	0.4	0.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.7	20.0	0.8	0.4	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.8	0.7	20.0	0.8	0.4	0.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.7	20.0	0.8	0.4	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.6	0.6	18.3	0.7	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.6	18.3	0.7	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.6	0.6	18.3	0.7	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.6	18.3	0.7	0.4	0.3

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-275. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.66	4.95	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-276. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	25.2	22.8	2.8	2.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	25.2	22.8	2.8	2.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	23.7	1.0	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	23.7	1.0	0.5	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	23.7	1.0	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	23.7	1.0	0.5	0.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	23.7	1.0	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	23.7	1.0	0.5	0.4
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.0	0.7	21.7	0.9	0.5	0.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.7	21.7	0.9	0.5	0.4
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.0	0.7	21.7	0.9	0.5	0.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.7	21.7	0.9	0.5	0.4

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-277. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.54	4.02	0.20	0.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-278. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.6	1.8	54.0	48.8	6.0	4.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	54.0	48.8	6.0	4.8
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.6	1.8	50.9	2.0	1.1	0.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	50.9	2.0	1.1	0.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.6	1.8	50.9	2.0	1.1	0.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	50.9	2.0	1.1	0.8
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.6	1.8	50.9	2.0	1.1	0.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	50.9	2.0	1.1	0.8
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.2	1.6	46.6	1.9	1.0	0.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.2	1.6	46.6	1.9	1.0	0.8
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.2	1.6	46.6	1.9	1.0	0.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.2	1.6	46.6	1.9	1.0	0.8

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-279. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.15	8.62	0.42	0.32
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.15	8.62	0.42	0.32
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-280. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/AI1 2

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.1	80.1	2,463.8	2,229.5	273.6	218.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.1	80.1	2,463.8	2,229.5	273.6	218.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.0	80.0	2,322.3	93.5	48.5	38.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.0	80.0	2,322.3	93.5	48.5	38.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	104.5	40.0	1,161.2	46.8	24.2	19.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	104.5	40.0	1,161.2	46.8	24.2	19.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	41.8	16.0	464.5	18.7	9.7	7.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	41.8	16.0	464.5	18.7	9.7	7.8
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	33.4	12.8	370.8	14.9	7.7	6.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	33.4	12.8	370.8	14.9	7.7	6.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	33.4	12.8	370.8	14.9	7.7	6.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	33.4	12.8	370.8	14.9	7.7	6.2

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (80%).

Table 1.3-281. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/AI1 2

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.03	7.39	146.85	1,103.49	53.84	40.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.03	7.39	146.85	1,103.49	53.84	40.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.02	7.38	138.42	46.28	9.54	7.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.02	7.38	138.42	46.28	9.54	7.15
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.02	7.38	138.42	46.28	9.54	7.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.02	7.38	138.42	46.28	9.54	7.15
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.02	7.38	138.42	46.28	9.54	7.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.02	7.38	138.42	46.28	9.54	7.15
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.45	6.55	122.87	41.08	8.46	6.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.45	6.55	122.87	41.08	8.46	6.35
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.45	6.55	122.87	41.08	8.46	6.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.45	6.55	122.87	41.08	8.46	6.35

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-282 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.55	45.94	5.60	4.48
Containerships 5,000 TEU	3.05	1.17	40.70	34.06	4.15	3.32
Containerships 4,000 TEU	3.91	1.50	46.16	43.67	5.33	4.26
Containerships 3,000 TEU	1.62	0.62	19.13	18.10	2.21	1.77
Containerships 1,000 TEU	1.07	0.41	12.70	12.01	1.46	1.17
Maximum	4.11	1.57	48.55	45.94	5.60	4.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.91	1.50	43.39	1.75	0.91	0.72
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Study years 2012-2027 assume worst case container vessel auxiliary engines use 0.1% sulfur fuel.
(3) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-283 Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.17	0.09	1.82	14.32	0.69	0.52
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.82	14.32	0.69	0.52
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(4) Auxiliary boilers are assumed to operate if the main engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-284 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.40	43.80	5.38	4.30
Containerships 5,000 TEU	3.05	1.17	40.58	32.47	3.98	3.19
Containerships 4,000 TEU	3.91	1.50	46.02	41.64	5.11	4.09
Containerships 3,000 TEU	1.62	0.62	19.07	17.26	2.12	1.69
Containerships 1,000 TEU	1.07	0.41	12.66	11.45	1.41	1.12
Maximum	4.11	1.57	48.40	43.80	5.38	4.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.
(3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

Table 1.3-285 Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.43	10.74	0.52	0.39
Containerships 5,000 TEU	0.17	0.09	1.80	13.54	0.66	0.50
Containerships 4,000 TEU	0.15	0.08	1.61	12.11	0.59	0.44
Containerships 3,000 TEU	0.17	0.09	1.82	13.65	0.67	0.50
Containerships 1,000 TEU	0.02	0.01	0.25	1.91	0.09	0.07
Maximum	0.17	0.09	1.82	13.65	0.67	0.50
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary boiler would use residual fuel with 0.1% sulfur.
(3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-286 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	35.48	32.11	3.94	3.15
Containerships 5,000 TEU	2.23	0.85	29.75	23.80	2.92	2.34
Containerships 4,000 TEU	2.86	1.10	33.74	30.53	3.75	3.00
Containerships 3,000 TEU	1.19	0.45	13.98	12.65	1.55	1.24
Containerships 1,000 TEU	0.79	0.30	9.28	8.40	1.03	0.82
Maximum	3.01	1.15	35.48	32.11	3.94	3.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-287. Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.10	8.29	0.40	0.30
Containerships 5,000 TEU	0.13	0.07	1.39	10.45	0.51	0.38
Containerships 4,000 TEU	0.12	0.06	1.24	9.34	0.46	0.34
Containerships 3,000 TEU	0.13	0.07	1.33	10.01	0.49	0.37
Containerships 1,000 TEU	0.02	0.01	0.20	1.47	0.07	0.05
Maximum	0.13	0.07	1.39	10.45	0.51	0.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-288 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	1.52	0.58	20.29	16.24	1.99	1.59
Containerships 4,000 TEU	1.95	0.75	23.01	20.82	2.56	2.04
Containerships 3,000 TEU	0.81	0.31	9.54	8.63	1.06	0.85
Containerships 1,000 TEU	0.54	0.21	6.33	5.73	0.70	0.56
Maximum	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-289. Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	0.09	0.05	0.95	7.13	0.35	0.26
Containerships 4,000 TEU	0.08	0.04	0.85	6.37	0.31	0.23
Containerships 3,000 TEU	0.09	0.05	0.91	6.83	0.33	0.25
Containerships 1,000 TEU	0.01	0.01	0.13	1.01	0.05	0.04
Maximum	0.09	0.05	0.95	7.13	0.35	0.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-290 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	1.33	0.51	17.75	14.21	1.74	1.39
Containerships 4,000 TEU	1.71	0.65	20.13	18.22	2.24	1.79
Containerships 3,000 TEU	0.71	0.27	8.34	7.55	0.93	0.74
Containerships 1,000 TEU	0.47	0.18	5.54	5.01	0.61	0.49
Maximum	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-291. Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	0.08	0.04	0.83	6.24	0.30	0.23
Containerships 4,000 TEU	0.07	0.04	0.74	5.58	0.27	0.20
Containerships 3,000 TEU	0.08	0.04	0.79	5.97	0.29	0.22
Containerships 1,000 TEU	0.01	0.01	0.12	0.88	0.04	0.03
Maximum	0.08	0.04	0.83	6.24	0.30	0.23
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-292 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	1.96	0.75	26.06	20.86	2.56	2.05
Containerships 4,000 TEU	1.64	0.63	19.26	17.43	2.14	1.71
Containerships 3,000 TEU	1.29	0.50	15.25	13.80	1.69	1.36
Containerships 1,000 TEU	0.59	0.23	7.01	6.34	0.78	0.62
Maximum	2.14	0.82	26.06	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-293. Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	0.06	0.03	0.65	4.92	0.24	0.18
Containerships 4,000 TEU	0.05	0.03	0.56	4.24	0.21	0.15
Containerships 3,000 TEU	0.05	0.03	0.55	4.15	0.20	0.15
Containerships 1,000 TEU	0.02	0.01	0.25	1.88	0.09	0.07
Maximum	0.06	0.03	0.65	4.92	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-294 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	26.99	24.42	3.00	2.40
Containerships 5,000 TEU	2.10	0.80	27.93	22.35	2.74	2.19
Containerships 4,000 TEU	1.75	0.67	20.64	18.68	2.29	1.83
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.64	0.24	7.51	6.79	0.83	0.67
Maximum	2.29	0.88	27.93	24.42	3.00	2.40
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-295. Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.57	4.31	0.21	0.16
Containerships 5,000 TEU	0.07	0.04	0.70	5.27	0.26	0.19
Containerships 4,000 TEU	0.06	0.03	0.60	4.54	0.22	0.17
Containerships 3,000 TEU	0.06	0.03	0.59	4.45	0.22	0.16
Containerships 1,000 TEU	0.03	0.01	0.27	2.01	0.10	0.07
Maximum	0.07	0.04	0.70	5.27	0.26	0.19
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-296 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	38.49	34.83	4.27	3.42
Containerships 5,000 TEU	2.52	0.97	33.59	26.88	3.30	2.64
Containerships 4,000 TEU	3.33	1.27	39.20	35.47	4.35	3.48
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.82	0.31	9.69	8.77	1.08	0.86
Maximum	3.33	1.27	39.20	35.47	4.35	3.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-297. Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.29	17.24	0.84	0.63
Containerships 5,000 TEU	0.27	0.14	2.80	21.08	1.03	0.77
Containerships 4,000 TEU	0.23	0.12	2.42	18.15	0.89	0.66
Containerships 3,000 TEU	0.23	0.12	2.37	17.79	0.87	0.65
Containerships 1,000 TEU	0.10	0.05	1.07	8.05	0.39	0.29
Maximum	0.27	0.14	2.80	21.08	1.03	0.77
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-298. Annual Emissions from Tugboat Main Engine - NEPA Baseline/AIT 2

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Containerships 5,000 TEU	1.64	0.39	5.86	0.00	0.25	0.23
Containerships 4,000 TEU	0.55	0.13	1.95	0.00	0.08	0.08
Containerships 3,000 TEU	0.06	0.02	0.23	0.00	0.01	0.01
Containerships 1,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Subtotal	2.3	0.5	8.2	0.0	0.3	0.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.67	0.38	6.56	0.00	0.26	0.24
Containerships 5,000 TEU	0.56	0.13	2.19	0.00	0.09	0.08
Containerships 4,000 TEU	0.28	0.06	1.09	0.00	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	9.8	0.0	0.4	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.77	0.33	2.07	0.00	0.04	0.04
Containerships 5,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 4,000 TEU	0.30	0.05	0.34	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.7	0.5	3.1	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.88	0.36	2.17	0.00	0.05	0.04
Containerships 5,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 4,000 TEU	0.31	0.06	0.36	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.8	0.5	3.2	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 6,000 TEU	1.98	0.40	2.26	0.00	0.05	0.05
Containerships 5,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 4,000 TEU	0.33	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.6	0.7	4.1	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 6,000 TEU	2.02	0.41	2.30	0.00	0.06	0.05
Containerships 5,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 4,000 TEU	0.34	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.7	0.7	4.2	0.0	0.1	0.1

(1) Assist tug main engines are assumed to be replaced by 1/1/2013

Table 1.3-299. Annual Emissions from Tugboat Auxiliary Engines - NEPA Baseline/AIT 2

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.22	0.05	0.43	0.00	0.02	0.02
Containerships 4,000 TEU	0.07	0.02	0.14	0.00	0.01	0.01
Containerships 3,000 TEU	0.01	0.00	0.02	0.00	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.3	0.1	0.6	0.0	0.0	0.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.15	0.03	0.42	0.00	0.02	0.01
Containerships 5,000 TEU	0.05	0.01	0.14	0.00	0.01	0.00
Containerships 4,000 TEU	0.03	0.01	0.07	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	0.6	0.0	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.19	0.04	0.18	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	0.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.19	0.04	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	0.3	0.0	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.20	0.05	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.3	0.0	0.0	0.0
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.20	0.05	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0

(1) Assist tug auxiliary engines are assumed to be replaced by 1/1/2014.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-300. Max Daily Emissions from Tugboat Main Engine - NEPA Baseline/AIT 2

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.53	4.38	66.25	0.03	2.83	2.60
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.53	4.38	66.25	0.03	2.83	2.60
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	21.42	4.89	84.13	0.03	3.31	3.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.42	4.89	84.13	0.03	3.31	3.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	22.75	4.22	26.52	0.03	0.54	0.50
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	22.7	4.2	26.5	0.0	0.5	0.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	24.07	4.64	27.76	0.03	0.62	0.57
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.1	4.6	27.8	0.0	0.6	0.6
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.39	5.07	28.99	0.03	0.70	0.65
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.4	5.1	29.0	0.0	0.7	0.6
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.92	5.24	29.49	0.03	0.73	0.68
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.9	5.2	29.5	0.0	0.7	0.7

(1) Assist tug main engines are assumed to be replaced after a useful life of 23 yrs (in 2018).

Table 1.3-301. Max Daily Emissions from Tugboat Auxiliary Engines - NEPA Baseline/AIT 2

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.49	0.52	4.85	0.00	0.23	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.5	4.8	0.0	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.93	0.43	5.33	0.00	0.20	0.19
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.4	5.3	0.0	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.39	0.52	2.31	0.00	0.05	0.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.4	0.5	2.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.47	0.55	2.38	0.00	0.05	0.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	2.4	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.56	0.58	2.45	0.00	0.06	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	0.6	2.4	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.59	0.60	2.47	0.00	0.06	0.06
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	0.6	2.5	0.0	0.1	0.1

(1) Assist tug auxiliary engines are assumed to be replaced after a useful life of 23yrs (in 2022).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-302. Max 1-Hour Emissions from Tugboat Main Engine - NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 5,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 4,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 3,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 1,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Maximum	8.22	1.94	29.40	0.01	1.25	1.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 5,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 4,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.50	2.17	37.34	0.01	1.47	1.35
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 5,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 4,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.10	1.87	11.77	0.01	0.24	0.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 5,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 4,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.68	2.06	12.32	0.01	0.28	0.25
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 6,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 5,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 4,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.27	2.25	12.87	0.01	0.31	0.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 6,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 5,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 4,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.50	2.32	13.09	0.01	0.33	0.30

Notes: (1) Emissions assume use of two tugboats for 1 hour.
(2) Assist tug main engines are assumed to be replaced after a useful life of 23 yrs (in 2018).

Table 1.3-303. Max 1-Hour Emissions from Tugboat Auxiliary Engines - NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 5,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 4,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 3,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 1,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Maximum	1.11	0.23	2.15	0.00	0.10	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 5,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 4,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.86	0.19	2.37	0.00	0.09	0.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 5,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 4,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.06	0.23	1.02	0.00	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 5,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 4,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.10	0.25	1.05	0.00	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 6,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 5,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 4,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.13	0.26	1.09	0.00	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 6,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 5,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 4,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.15	0.27	1.10	0.00	0.03	0.02

Notes: (1) Emissions assume use of two tugboats for 1 hour.
(2) Assist tug auxiliary engines are assumed to be replaced after a useful life of 23yrs (in 2022).

Table 1.3-304. Annual Emissions from AMP Electricity Consumption - NEPA Baseline/AIT 2 without Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.73	0.04	4.21	0.44	0.15	0.15
Containerships 5,000 TEU	0.16	0.01	0.91	0.10	0.03	0.03
Containerships 4,000 TEU	0.08	0.00	0.49	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.0	0.0	5.6	0.6	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.22	0.06	7.02	0.73	0.24	0.24
Containerships 5,000 TEU	0.26	0.01	1.52	0.16	0.05	0.05
Containerships 4,000 TEU	0.14	0.01	0.81	0.08	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.1	9.4	1.0	0.3	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.34	0.02	1.98	0.21	0.07	0.07
Containerships 6,000 TEU	0.88	0.04	5.07	0.53	0.18	0.18
Containerships 5,000 TEU	0.19	0.01	1.10	0.11	0.04	0.04
Containerships 4,000 TEU	0.10	0.01	0.59	0.06	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.1	8.7	0.9	0.3	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.35	0.02	2.01	0.21	0.07	0.07
Containerships 6,000 TEU	0.89	0.04	5.14	0.54	0.18	0.18
Containerships 5,000 TEU	0.19	0.01	1.11	0.12	0.04	0.04
Containerships 4,000 TEU	0.10	0.01	0.60	0.06	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.1	8.9	0.9	0.3	0.3

Table 1.3-305. Max Daily Emissions from AMP Electricity Consumption - NEPA Baseline/Alt 2

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.62	0.43	49.57	5.17	1.72	1.72
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.6	0.4	49.6	5.2	1.7	1.7
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	13.79	0.69	79.31	8.28	2.76	2.75
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.8	0.7	79.3	8.3	2.8	2.8
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.01	0.55	63.32	6.61	2.20	2.20
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.0	0.6	63.3	6.6	2.2	2.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.01	0.55	63.32	6.61	2.20	2.20
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.0	0.6	63.3	6.6	2.2	2.2

Table 1.3-306. Summary of Annual Marine Vessel Emissions without Mitigation
 NEPA Baseline/Alt 2

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	13.7	6.1	174.8	106.4	15.0	12.0
Ships - 20nm to PA	12.8	6.4	106.1	59.2	10.1	8.1
Ships - PA	6.0	3.3	44.0	23.0	4.5	3.6
Ships - Harbor Transit	3.8	3.4	25.5	8.4	3.1	2.5
Ships - Turning & Docking	1.6	1.1	14.7	10.1	1.7	1.3
Ships - Anchoring	0.2	0.1	2.9	3.8	0.4	0.3
Ships - Hotelling	15.5	6.2	196.8	259.7	23.8	18.8
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.6	0.6	8.8	0.0	0.4	0.3
Total	56.3	27.2	573.7	470.5	58.9	46.9
Project Year 2012						
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	25.9	10.2	285.2	16.6	6.8	5.4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.7	0.6	10.5	0.0	0.4	0.4
Total	70.5	33.2	656.4	26.0	13.8	11.0
Project Year 2015						
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	13.6	5.4	148.6	11.0	3.9	3.1
AMP - Hotelling	1.0	0.0	5.6	0.6	0.2	0.2
Tugboats	2.9	0.6	3.4	0.0	0.1	0.1
Total	59.4	28.5	518.4	21.0	10.8	8.6
Project Year 2020						
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	6.7	2.8	72.7	8.2	2.4	1.8
AMP - Hotelling	1.6	0.1	9.4	1.0	0.3	0.3
Tugboats	3.1	0.6	3.5	0.0	0.1	0.1
Total	53.3	26.0	446.3	18.5	9.4	7.5
Project Year 2025						
Ships - AQMD 40nm to 20nm	19.6	8.8	223.2	6.1	3.6	2.9
Ships - 20nm to PA	17.7	8.9	129.5	3.3	2.4	2.0
Ships - PA	8.3	4.6	53.3	1.3	1.1	0.9
Ships - Harbor Transit	5.3	4.7	31.4	0.5	0.8	0.6
Ships - Turning & Docking	2.1	1.5	16.7	0.5	0.4	0.3
Ships - Anchoring	0.2	0.1	2.3	0.1	0.1	0.0
Ships - Hotelling	6.3	2.7	67.9	7.7	2.2	1.7
AMP - Hotelling	1.5	0.1	8.7	0.9	0.3	0.3
Tugboats	4.0	0.8	4.5	0.0	0.1	0.1
Total	64.9	32.1	537.6	20.3	11.0	8.8
Project Year 2027						
Ships - AQMD 40nm to 20nm	19.6	8.8	223.2	6.1	3.6	2.9
Ships - 20nm to PA	17.7	8.9	129.5	3.3	2.4	2.0
Ships - PA	8.3	4.6	53.3	1.3	1.1	0.9
Ships - Harbor Transit	5.3	4.7	31.4	0.5	0.8	0.6
Ships - Turning & Docking	2.1	1.5	16.7	0.5	0.4	0.3
Ships - Anchoring	0.2	0.1	2.3	0.1	0.1	0.0
Ships - Hotelling	6.4	2.7	69.0	7.8	2.3	1.7
AMP - Hotelling	1.5	0.1	8.9	0.9	0.3	0.3
Tugboats	4.1	0.8	4.6	0.0	0.1	0.1
Total	65.1	32.2	538.8	20.5	11.0	8.8

Table 1.3-307. Summary of Maximum Daily Marine Vessel Emissions without Mitigation
 NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	119	47	1,300	93	34	27
AMP - Hotelling	9	0	50	5	2	2
Tugboats	25	5	29	0	1	1
Total	533	257	4,656	182	96	77
Project Year 2020						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	56	23	603	65	19	15
AMP - Hotelling	14	1	79	8	3	3
Tugboats	27	5	30	0	1	1
Total	477	234	3,991	157	83	66
Project Year 2025						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13
AMP - Hotelling	11	1	63	7	2	2
Tugboats	28	6	31	0	1	1
Total	515	261	4,246	154	86	69
Project Year 2027						
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13
AMP - Hotelling	11	1	63	7	2	2
Tugboats	29	6	32	0	1	1
Total	515	261	4,247	154	86	69

Table 1.3-308. Summary of Average Daily Marine Vessel Emissions without Mitigation
 NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	75	34	958	583	82	66
Ships - 20nm to PA	70	35	581	324	55	44
Ships - PA	33	18	241	126	24	20
Ships - Harbor Transit	21	19	140	46	17	14
Ships - Turning & Docking	9	6	81	55	9	7
Ships - Anchoring	1	0	16	21	2	2
Ships - Hotelling	85	34	1,079	1,423	131	103
AMP - Hotelling	-	-	-	-	-	-
Tugboats	14	3	48	0	2	2
Total	308	149	3,144	2,578	323	257
Project Year 2012						
Ships - AQMD 40nm to 20nm	84	38	958	26	16	12
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	142	56	1,563	91	37	29
AMP - Hotelling	-	-	-	-	-	-
Tugboats	15	3	57	0	2	2
Total	386	182	3,597	142	76	60
Project Year 2015						
Ships - AQMD 40nm to 20nm	84	38	958	26	16	12
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	74	30	814	61	22	17
AMP - Hotelling	5	0	31	3	1	1
Tugboats	16	3	18	0	0	0
Total	325	156	2,840	115	59	47
Project Year 2020						
Ships - AQMD 40nm to 20nm	84	38	958	26	16	12
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	37	16	398	45	13	10
AMP - Hotelling	9	0	51	5	2	2
Tugboats	17	3	19	0	0	0
Total	292	142	2,446	101	51	41
Project Year 2025						
Ships - AQMD 40nm to 20nm	107	48	1,223	33	20	16
Ships - 20nm to PA	97	49	709	18	13	11
Ships - PA	45	25	292	7	6	5
Ships - Harbor Transit	29	26	172	3	4	3
Ships - Turning & Docking	12	8	92	3	2	2
Ships - Anchoring	1	0	13	1	0	0
Ships - Hotelling	35	15	372	42	12	9
AMP - Hotelling	8	0	48	5	2	2
Tugboats	22	4	25	0	1	1
Total	356	176	2,946	111	60	48
Project Year 2027						
Ships - AQMD 40nm to 20nm	107	48	1,223	33	20	16
Ships - 20nm to PA	97	49	709	18	13	11
Ships - PA	45	25	292	7	6	5
Ships - Harbor Transit	29	26	172	3	4	3
Ships - Turning & Docking	12	8	92	3	2	2
Ships - Anchoring	1	0	13	1	0	0
Ships - Hotelling	35	15	378	43	12	10
AMP - Hotelling	8	0	49	5	2	2
Tugboats	22	5	25	0	1	1
Total	357	176	2,953	112	61	48

Table 1.3-309. Summary of Maximum Hourly Marine Vessel Emissions without Mitigation
 NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	199	112	1,581	40	30	24
Project Year 2020						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	199	112	1,581	40	30	24
Project Year 2025						
Ships - AQMD 40nm to 20nm	75	34	854	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	228	131	1,818	45	35	28
Project Year 2027						
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	229	132	1,821	45	35	28

Table 1.3-310. AMP Compliance Rates
 NEPA Baseline/Alt 2 with and without Mitigation

Project Year	Unmitigated Compliance Rate	Mitigated Compliance Rate
Project Year Baseline	0%	0%
Project Year 2012	0%	0%
Project Year 2014	50%	50%
Project Year 2015	50%	50%
Project Year 2016	50%	70%
Project Year 2020	80%	80%
Project Year 2025	80%	80%
Project Year 2027	80%	95%

Source: 17 CCR 93118.3, POLA

Table 1.3-311. Vessel Speed Reduction Program (VSRP) Compliance Rates
 NEPA Baseline/Alt 2 with Mitigation

Year	Compliance Rate	Compliance Boundary (nm)
Year 2008 - 2012	95%	20
Year 2014	95%	40

Notes: (1) POLA recognizes APL for VSR compliance, which is defined as a compliance rate of at least 95%.

(2) VSR mitigation measure starting in 2009 applies from 40 nm to the PA.

Table 1.3-312. Annual Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.06	1.60	0.99	0.14	0.11
Containerships 5,000 TEU	9.97	4.50	128.88	74.76	10.68	8.54
Containerships 4,000 TEU	2.43	1.10	29.56	18.26	2.61	2.09
Containerships 3,000 TEU	0.20	0.09	2.18	1.31	0.20	0.16
Containerships 1,000 TEU	0.03	0.01	0.34	0.21	0.03	0.02
Subtotal	12.76	5.76	162.56	95.53	13.66	10.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.29	6.45	163.05	4.29	2.60	2.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.86	5.10	68.41	1.45	1.25	1.00
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.90	7.17	96.90	2.06	1.76	1.41
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.86	5.10	68.41	1.45	1.25	1.00
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.90	7.17	96.90	2.06	1.76	1.41
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.98	25.21	0.52	0.47	0.37
Containerships 6,000 TEU	9.86	5.10	68.41	1.45	1.25	1.00
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.65	9.15	122.11	2.58	2.23	1.78
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.98	25.21	0.52	0.47	0.37
Containerships 6,000 TEU	9.86	5.10	68.41	1.45	1.25	1.00
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.65	9.15	122.11	2.58	2.23	1.78

Notes: (1) Mitigation measures include VSR, slide valves, and low sulfur fuel.

Table 1.3-313. Annual Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	0.83	0.40	0.08	0.06
Containerships 5,000 TEU	8.82	4.56	69.01	30.84	6.29	5.03
Containerships 4,000 TEU	2.33	1.17	18.22	9.07	1.73	1.38
Containerships 3,000 TEU	0.20	0.10	1.67	0.87	0.15	0.12
Containerships 1,000 TEU	0.02	0.01	0.20	0.12	0.02	0.01
Subtotal	11.48	5.89	89.93	41.29	8.27	6.62
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.53	6.47	87.40	1.86	1.59	1.27
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.53	6.47	87.40	1.86	1.59	1.27
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.53	6.47	87.40	1.86	1.59	1.27
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.92	8.25	110.13	2.33	2.01	1.61
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.92	8.25	110.13	2.33	2.01	1.61

Notes: (1) Mitigation measures include VSR, slide valves, and low sulfur fuel.

Table 1.3-314. Annual Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation
 Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.34	0.14	0.04	0.03
Containerships 5,000 TEU	4.15	2.37	27.83	10.61	2.73	2.18
Containerships 4,000 TEU	1.10	0.60	7.32	3.18	0.74	0.59
Containerships 3,000 TEU	0.10	0.05	0.67	0.31	0.07	0.05
Containerships 1,000 TEU	0.01	0.00	0.07	0.04	0.01	0.01
Subtotal	5.42	3.05	36.23	14.28	3.58	2.86
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.86	3.33	34.92	0.63	0.68	0.55
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.86	3.33	34.92	0.63	0.68	0.55
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.86	3.33	34.92	0.63	0.68	0.55
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	7.44	4.25	44.04	0.79	0.87	0.69
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	7.44	4.25	44.04	0.79	0.87	0.69

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-315. Annual Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation
 Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.02	0.11	0.01	0.01	0.01
Containerships 5,000 TEU	1.40	1.46	8.85	0.93	1.13	0.90
Containerships 4,000 TEU	0.37	0.36	2.14	0.28	0.29	0.23
Containerships 3,000 TEU	0.03	0.03	0.18	0.03	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.83	1.87	11.30	1.25	1.45	1.16
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.98	2.04	11.03	0.06	0.28	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.98	2.04	11.03	0.06	0.28	0.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.98	2.04	11.03	0.06	0.28	0.22
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.52	2.62	14.07	0.07	0.36	0.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.52	2.62	14.07	0.07	0.36	0.29

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-316. Annual Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation
 Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.09	0.02	0.01	0.01
Containerships 5,000 TEU	1.23	1.05	7.21	1.22	0.87	0.70
Containerships 4,000 TEU	0.33	0.26	1.78	0.37	0.22	0.18
Containerships 3,000 TEU	0.03	0.02	0.15	0.04	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.60	1.36	9.25	1.64	1.12	0.90
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.74	1.48	9.01	0.07	0.22	0.17
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.74	1.48	9.01	0.07	0.22	0.17
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.74	1.48	9.01	0.07	0.22	0.17
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.20	1.90	11.45	0.09	0.28	0.22
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.20	1.90	11.45	0.09	0.28	0.22

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-317. Annual Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.01	0.05	0.01	0.01	0.01
Containerships 5,000 TEU	0.66	0.65	4.03	0.48	0.51	0.41
Containerships 4,000 TEU	0.17	0.17	1.00	0.13	0.13	0.11
Containerships 3,000 TEU	0.01	0.01	0.09	0.01	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	0.85	0.84	5.18	0.63	0.66	0.53
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.93	0.91	5.04	0.03	0.13	0.10
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.93	0.91	5.04	0.03	0.13	0.10
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.93	0.91	5.04	0.03	0.13	0.10
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.17	1.16	6.39	0.04	0.16	0.13
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.17	1.16	6.39	0.04	0.16	0.13

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.
 Turning occurs during only one trip segment (arrival or departure).

Table 1.3-318. Max Daily Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.76	59.46	1,599.93	988.19	141.17	112.94
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.76	59.46	1,599.93	988.19	141.17	112.94
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.82	59.49	1,504.61	39.55	24.01	19.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.82	59.49	1,504.61	39.55	24.01	19.21
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	126.40	65.39	877.10	18.58	15.99	12.79
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	126.40	65.39	877.10	18.58	15.99	12.79
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	126.40	65.39	877.10	18.58	15.99	12.79
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	126.40	65.39	877.10	18.58	15.99	12.79
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	144.21	76.22	969.46	19.96	17.93	14.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	144.21	76.22	969.46	19.96	17.93	14.35
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	144.21	76.22	969.46	19.96	17.93	14.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	144.21	76.22	969.46	19.96	17.93	14.35

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and VSR at 40nm.

Table 1.3-319. Max Daily Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	113.24	58.58	833.46	396.84	80.87	64.70
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	113.24	58.58	833.46	396.84	80.87	64.70
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	114.00	58.98	791.06	16.76	14.42	11.54
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	114.00	58.98	791.06	16.76	14.42	11.54
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	114.00	58.98	791.06	16.76	14.42	11.54
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	114.00	58.98	791.06	16.76	14.42	11.54
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	114.00	58.98	791.06	16.76	14.42	11.54
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	114.00	58.98	791.06	16.76	14.42	11.54
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.07	68.74	874.36	18.01	16.17	12.94
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.07	68.74	874.36	18.01	16.17	12.94
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.07	68.74	874.36	18.01	16.17	12.94
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.07	68.74	874.36	18.01	16.17	12.94

(2) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

(4) All study years are 95% compliant with VSR for the peak day.

Table 1.3-320. Max Daily Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation
 Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.29	30.34	335.24	136.10	35.02	28.01
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.29	30.34	335.24	136.10	35.02	28.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.28	30.34	315.99	5.71	6.20	4.96
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.28	30.34	315.99	5.71	6.20	4.96
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.28	30.34	315.99	5.71	6.20	4.96
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.28	30.34	315.99	5.71	6.20	4.96
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.28	30.34	315.99	5.71	6.20	4.96
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.28	30.34	315.99	5.71	6.20	4.96
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.70	35.49	350.48	6.06	7.00	5.60
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.70	35.49	350.48	6.06	7.00	5.60
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.70	35.49	350.48	6.06	7.00	5.60
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.70	35.49	350.48	6.06	7.00	5.60

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-321. Max Daily Emissions from OGV Main Engine - NEPA Baseline/AIT 2 with Mitigation
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	106.61	11.96	14.45	11.56
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.01	18.67	106.61	11.96	14.45	11.56
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.53	22.03	116.73	0.53	2.99	2.40

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-322. Max Daily Emissions from OGV Main Engine - NEPA Baseline/Ait 2 with Mitigation
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	86.88	15.62	11.15	8.92
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.78	13.53	86.88	15.62	11.15	8.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.99	15.94	94.15	0.70	2.30	1.84

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-323. Max Daily Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	48.55	6.20	6.50	5.20
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.41	8.29	48.55	6.20	6.50	5.20
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.59	9.45	52.19	0.30	1.31	1.05

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) Assumes turning occurs during arrivals only.

Table 1.3-324 Max 1-Hour Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.33	25.87	696.10	429.94	61.42	49.14
Containerships 5,000 TEU	48.27	21.79	624.12	362.06	51.72	41.38
Containerships 4,000 TEU	31.93	14.41	387.72	239.47	34.21	27.37
Containerships 3,000 TEU	18.83	8.56	206.99	124.71	18.59	14.88
Containerships 1,000 TEU	10.08	4.55	122.42	75.61	10.80	8.64
Maximum	57.33	25.87	696.10	429.94	61.42	49.14
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	57.35	25.88	654.62	17.21	10.45	8.36
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	43.02	22.64	295.35	6.17	5.43	4.34
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	43.02	22.64	295.35	6.17	5.43	4.34
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	43.02	22.64	295.35	6.17	5.43	4.34
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	43.02	22.64	295.35	6.17	5.43	4.34

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Main engines in study years 2012-2027 use 0.1% sulfur fuel.
 (3) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (4) Max 1-hour emissions assume the ship does not comply with the VSRP at 40nm.

Table 1.3-325 Max 1-Hour Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	246.90	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	18.66	9.04	146.79	3.39	2.55	2.04
Containerships 1,000 TEU	5.55	2.51	61.14	1.59	0.98	0.79
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.
 (4) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009 .

Table 1.3-326 Max 1-Hour Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation
 Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.65	15.17	167.62	68.05	17.51	14.01
Containerships 5,000 TEU	23.47	13.37	157.22	59.95	15.42	12.34
Containerships 4,000 TEU	18.71	10.20	124.05	53.91	12.58	10.06
Containerships 3,000 TEU	13.61	7.12	96.02	44.44	9.45	7.56
Containerships 1,000 TEU	3.86	1.79	37.03	20.44	3.30	2.64
Maximum	26.65	15.17	167.62	68.05	17.51	14.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-327 Max 1-Hour Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	106.61	11.96	14.45	11.56
Containerships 5,000 TEU	15.87	16.45	99.99	10.54	12.73	10.18
Containerships 4,000 TEU	12.64	12.36	72.70	9.48	9.71	7.77
Containerships 3,000 TEU	9.18	8.45	51.55	7.81	6.77	5.42
Containerships 1,000 TEU	2.58	1.89	14.12	3.59	1.70	1.36
Maximum	18.01	18.67	106.61	11.96	14.45	11.56
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-328 Max 1-Hour Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	86.88	15.62	11.15	8.92
Containerships 5,000 TEU	13.91	11.92	81.49	13.76	9.82	7.86
Containerships 4,000 TEU	11.08	8.97	60.41	12.38	7.59	6.08
Containerships 3,000 TEU	8.05	6.15	43.80	10.20	5.38	4.30
Containerships 1,000 TEU	2.27	1.40	13.28	4.69	1.46	1.17
Maximum	15.78	13.53	86.88	15.62	11.15	8.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-329 Max 1-Hour Emissions from OGV Main Engine - NEPA Baseline/Alt 2 with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	48.55	6.20	6.50	5.20
Containerships 5,000 TEU	7.41	7.30	45.54	5.46	5.73	4.58
Containerships 4,000 TEU	5.90	5.81	34.05	4.35	4.56	3.65
Containerships 3,000 TEU	4.28	4.22	24.72	3.16	3.31	2.65
Containerships 1,000 TEU	1.20	1.19	6.94	0.89	0.93	0.74
Maximum	8.41	8.29	48.55	6.20	6.50	5.20
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-330. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	1.00	2.00
Containerships 6,000 TEU	0.01	0.00	0.11	0.11	0.01	0.01
Containerships 5,000 TEU	0.63	0.24	8.40	7.03	0.86	0.69
Containerships 4,000 TEU	0.30	0.11	3.52	3.33	0.41	0.32
Containerships 3,000 TEU	0.02	0.01	0.20	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Subtotal	0.96	0.37	12.27	10.69	2.30	3.04
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.05	0.40	11.69	0.47	0.24	0.20
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.09	0.42	12.10	0.49	0.25	0.20
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.53	0.59	17.02	0.69	0.36	0.28
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.09	0.42	12.10	0.49	0.25	0.20
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.53	0.59	17.02	0.69	0.36	0.28
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.13	3.68	0.15	0.08	0.06
Containerships 6,000 TEU	1.09	0.42	12.10	0.49	0.25	0.20
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.86	0.71	20.70	0.83	0.43	0.35
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.13	3.68	0.15	0.08	0.06
Containerships 6,000 TEU	1.09	0.42	12.10	0.49	0.25	0.20
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.86	0.71	20.70	0.83	0.43	0.35

Notes: (1) Mitigation measures include VSR and low sulfur fuel.

Table 1.3-331. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.00	0.00	0.02	0.15	0.01	0.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.04	0.02	0.36	0.12	0.03	0.02
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.58	0.20	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.04	0.02	0.36	0.12	0.03	0.02
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.58	0.20	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.36	0.12	0.03	0.02
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.75	0.25	0.05	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.36	0.12	0.03	0.02
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.75	0.25	0.05	0.04

Notes: (1) Auxiliary boilers are assumed to operate when engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-332. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.15	0.13	0.02	0.01
Containerships 5,000 TEU	0.82	0.31	10.94	8.76	1.07	0.86
Containerships 4,000 TEU	0.35	0.13	4.15	3.76	0.46	0.37
Containerships 3,000 TEU	0.02	0.01	0.21	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.04	0.04	0.00	0.00
Subtotal	1.21	0.46	15.49	12.87	1.58	1.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.38	0.53	15.35	0.62	0.32	0.26
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.38	0.53	15.35	0.62	0.32	0.26
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.38	0.53	15.35	0.62	0.32	0.26
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.68	0.64	18.67	0.75	0.39	0.31
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.68	0.64	18.67	0.75	0.39	0.31

Notes: (1) Mitigation measures include VSR and low sulfur fuel.

Table 1.3-333. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 5,000 TEU	0.05	0.02	0.49	3.71	0.18	0.14
Containerships 4,000 TEU	0.01	0.01	0.15	1.11	0.05	0.04
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Subtotal	0.06	0.03	0.67	5.00	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.67	0.23	0.05	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.67	0.23	0.05	0.03

Auxiliary boilers are assumed not to operate in the fairway.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-334. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.07	0.06	0.01	0.01
Containerships 5,000 TEU	0.40	0.15	5.27	4.21	0.52	0.41
Containerships 4,000 TEU	0.17	0.06	1.99	1.80	0.22	0.18
Containerships 3,000 TEU	0.01	0.00	0.10	0.09	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Subtotal	0.58	0.22	7.44	6.18	0.76	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.66	0.25	7.33	0.30	0.15	0.12
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.66	0.25	7.33	0.30	0.15	0.12
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.66	0.25	7.33	0.30	0.15	0.12
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.80	0.31	8.92	0.36	0.19	0.15
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.80	0.31	8.92	0.36	0.19	0.15

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-335. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 5,000 TEU	0.02	0.01	0.25	1.85	0.09	0.07
Containerships 4,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 3,000 TEU	0.00	0.00	0.01	0.07	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.03	0.02	0.33	2.49	0.12	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.02	0.33	0.11	0.02	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.02	0.33	0.11	0.02	0.02

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-336. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.13	0.05	1.80	1.44	0.18	0.14
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.20	0.08	2.54	2.11	0.26	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.23	0.09	2.50	0.10	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.23	0.09	2.50	0.10	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.23	0.09	2.50	0.10	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.27	0.10	3.04	0.12	0.06	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.27	0.10	3.04	0.12	0.06	0.05

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-337. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.08	0.63	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.03	0.19	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.01	0.11	0.85	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-338. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.12	0.05	1.57	1.26	0.15	0.12
Containerships 4,000 TEU	0.05	0.02	0.59	0.54	0.07	0.05
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.17	0.07	2.22	1.85	0.23	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.20	0.08	2.19	0.09	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.20	0.08	2.19	0.09	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.20	0.08	2.19	0.09	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.24	0.09	2.66	0.11	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.24	0.09	2.66	0.11	0.06	0.04

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-339. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.10	0.74	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-340. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.03	0.02	0.00	0.00
Containerships 5,000 TEU	0.17	0.07	2.31	1.85	0.23	0.18
Containerships 4,000 TEU	0.05	0.02	0.57	0.51	0.06	0.05
Containerships 3,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.23	0.09	2.96	2.44	0.30	0.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.24	0.09	2.65	0.11	0.06	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.24	0.09	2.65	0.11	0.06	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.24	0.09	2.65	0.11	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.29	0.11	3.22	0.13	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.29	0.11	3.22	0.13	0.07	0.05

Notes: (1) Mitigation measures include low sulfur fuel.
Turning occurs during only one trip segment (arrival or departure).

Table 1.3-341. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.06	0.44	0.02	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.12	0.01	0.00
Containerships 3,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.08	0.58	0.03	0.02
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.07	0.02	0.01	0.00
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.07	0.02	0.01	0.00

Notes: (1) Mitigation measures include low sulfur fuel.
Turning occurs during only one trip segment (arrival or departure).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-342. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation Docking

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 5,000 TEU	0.37	0.14	4.94	3.96	0.49	0.39
Containerships 4,000 TEU	0.10	0.04	1.22	1.10	0.14	0.11
Containerships 3,000 TEU	0.01	0.00	0.11	0.10	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Subtotal	0.49	0.19	6.34	5.22	0.64	0.51
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.51	0.20	5.69	0.23	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.51	0.20	5.69	0.23	0.12	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.51	0.20	5.69	0.23	0.12	0.09
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.62	0.24	6.90	0.28	0.14	0.12
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.62	0.24	6.90	0.28	0.14	0.12

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-343. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation Docking

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.01	0.12	0.93	0.05	0.03
Containerships 4,000 TEU	0.00	0.00	0.04	0.27	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.02	0.01	0.17	1.24	0.06	0.05
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-344. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation Hotelling

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.12	0.05	1.47	1.33	0.16	0.13
Containerships 5,000 TEU	10.03	3.84	133.62	106.93	13.12	10.50
Containerships 4,000 TEU	3.71	1.42	43.68	39.52	4.85	3.88
Containerships 3,000 TEU	0.29	0.11	3.44	3.11	0.38	0.31
Containerships 1,000 TEU	0.02	0.01	0.19	0.17	0.02	0.02
Subtotal	14.17	5.43	182.39	151.06	18.54	14.83
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.09	6.93	200.98	8.09	4.19	3.36
Containerships 5,000 TEU	3.91	1.50	43.45	1.75	0.91	0.73
Containerships 4,000 TEU	2.09	0.80	23.23	0.94	0.48	0.39
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.09	9.23	267.65	10.78	5.59	4.47
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.88	3.40	98.69	3.97	2.06	1.65
Containerships 5,000 TEU	1.92	0.74	21.34	0.86	0.45	0.36
Containerships 4,000 TEU	1.03	0.39	11.41	0.46	0.24	0.19
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.83	4.53	131.43	5.29	2.74	2.19
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.70	1.42	41.13	1.66	0.86	0.69
Containerships 5,000 TEU	0.80	0.31	8.89	0.36	0.19	0.15
Containerships 4,000 TEU	0.43	0.16	4.75	0.19	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.93	1.89	54.77	2.21	1.14	0.91
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.04	0.40	11.59	0.47	0.24	0.19
Containerships 6,000 TEU	2.67	1.02	29.67	1.19	0.62	0.50
Containerships 5,000 TEU	0.58	0.22	6.43	0.26	0.13	0.11
Containerships 4,000 TEU	0.31	0.12	3.45	0.14	0.07	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.60	1.76	51.14	2.06	1.07	0.85
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.26	0.10	2.94	0.12	0.06	0.05
Containerships 6,000 TEU	0.68	0.26	7.53	0.30	0.16	0.13
Containerships 5,000 TEU	0.15	0.06	1.63	0.07	0.03	0.03
Containerships 4,000 TEU	0.08	0.03	0.88	0.04	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.17	0.45	12.98	0.52	0.27	0.22

Notes: (1) Mitigation measures include AMP and low sulfur fuel (for non-AMP ships).

Table 1.3-345. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation Hotelling

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.09	0.66	0.03	0.02
Containerships 5,000 TEU	1.07	0.56	11.16	83.84	4.09	3.07
Containerships 4,000 TEU	0.26	0.14	2.69	20.22	0.99	0.74
Containerships 3,000 TEU	0.05	0.03	0.50	3.74	0.18	0.14
Containerships 1,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Subtotal	1.38	0.73	14.45	108.62	5.30	3.97
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.21	0.64	11.98	4.01	0.83	0.62
Containerships 5,000 TEU	0.42	0.22	4.10	1.37	0.28	0.21
Containerships 4,000 TEU	0.14	0.08	1.43	0.48	0.10	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.77	0.93	17.51	5.86	1.21	0.90
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.19	0.63	11.76	3.93	0.81	0.61
Containerships 5,000 TEU	0.41	0.21	4.03	1.35	0.28	0.21
Containerships 4,000 TEU	0.14	0.07	1.41	0.47	0.10	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.74	0.92	17.20	5.75	1.18	0.89
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.24	0.65	12.26	4.10	0.84	0.63
Containerships 5,000 TEU	0.43	0.22	4.20	1.40	0.29	0.22
Containerships 4,000 TEU	0.15	0.08	1.46	0.49	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.82	0.96	17.92	5.99	1.23	0.93
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.39	0.20	3.84	1.28	0.26	0.20
Containerships 6,000 TEU	0.90	0.47	8.84	2.96	0.61	0.46
Containerships 5,000 TEU	0.31	0.16	3.04	1.02	0.21	0.16
Containerships 4,000 TEU	0.11	0.06	1.06	0.36	0.07	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.70	0.90	16.78	5.61	1.16	0.87
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.40	0.21	3.90	1.30	0.27	0.20
Containerships 6,000 TEU	0.91	0.48	8.98	3.00	0.62	0.46
Containerships 5,000 TEU	0.31	0.16	3.08	1.03	0.21	0.16
Containerships 4,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.73	0.91	17.04	5.70	1.17	0.88

Notes: (1) Mitigation measures include low sulfur fuel.

(2) Boilers are assumed to operate during hotelling regardless of whether the ship uses AMP.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-346. Annual Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.15	0.06	2.00	1.60	0.20	0.16
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.04	0.03	0.00	0.00
Subtotal	0.21	0.08	2.71	2.24	0.27	0.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.15	0.06	1.63	0.07	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.15	0.06	1.63	0.07	0.03	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.15	0.06	1.63	0.07	0.03	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.20	0.08	2.19	0.09	0.05	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.20	0.08	2.19	0.09	0.05	0.04

Notes: (1) Mitigation measures include low sulfur fuel.
(2) AMP mitigation would not apply during anchoring.

Table 1.3-347. Annual Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.02	0.01	0.16	1.24	0.06	0.05
Containerships 4,000 TEU	0.00	0.00	0.04	0.31	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Subtotal	0.02	0.01	0.21	1.57	0.08	0.06
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.15	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.15	0.05	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.
(2) AMP mitigation would not apply during anchoring.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-348. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.44	3.61	111.54	105.53	12.87	10.30
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.44	3.61	111.54	105.53	12.87	10.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.44	3.62	104.89	4.22	2.19	1.75
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.44	3.62	104.89	4.22	2.19	1.75
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	13.96	5.35	155.13	6.25	3.24	2.59
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.96	5.35	155.13	6.25	3.24	2.59
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	13.96	5.35	155.13	6.25	3.24	2.59
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.96	5.35	155.13	6.25	3.24	2.59
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.75	4.88	141.66	5.70	2.96	2.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.75	4.88	141.66	5.70	2.96	2.36
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.75	4.88	141.66	5.70	2.96	2.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.75	4.88	141.66	5.70	2.96	2.36

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and VSR at 40nm.

Table 1.3-349. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.25	4.66	1.56	0.32	0.24
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.47	0.25	4.66	1.56	0.32	0.24
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.25	4.66	1.56	0.32	0.24
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.47	0.25	4.66	1.56	0.32	0.24
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.64	0.34	6.29	2.10	0.43	0.32
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.64	0.34	6.29	2.10	0.43	0.32
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.64	0.34	6.29	2.10	0.43	0.32
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.64	0.34	6.29	2.10	0.43	0.32

Notes: (1) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-350. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.51	4.79	147.42	133.39	16.37	13.10
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.51	4.79	147.42	133.39	16.37	13.10
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.59	4.82	139.92	5.63	2.92	2.34
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.59	4.82	139.92	5.63	2.92	2.34
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.59	4.82	139.92	5.63	2.92	2.34
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.59	4.82	139.92	5.63	2.92	2.34
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.59	4.82	139.92	5.63	2.92	2.34
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.59	4.82	139.92	5.63	2.92	2.34
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	4.40	127.76	5.14	2.67	2.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.50	4.40	127.76	5.14	2.67	2.13
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	4.40	127.76	5.14	2.67	2.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.50	4.40	127.76	5.14	2.67	2.13

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-351. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.43	33.27	1.62	1.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.43	33.27	1.62	1.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.
(4) All study years are 95% compliant with VSR for the peak day.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-352. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.02	2.31	70.97	64.22	7.88	6.30
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.02	2.31	70.97	64.22	7.88	6.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.02	2.31	66.89	2.69	1.40	1.12
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.02	2.31	66.89	2.69	1.40	1.12
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.02	2.31	66.89	2.69	1.40	1.12
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.02	2.31	66.89	2.69	1.40	1.12
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.02	2.31	66.89	2.69	1.40	1.12
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.02	2.31	66.89	2.69	1.40	1.12
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.51	2.11	61.19	2.46	1.28	1.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.51	2.11	61.19	2.46	1.28	1.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.51	2.11	61.19	2.46	1.28	1.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.51	2.11	61.19	2.46	1.28	1.02

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-353. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.21	16.58	0.81	0.61
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.21	16.58	0.81	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-354. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.72	20.87	0.84	0.44	0.35
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.72	20.87	0.84	0.44	0.35

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-355. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.75	5.65	0.28	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-356. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.64	0.63	18.26	0.74	0.38	0.30
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.64	0.63	18.26	0.74	0.38	0.30

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-357. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.66	4.95	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-358. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.14	0.82	25.19	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.96	0.75	21.73	0.87	0.45	0.36
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.96	0.75	21.73	0.87	0.45	0.36

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-359. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.54	4.02	0.20	0.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-360. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation Docking

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.58	1.75	53.98	48.84	5.99	4.80
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.58	1.75	53.98	48.84	5.99	4.80
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.58	1.75	50.89	2.05	1.06	0.85
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.58	1.75	50.89	2.05	1.06	0.85
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.58	1.75	50.89	2.05	1.06	0.85
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.58	1.75	50.89	2.05	1.06	0.85
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.58	1.75	50.89	2.05	1.06	0.85
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.58	1.75	50.89	2.05	1.06	0.85
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.19	1.60	46.56	1.87	0.97	0.78
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.19	1.60	46.56	1.87	0.97	0.78
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.19	1.60	46.56	1.87	0.97	0.78
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.19	1.60	46.56	1.87	0.97	0.78

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-361. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation Docking

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.15	8.62	0.42	0.32
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.15	8.62	0.42	0.32
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-362. Max Daily Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation Hotelling

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.11	80.07	2,463.84	2,229.46	273.60	218.88
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.11	80.07	2,463.84	2,229.46	273.60	218.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.05	80.05	2,322.34	93.50	48.46	38.77
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.05	80.05	2,322.34	93.50	48.46	38.77
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	103.63	39.68	1,151.18	46.35	24.02	19.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	103.63	39.68	1,151.18	46.35	24.02	19.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	41.45	15.87	460.47	18.54	9.61	7.69
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	41.45	15.87	460.47	18.54	9.61	7.69
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	33.07	12.66	367.32	14.79	7.67	6.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	33.07	12.66	367.32	14.79	7.67	6.13
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.27	3.17	91.83	3.70	1.92	1.53
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.27	3.17	91.83	3.70	1.92	1.53

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (95%).

Table 1.3-363. Max Daily Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation Hotelling

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.03	7.39	146.85	1,103.49	53.84	40.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.03	7.39	146.85	1,103.49	53.84	40.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.02	7.38	138.42	46.28	9.54	7.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.02	7.38	138.42	46.28	9.54	7.15
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	13.90	7.32	137.23	45.88	9.45	7.09
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.90	7.32	137.23	45.88	9.45	7.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	13.90	7.32	137.23	45.88	9.45	7.09
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.90	7.32	137.23	45.88	9.45	7.09
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.33	6.49	121.71	40.69	8.39	6.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.33	6.49	121.71	40.69	8.39	6.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.33	6.49	121.71	40.69	8.39	6.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.33	6.49	121.71	40.69	8.39	6.29

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-364 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.55	45.94	5.60	4.48
Containerships 5,000 TEU	3.05	1.17	40.70	34.06	4.15	3.32
Containerships 4,000 TEU	3.91	1.50	46.16	43.67	5.33	4.26
Containerships 3,000 TEU	1.62	0.62	19.13	18.10	2.21	1.77
Containerships 1,000 TEU	1.07	0.41	12.70	12.01	1.46	1.17
Maximum	4.11	1.57	48.55	45.94	5.60	4.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Study years 2012-2027 assume worst case container vessel auxiliary engines use 0.1% sulfur fuel.
(3) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-365 Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.17	0.09	1.82	14.32	0.69	0.52
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.82	14.32	0.69	0.52
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(4) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-366 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.40	43.80	5.38	4.30
Containerships 5,000 TEU	3.05	1.17	40.58	32.47	3.98	3.19
Containerships 4,000 TEU	3.91	1.50	46.02	41.64	5.11	4.09
Containerships 3,000 TEU	1.62	0.62	19.07	17.26	2.12	1.69
Containerships 1,000 TEU	1.07	0.41	12.66	11.45	1.41	1.12
Maximum	4.11	1.57	48.40	43.80	5.38	4.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.
 (3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

Table 1.3-367 Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.43	10.74	0.52	0.39
Containerships 5,000 TEU	0.17	0.09	1.80	13.54	0.66	0.50
Containerships 4,000 TEU	0.15	0.08	1.61	12.11	0.59	0.44
Containerships 3,000 TEU	0.17	0.09	1.82	13.65	0.67	0.50
Containerships 1,000 TEU	0.02	0.01	0.25	1.91	0.09	0.07
Maximum	0.17	0.09	1.82	13.65	0.67	0.50
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Assumes worst case auxiliary boiler would use residual fuel with 0.1% sulfur.
 (3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-368 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	35.48	32.11	3.94	3.15
Containerships 5,000 TEU	2.23	0.85	29.75	23.80	2.92	2.34
Containerships 4,000 TEU	2.86	1.10	33.74	30.53	3.75	3.00
Containerships 3,000 TEU	1.19	0.45	13.98	12.65	1.55	1.24
Containerships 1,000 TEU	0.79	0.30	9.28	8.40	1.03	0.82
Maximum	3.01	1.15	35.48	32.11	3.94	3.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-369 Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.10	8.29	0.40	0.30
Containerships 5,000 TEU	0.13	0.07	1.39	10.45	0.51	0.38
Containerships 4,000 TEU	0.12	0.06	1.24	9.34	0.46	0.34
Containerships 3,000 TEU	0.13	0.07	1.33	10.01	0.49	0.37
Containerships 1,000 TEU	0.02	0.01	0.20	1.47	0.07	0.05
Maximum	0.13	0.07	1.39	10.45	0.51	0.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-370 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	1.52	0.58	20.29	16.24	1.99	1.59
Containerships 4,000 TEU	1.95	0.75	23.01	20.82	2.56	2.04
Containerships 3,000 TEU	0.81	0.31	9.54	8.63	1.06	0.85
Containerships 1,000 TEU	0.54	0.21	6.33	5.73	0.70	0.56
Maximum	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-371 Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	0.09	0.05	0.95	7.13	0.35	0.26
Containerships 4,000 TEU	0.08	0.04	0.85	6.37	0.31	0.23
Containerships 3,000 TEU	0.09	0.05	0.91	6.83	0.33	0.25
Containerships 1,000 TEU	0.01	0.01	0.13	1.01	0.05	0.04
Maximum	0.09	0.05	0.95	7.13	0.35	0.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-372 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/Alt 2 with Mitigation Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	1.33	0.51	17.75	14.21	1.74	1.39
Containerships 4,000 TEU	1.71	0.65	20.13	18.22	2.24	1.79
Containerships 3,000 TEU	0.71	0.27	8.34	7.55	0.93	0.74
Containerships 1,000 TEU	0.47	0.18	5.54	5.01	0.61	0.49
Maximum	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33

Notes: (1) For the baseline, assume the ship does not comply with VSR, and auxiliary engines use 0.2% S MGO April 2008, 2.7% S IFO for May/June 2008, and 5% MGO and 95% IFO July 2008 to March 2009.
(2) For 2012-2027, max daily emissions assume auxiliary engines use fuel with 0.1% sulfur.
use fuel with 0.1% sulfur.

Table 1.3-373 Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/Alt 2 with Mitigation Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	0.08	0.04	0.83	6.24	0.30	0.23
Containerships 4,000 TEU	0.07	0.04	0.74	5.58	0.27	0.20
Containerships 3,000 TEU	0.08	0.04	0.79	5.97	0.29	0.22
Containerships 1,000 TEU	0.01	0.01	0.12	0.88	0.04	0.03
Maximum	0.08	0.04	0.83	6.24	0.30	0.23
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-374 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/AI1 2 with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	1.96	0.75	26.06	20.86	2.56	2.05
Containerships 4,000 TEU	1.64	0.63	19.26	17.43	2.14	1.71
Containerships 3,000 TEU	1.29	0.50	15.25	13.80	1.69	1.36
Containerships 1,000 TEU	0.59	0.23	7.01	6.34	0.78	0.62
Maximum	2.14	0.82	26.06	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-375 Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/AI1 2 with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	0.06	0.03	0.65	4.92	0.24	0.18
Containerships 4,000 TEU	0.05	0.03	0.56	4.24	0.21	0.15
Containerships 3,000 TEU	0.05	0.03	0.55	4.15	0.20	0.15
Containerships 1,000 TEU	0.02	0.01	0.25	1.88	0.09	0.07
Maximum	0.06	0.03	0.65	4.92	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-376 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/AI1 2 with Mitigation Docking

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	26.99	24.42	3.00	2.40
Containerships 5,000 TEU	2.10	0.80	27.93	22.35	2.74	2.19
Containerships 4,000 TEU	1.75	0.67	20.64	18.68	2.29	1.83
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.64	0.24	7.51	6.79	0.83	0.67
Maximum	2.29	0.88	27.93	24.42	3.00	2.40
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-377 Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/AI1 2 with Mitigation Docking

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.57	4.31	0.21	0.16
Containerships 5,000 TEU	0.07	0.04	0.70	5.27	0.26	0.19
Containerships 4,000 TEU	0.06	0.03	0.60	4.54	0.22	0.17
Containerships 3,000 TEU	0.06	0.03	0.59	4.45	0.22	0.16
Containerships 1,000 TEU	0.03	0.01	0.27	2.01	0.10	0.07
Maximum	0.07	0.04	0.70	5.27	0.26	0.19
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-378 Max 1-Hour Emissions from OGV Auxiliary Engines - NEPA Baseline/AII 2 with Mitigation Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	38.49	34.83	4.27	3.42
Containerships 5,000 TEU	2.52	0.97	33.59	26.88	3.30	2.64
Containerships 4,000 TEU	3.33	1.27	39.20	35.47	4.35	3.48
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.82	0.31	9.69	8.77	1.08	0.86
Maximum	3.33	1.27	39.20	35.47	4.35	3.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.
 (3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (95%).

Table 1.3-379 Max 1-Hour Emissions from OGV Auxiliary Boilers - NEPA Baseline/AII 2 with Mitigation Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.29	17.24	0.84	0.63
Containerships 5,000 TEU	0.27	0.14	2.80	21.08	1.03	0.77
Containerships 4,000 TEU	0.23	0.12	2.42	18.15	0.89	0.66
Containerships 3,000 TEU	0.23	0.12	2.37	17.79	0.87	0.65
Containerships 1,000 TEU	0.10	0.05	1.07	8.05	0.39	0.29
Maximum	0.27	0.14	2.80	21.08	1.03	0.77
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-380. Annual Emissions from Tugboat Main Engine - NEPA Baseline/Alt 2 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Containerships 5,000 TEU	1.64	0.39	5.86	0.00	0.25	0.23
Containerships 4,000 TEU	0.55	0.13	1.95	0.00	0.08	0.08
Containerships 3,000 TEU	0.06	0.02	0.23	0.00	0.01	0.01
Containerships 1,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Subtotal	2.3	0.5	8.2	0.0	0.3	0.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.67	0.38	6.56	0.00	0.26	0.24
Containerships 5,000 TEU	0.56	0.13	2.19	0.00	0.09	0.08
Containerships 4,000 TEU	0.28	0.06	1.09	0.00	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	9.8	0.0	0.4	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.77	0.33	2.07	0.00	0.04	0.04
Containerships 5,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 4,000 TEU	0.30	0.05	0.34	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.7	0.5	3.1	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.88	0.36	2.17	0.00	0.05	0.04
Containerships 5,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 4,000 TEU	0.31	0.06	0.36	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.8	0.5	3.2	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 6,000 TEU	1.98	0.40	2.26	0.00	0.05	0.05
Containerships 5,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 4,000 TEU	0.33	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.6	0.7	4.1	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 6,000 TEU	2.02	0.41	2.30	0.00	0.06	0.05
Containerships 5,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 4,000 TEU	0.34	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.7	0.7	4.2	0.0	0.1	0.1

Table 1.3-381. Annual Emissions from Tugboat Aux. Engines - NEPA Baseline/Alt 2 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.22	0.05	0.43	0.00	0.02	0.02
Containerships 4,000 TEU	0.07	0.02	0.14	0.00	0.01	0.01
Containerships 3,000 TEU	0.01	0.00	0.02	0.00	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.3	0.1	0.6	0.0	0.0	0.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.15	0.03	0.42	0.00	0.02	0.01
Containerships 5,000 TEU	0.05	0.01	0.14	0.00	0.01	0.00
Containerships 4,000 TEU	0.03	0.01	0.07	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	0.6	0.0	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.19	0.04	0.18	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	0.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.19	0.04	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	0.3	0.0	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.20	0.05	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.3	0.0	0.0	0.0
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.20	0.05	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-382. Max Daily Emissions from Tugboat Main Engine - NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.53	4.38	66.25	0.03	2.83	2.60
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.5	4.4	66.2	0.0	2.8	2.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	21.42	4.89	84.13	0.03	3.31	3.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.4	4.9	84.1	0.0	3.3	3.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	22.75	4.22	26.52	0.03	0.54	0.50
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	22.7	4.2	26.5	0.0	0.5	0.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	24.07	4.64	27.76	0.03	0.62	0.57
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.1	4.6	27.8	0.0	0.6	0.6
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.39	5.07	28.99	0.03	0.70	0.65
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.4	5.1	29.0	0.0	0.7	0.6
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.92	5.24	29.49	0.03	0.73	0.68
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.9	5.2	29.5	0.0	0.7	0.7

Table 1.3-383. Max Daily Emissions from Tugboat Auxiliary Engines - NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.49	0.52	4.85	0.00	0.23	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.5	4.8	0.0	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.93	0.43	5.33	0.00	0.20	0.19
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.4	5.3	0.0	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.39	0.52	2.31	0.00	0.05	0.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.4	0.5	2.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.47	0.55	2.38	0.00	0.05	0.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	2.4	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.56	0.58	2.45	0.00	0.06	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	0.6	2.4	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.59	0.60	2.47	0.00	0.06	0.06
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	0.6	2.5	0.0	0.1	0.1

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-384 Max 1-Hr Emissions from Tugboat Main Engine - NEPA Baseline/Alt 2 with Mitigation

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 5,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 4,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 3,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 1,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Maximum	8.22	1.94	29.40	0.01	1.25	1.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 5,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 4,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.50	2.17	37.34	0.01	1.47	1.35
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 5,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 4,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.10	1.87	11.77	0.01	0.24	0.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 5,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 4,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.68	2.06	12.32	0.01	0.28	0.25
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 6,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 5,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 4,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.27	2.25	12.87	0.01	0.31	0.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 6,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 5,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 4,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.50	2.32	13.09	0.01	0.33	0.30

Notes: (1) Emissions assume use of two tugboats for 1 hour.

Table 1.3-385 Max 1-Hour Emissions from Tugboat Aux. Engines - NEPA Baseline/Alt 2 with Mitigation

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 5,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 4,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 3,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 1,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Maximum	1.11	0.23	2.15	0.00	0.10	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 5,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 4,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.86	0.19	2.37	0.00	0.09	0.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 5,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 4,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.06	0.23	1.02	0.00	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 5,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 4,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.10	0.25	1.05	0.00	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 6,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 5,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 4,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.13	0.26	1.09	0.00	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 6,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 5,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 4,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.15	0.27	1.10	0.00	0.03	0.02

Notes: (1) Emissions assume use of two tugboats for 1 hour.

Table 1.3-386. Annual Emissions from AMP Electricity Consumption - NEPA Baseline/Alt 2 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.73	0.04	4.21	0.44	0.15	0.15
Containerships 5,000 TEU	0.16	0.01	0.91	0.10	0.03	0.03
Containerships 4,000 TEU	0.08	0.00	0.49	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.0	0.0	5.6	0.6	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.22	0.06	7.02	0.73	0.24	0.24
Containerships 5,000 TEU	0.26	0.01	1.52	0.16	0.05	0.05
Containerships 4,000 TEU	0.14	0.01	0.81	0.08	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.1	9.4	1.0	0.3	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.34	0.02	1.98	0.21	0.07	0.07
Containerships 6,000 TEU	0.88	0.04	5.07	0.53	0.18	0.18
Containerships 5,000 TEU	0.19	0.01	1.10	0.11	0.04	0.04
Containerships 4,000 TEU	0.10	0.01	0.59	0.06	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.1	8.7	0.9	0.3	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.41	0.02	2.39	0.25	0.08	0.08
Containerships 6,000 TEU	1.06	0.05	6.11	0.64	0.21	0.21
Containerships 5,000 TEU	0.23	0.01	1.32	0.14	0.05	0.05
Containerships 4,000 TEU	0.12	0.01	0.71	0.07	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.1	10.5	1.1	0.4	0.4

Note: These emissions represent regional power plant emissions associated with AMP generation.

Table 1.3-387. Max Daily Emissions from AMP Electricity Consumption - NEPA Baseline/Alt 2 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.5	0.4	49.1	5.1	1.7	1.7
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.5	0.4	49.1	5.1	1.7	1.7
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	13.7	0.7	78.6	8.2	2.7	2.7
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.7	0.7	78.6	8.2	2.7	2.7
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.9	0.5	62.7	6.5	2.2	2.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.9	0.5	62.7	6.5	2.2	2.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	13.0	0.6	74.5	7.8	2.6	2.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.0	0.6	74.5	7.8	2.6	2.6

Notes: (1) These emissions represent regional power plant emissions associated with AMP generation.

(2) Peak Day AMP usage is assumed to be equivalent to annual AMP usage.

Table 1.3-388. Summary of Annual Marine Vessel Emissions with Mitigation
NEPA Baseline/Alt 2 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	13.7	6.1	174.8	106.4	16.0	14.0
Ships - 20nm to PA	12.8	6.4	106.1	59.2	10.1	8.1
Ships - PA	6.0	3.3	44.0	23.0	4.5	3.6
Ships - Harbor Transit	3.8	3.4	25.5	8.4	3.1	2.5
Ships - Turning & Docking	1.6	1.1	14.7	10.1	1.7	1.3
Ships - Anchoring	0.2	0.1	2.9	3.8	0.4	0.3
Ships - Hotelling	15.5	6.2	196.8	259.7	23.8	18.8
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.6	0.6	8.8	0.0	0.4	0.3
Total	56.3	27.2	573.7	470.5	59.9	48.9
Project Year 2012						
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	25.9	10.2	285.2	16.6	6.8	5.4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.7	0.6	10.5	0.0	0.4	0.4
Total	70.5	33.2	656.4	26.0	13.8	11.0
Project Year 2015						
Ships - AQMD 40nm to 20nm	15.5	7.8	114.5	2.9	2.2	1.7
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	13.6	5.4	148.6	11.0	3.9	3.1
AMP - Hotelling	1.0	0.0	5.6	0.6	0.2	0.2
Tugboats	2.9	0.6	3.4	0.0	0.1	0.1
Total	59.5	29.4	458.1	19.1	10.1	8.1
Project Year 2020						
Ships - AQMD 40nm to 20nm	15.5	7.8	114.5	2.9	2.2	1.7
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	6.7	2.8	72.7	8.2	2.4	1.8
AMP - Hotelling	1.6	0.1	9.4	1.0	0.3	0.3
Tugboats	3.1	0.6	3.5	0.0	0.1	0.1
Total	53.5	26.9	386.1	16.7	8.7	7.0
Project Year 2025						
Ships - AQMD 40nm to 20nm	19.6	9.9	143.6	3.7	2.7	2.2
Ships - 20nm to PA	17.7	8.9	129.5	3.3	2.4	2.0
Ships - PA	8.3	4.6	53.3	1.3	1.1	0.9
Ships - Harbor Transit	5.3	4.7	31.4	0.5	0.8	0.6
Ships - Turning & Docking	2.1	1.5	16.7	0.5	0.4	0.3
Ships - Anchoring	0.2	0.1	2.3	0.1	0.1	0.0
Ships - Hotelling	6.3	2.7	67.9	7.7	2.2	1.7
AMP - Hotelling	1.5	0.1	8.7	0.9	0.3	0.3
Tugboats	4.0	0.8	4.5	0.0	0.1	0.1
Total	64.9	33.3	458.0	17.9	10.1	8.1
Project Year 2027						
Ships - AQMD 40nm to 20nm	19.6	9.9	143.6	3.7	2.7	2.2
Ships - 20nm to PA	17.7	8.9	129.5	3.3	2.4	2.0
Ships - PA	8.3	4.6	53.3	1.3	1.1	0.9
Ships - Harbor Transit	5.3	4.7	31.4	0.5	0.8	0.6
Ships - Turning & Docking	2.1	1.5	16.7	0.5	0.4	0.3
Ships - Anchoring	0.2	0.1	2.3	0.1	0.1	0.0
Ships - Hotelling	2.9	1.4	30.0	6.2	1.4	1.1
AMP - Hotelling	1.8	0.1	10.5	1.1	0.4	0.4
Tugboats	4.1	0.8	4.6	0.0	0.1	0.1
Total	61.9	32.0	422.0	16.7	9.4	7.5

AMP Hotelling emissions include the emissions generated by regional power plants to generate the electricity consumed by the ships while hotelling.

Table 1.3-389. Summary of Maximum Daily Marine Vessel Emissions with Mitigation
 NEPA Baseline/Alt 2 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	141	71	1,037	26	20	16
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	118	47	1,288	92	33	26
AMP - Hotelling	9	0	49	5	2	2
Tugboats	25	5	29	0	1	1
Total	532	265	4,072	164	89	71
Project Year 2020						
Ships - AQMD 40nm to 20nm	141	71	1,037	26	20	16
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	55	23	598	64	19	15
AMP - Hotelling	14	1	79	8	3	3
Tugboats	27	5	30	0	1	1
Total	476	242	3,412	139	76	61
Project Year 2025						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	45	19	489	55	16	12
AMP - Hotelling	11	1	63	7	2	2
Tugboats	28	6	31	0	1	1
Total	509	269	3,497	131	77	62
Project Year 2027						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	21	10	214	44	10	8
AMP - Hotelling	13	1	74	8	3	3
Tugboats	29	6	32	0	1	1
Total	486	260	3,233	121	72	58

Table 1.3-390. Summary of Average Daily Marine Vessel Emissions with Mitigation
 NEPA Baseline/Alt 2 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	75	34	958	583	87	77
Ships - 20nm to PA	70	35	581	324	55	44
Ships - PA	33	18	241	126	24	20
Ships - Harbor Transit	21	19	140	46	17	14
Ships - Turning & Docking	9	6	81	55	9	7
Ships - Anchoring	1	0	16	21	2	2
Ships - Hotelling	85	34	1,079	1,423	131	103
AMP - Hotelling	-	-	-	-	-	-
Tugboats	14	3	48	0	2	2
Total	308	149	3,144	2,578	328	268
Project Year 2012						
Ships - AQMD 40nm to 20nm	84	38	958	26	16	12
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	142	56	1,563	91	37	29
AMP - Hotelling	-	-	-	-	-	-
Tugboats	15	3	57	0	2	2
Total	386	182	3,597	142	76	60
Project Year 2015						
Ships - AQMD 40nm to 20nm	85	43	627	16	12	9
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	74	30	814	61	22	17
AMP - Hotelling	5	0	31	3	1	1
Tugboats	16	3	18	0	0	0
Total	326	161	2,510	105	55	44
Project Year 2020						
Ships - AQMD 40nm to 20nm	85	43	627	16	12	9
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	37	16	398	45	13	10
AMP - Hotelling	9	0	51	5	2	2
Tugboats	17	3	19	0	0	0
Total	293	147	2,115	91	48	38
Project Year 2025						
Ships - AQMD 40nm to 20nm	107	54	787	20	15	12
Ships - 20nm to PA	97	49	709	18	13	11
Ships - PA	45	25	292	7	6	5
Ships - Harbor Transit	29	26	172	3	4	3
Ships - Turning & Docking	12	8	92	3	2	2
Ships - Anchoring	1	0	13	1	0	0
Ships - Hotelling	35	15	372	42	12	9
AMP - Hotelling	8	0	48	5	2	2
Tugboats	22	4	25	0	1	1
Total	356	182	2,510	98	55	44
Project Year 2027						
Ships - AQMD 40nm to 20nm	107	54	787	20	15	12
Ships - 20nm to PA	97	49	709	18	13	11
Ships - PA	45	25	292	7	6	5
Ships - Harbor Transit	29	26	172	3	4	3
Ships - Turning & Docking	12	8	92	3	2	2
Ships - Anchoring	1	0	13	1	0	0
Ships - Hotelling	16	7	164	34	8	6
AMP - Hotelling	10	1	58	6	2	2
Tugboats	22	5	25	0	1	1
Total	339	175	2,312	91	51	41

Table 1.3-391. Summary of Maximum Hourly Marine Vessel Emissions with Mitigation
 NEPA Baseline/Alt 2

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	42	21	312	8	6	5
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	179	106	1,192	29	25	20
Project Year 2020						
Ships - AQMD 40nm to 20nm	42	21	312	8	6	5
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	180	106	1,193	29	25	20
Project Year 2025						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	201	122	1,307	31	27	22
Project Year 2027						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	201	122	1,307	31	27	22

Table 1.3-392. Annual Ship Visit Data - Alternative 3

Project Scenario/Ship Type	Annual Ship Calls	Annual Anchorage Calls (1)	Engine Year (2)	Avg Hotelling per Ship (hr)
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	2	-	2008	38.2
Containerships 5,000 TEU	177	11	1998	44.9
Containerships 4,000 TEU	59	8	2002	37.8
Containerships 3,000 TEU	7	-	2004	60.1
Containerships 1,000 TEU	2	1	2002	19.3
Total	247	20		n/a
Project Year 2012				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	-	-	2007	-
Containerships 6,000 TEU	156	16	2003	71.0
Containerships 5,000 TEU	52	5	2002	59.7
Containerships 4,000 TEU	26	3	2000	48.3
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	234	23		n/a
Project Year 2015				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	52	5	2007	95.2
Containerships 6,000 TEU	104	10	2003	64.5
Containerships 5,000 TEU	52	5	2002	54.2
Containerships 4,000 TEU	26	3	2000	44.0
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	234	23		n/a
Project Year 2020				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	52	5	2007	86.2
Containerships 6,000 TEU	156	16	2003	58.5
Containerships 5,000 TEU	52	5	2002	49.2
Containerships 4,000 TEU	26	3	2000	40.0
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	286	29		n/a
Project Year 2025				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	52	5	2007	65.4
Containerships 6,000 TEU	208	21	2003	44.6
Containerships 5,000 TEU	52	5	2002	37.6
Containerships 4,000 TEU	26	3	2000	30.7
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	338	34		n/a
Project Year 2027				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	52	5	2007	67.4
Containerships 6,000 TEU	208	21	2003	45.9
Containerships 5,000 TEU	52	5	2002	38.8
Containerships 4,000 TEU	26	3	2000	31.6
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	338	34		n/a

Table 1.3-393. Peak Day Ship Visit Data - Alternative 3

Project Scenario/Ship Type	Peak Day Arrivals	Peak Day Departures	Peak Day At Berth	Peak Day Hotelling (hr)	
				Unmitigated	Mitigated (2)
Baseline					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU				-	-
Containerships 6,000 TEU	1	1	1	64.0	64.0
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.0	64.0
Project Year 2012					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU				-	-
Containerships 6,000 TEU	1	1	1	64.0	64.0
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.0	64.0
Project Year 2015					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU	1	1	1	64.2	63.6
Containerships 6,000 TEU				-	-
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.2	63.6
Project Year 2020					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU	1	1	1	64.2	63.6
Containerships 6,000 TEU				-	-
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.2	63.6
Project Year 2025					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU	1	1	1	64.2	63.6
Containerships 6,000 TEU				-	-
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.2	63.6
Project Year 2027					
Containerships 10,000 TEU				-	-
Containerships 9,000 TEU	1	1	1	64.2	63.6
Containerships 6,000 TEU				-	-
Containerships 5,000 TEU				-	-
Containerships 4,000 TEU				-	-
Containerships 3,000 TEU				-	-
Containerships 1,000 TEU				-	-
Total	1	1	1	64.2	63.6

(1) Anchor calls in 2015-2027 are assumed to be 10 percent of total calls at berth for each study year. Notes: (1) Hotelling time equals 24 hours minus vessel transit time within the SCAB. Because the Vessel Speed Reduction (VSR) program increases transit time, the hotelling times are shorter when VSR is implemented as mitigation.

(2) Source POLA 2008 EI, Table 3.25

(2) For the Mitigated Project, 95% VSR is assumed out to 40nm. 95% VSR is assumed out to 20nm for the unmitigated project.

(3) Peak daily arrivals and departures provided by APL.

Table 1.3-394. OGV Main Engine Usage per One-Way Transit: Baseline

Vessel Type	Propulsion Max kW	Speed (Kts)	Load Factor	Distance (nm/trip)	Duration (hr/trip)	Energy Consumed (kW-hr/trip)
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (1)						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	18.1	0.31	20.73	1.15	21,345
Containerships 5,000 TEU	53,032	17.8	0.30	20.73	1.17	18,247
Containerships 4,000 TEU	42,216	16.1	0.25	20.73	1.29	13,370
Containerships 3,000 TEU	30,647	13.8	0.18	20.73	1.51	8,115
Containerships 1,000 TEU	8,610	15.1	0.38	20.73	1.37	4,487
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR						
Doesn't apply to the baseline						
Fairway: 20nm to Precautionary Area, Without VSR						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	18.1	0.31	18.58	1.03	19,131
Containerships 5,000 TEU	53,032	17.8	0.30	18.58	1.05	16,355
Containerships 4,000 TEU	42,216	16.1	0.25	18.58	1.16	11,984
Containerships 3,000 TEU	30,647	13.8	0.18	18.58	1.35	7,273
Containerships 1,000 TEU	8,610	15.1	0.38	18.58	1.23	4,022
Fairway: 20nm to Precautionary Area, With VSR						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	12.0	0.09	18.58	1.55	8,456
Containerships 5,000 TEU	53,032	12.0	0.09	18.58	1.55	7,449
Containerships 4,000 TEU	42,216	12.0	0.10	18.58	1.55	6,699
Containerships 3,000 TEU	30,647	12.0	0.12	18.58	1.55	5,522
Containerships 1,000 TEU	8,610	12.0	0.19	18.58	1.55	2,540
Precautionary Area						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	11.0	0.07	8.06	0.73	3,083
Containerships 5,000 TEU	53,032	11.0	0.07	8.06	0.73	2,716
Containerships 4,000 TEU	42,216	11.0	0.08	8.06	0.73	2,442
Containerships 3,000 TEU	30,647	11.0	0.09	8.06	0.73	2,014
Containerships 1,000 TEU	8,610	11.0	0.15	8.06	0.73	926
Harbor Transit Inbound						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	7.0	0.02	3.50	0.50	542
Containerships 5,000 TEU	53,032	7.0	0.02	3.50	0.50	477
Containerships 4,000 TEU	42,216	7.0	0.02	3.50	0.50	429
Containerships 3,000 TEU	30,647	7.0	0.02	3.50	0.50	354
Containerships 1,000 TEU	8,610	7.0	0.04	3.50	0.50	163
Harbor Transit Outbound						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	8.0	0.03	3.50	0.44	708
Containerships 5,000 TEU	53,032	8.0	0.03	3.50	0.44	624
Containerships 4,000 TEU	42,216	8.0	0.03	3.50	0.44	561
Containerships 3,000 TEU	30,647	8.0	0.03	3.50	0.44	462
Containerships 1,000 TEU	8,610	8.0	0.06	3.50	0.44	213
Turning						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.23	281
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.23	247
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.23	197
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.23	143
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.23	40
Docking						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.25	301
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.25	265
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.25	211
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.25	153
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.25	43

Source: POLA 2009 Emission Inventory Report.

(1) VSR = vessel speed reduction (speed reduced to 12 knots).

(2) Turning time and turning and docking load factors from 2008 POLA EI, Section 3.5.6.

(3) Harbor transit distance and turning time assumed from China Shipping EIR.

Table 1.3-395. OGV Auxiliary Engine Usage per One-Way Transit: Baseline

Vessel Type	Auxiliary kW per Vessel (1)	Hours/Transit	kW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.15	1,946
Containerships 5,000 TEU	1,256	1.17	1,464
Containerships 4,000 TEU	1,611	1.29	2,081
Containerships 3,000 TEU	667	1.51	1,005
Containerships 1,000 TEU	443	1.37	608
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR			
Doesn't apply to the baseline			
Fairway: 20nm to Precautionary Area, Without VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.03	1,744
Containerships 5,000 TEU	1,256	1.05	1,313
Containerships 4,000 TEU	1,611	1.16	1,865
Containerships 3,000 TEU	667	1.35	901
Containerships 1,000 TEU	443	1.23	545
Fairway: 20nm to Precautionary Area, With VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.55	2,623
Containerships 5,000 TEU	1,256	1.55	1,945
Containerships 4,000 TEU	1,611	1.55	2,494
Containerships 3,000 TEU	667	1.55	1,034
Containerships 1,000 TEU	443	1.55	686
Precautionary Area			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.73	1,242
Containerships 5,000 TEU	1,256	0.73	921
Containerships 4,000 TEU	1,611	0.73	1,181
Containerships 3,000 TEU	667	0.73	489
Containerships 1,000 TEU	443	0.73	325
Harbor Transit Inbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.50	847
Containerships 5,000 TEU	1,256	0.50	628
Containerships 4,000 TEU	1,611	0.50	805
Containerships 3,000 TEU	667	0.50	334
Containerships 1,000 TEU	443	0.50	222
Harbor Transit Outbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.44	741
Containerships 5,000 TEU	1,256	0.44	549
Containerships 4,000 TEU	1,611	0.44	705
Containerships 3,000 TEU	667	0.44	292
Containerships 1,000 TEU	443	0.44	194
Turning			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	3,778	0.23	882
Containerships 5,000 TEU	3,457	0.23	807
Containerships 4,000 TEU	2,889	0.23	674
Containerships 3,000 TEU	2,288	0.23	534
Containerships 1,000 TEU	1,051	0.23	245
Docking			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	3,778	0.25	945
Containerships 5,000 TEU	3,457	0.25	864
Containerships 4,000 TEU	2,889	0.25	722
Containerships 3,000 TEU	2,288	0.25	572
Containerships 1,000 TEU	1,051	0.25	263

(1) Auxiliary engine data provided by Starcrest.

Table 1.3-396. OGV Auxiliary Boiler Usage per One-Way Transit: Baseline

Vessel Type	Boiler kW	Hours/Transit	kW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.15	-
Containerships 5,000 TEU	411	1.17	-
Containerships 4,000 TEU	367	1.29	-
Containerships 3,000 TEU	394	1.51	593
Containerships 1,000 TEU	58	1.37	-
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR (2)			
Doesn't apply to the baseline			
Fairway: 20nm to Precautionary Area, Without VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.03	-
Containerships 5,000 TEU	411	1.05	-
Containerships 4,000 TEU	367	1.16	-
Containerships 3,000 TEU	394	1.35	531
Containerships 1,000 TEU	58	1.23	-
Fairway: 20nm to Precautionary Area, With VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.55	505
Containerships 5,000 TEU	411	1.55	636
Containerships 4,000 TEU	367	1.55	569
Containerships 3,000 TEU	394	1.55	610
Containerships 1,000 TEU	58	1.55	90
Precautionary Area			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.73	239
Containerships 5,000 TEU	411	0.73	301
Containerships 4,000 TEU	367	0.73	269
Containerships 3,000 TEU	394	0.73	289
Containerships 1,000 TEU	58	0.73	43
Harbor Transit Inbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.50	163
Containerships 5,000 TEU	411	0.50	205
Containerships 4,000 TEU	367	0.50	184
Containerships 3,000 TEU	394	0.50	197
Containerships 1,000 TEU	58	0.50	29
Harbor Transit Outbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.44	143
Containerships 5,000 TEU	411	0.44	180
Containerships 4,000 TEU	367	0.44	161
Containerships 3,000 TEU	394	0.44	172
Containerships 1,000 TEU	58	0.44	25
Turning			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	0.23	116
Containerships 5,000 TEU	608	0.23	142
Containerships 4,000 TEU	523	0.23	122
Containerships 3,000 TEU	513	0.23	120
Containerships 1,000 TEU	232	0.23	54
Docking			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	0.25	124
Containerships 5,000 TEU	608	0.25	152
Containerships 4,000 TEU	523	0.25	131
Containerships 3,000 TEU	513	0.25	128
Containerships 1,000 TEU	232	0.25	58

(1) The boiler is assumed to be operated under engine loads less than 20% (Starcrest, 2009).

(2) Boilers are assumed to not have an applied load factor.

Table 1.3-397. OGV Main Engine Usage per One-Way Transit: 2012-2027

Vessel Type	Propulsion Max kW	Speed (Kts)	Load Factor	Distance (nm/trip)	Duration (hr/trip)	Energy Consumed (KW-hr/trip)
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (1)						
Containerships 10,000 TEU	84,280	19.0	0.34	20.74	1.09	30,860
Containerships 9,000 TEU	68,639	19.0	0.34	20.74	1.09	25,133
Containerships 6,000 TEU	60,199	18.1	0.31	20.74	1.15	21,354
Containerships 5,000 TEU	53,032	17.8	0.30	20.74	1.17	18,255
Containerships 4,000 TEU	42,216	16.1	0.25	20.74	1.29	13,376
Containerships 3,000 TEU	30,647	13.8	0.18	20.74	1.51	8,118
Containerships 1,000 TEU	8,610	15.1	0.38	20.74	1.37	4,489
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR						
Containerships 10,000 TEU	84,280	12.0	0.08	20.74	1.73	12,310
Containerships 9,000 TEU	68,639	12.0	0.08	20.74	1.73	10,025
Containerships 6,000 TEU	60,199	12.0	0.09	20.74	1.73	9,438
Containerships 5,000 TEU	53,032	12.0	0.09	20.74	1.73	8,315
Containerships 4,000 TEU	42,216	12.0	0.10	20.74	1.73	7,477
Containerships 3,000 TEU	30,647	12.0	0.12	20.74	1.73	6,164
Containerships 1,000 TEU	8,610	12.0	0.19	20.74	1.73	2,835
Fairway: 20nm to Precautionary Area, Without VSR						
Containerships 10,000 TEU	84,280	19.0	0.34	18.71	0.98	27,832
Containerships 9,000 TEU	68,639	19.0	0.34	18.71	0.98	22,667
Containerships 6,000 TEU	60,199	18.1	0.31	18.71	1.04	19,259
Containerships 5,000 TEU	53,032	17.8	0.30	18.71	1.05	16,464
Containerships 4,000 TEU	42,216	16.1	0.25	18.71	1.17	12,064
Containerships 3,000 TEU	30,647	13.8	0.18	18.71	1.36	7,322
Containerships 1,000 TEU	8,610	15.1	0.38	18.71	1.24	4,049
Fairway: 20nm to Precautionary Area, With VSR						
Containerships 10,000 TEU	84,280	12.0	0.08	18.71	1.56	11,102
Containerships 9,000 TEU	68,639	12.0	0.08	18.71	1.56	9,042
Containerships 6,000 TEU	60,199	12.0	0.09	18.71	1.56	8,512
Containerships 5,000 TEU	53,032	12.0	0.09	18.71	1.56	7,499
Containerships 4,000 TEU	42,216	12.0	0.10	18.71	1.56	6,744
Containerships 3,000 TEU	30,647	12.0	0.12	18.71	1.56	5,559
Containerships 1,000 TEU	8,610	12.0	0.19	18.71	1.56	2,557
Precautionary Area						
Containerships 10,000 TEU	84,280	11.0	0.07	8.06	0.73	4,020
Containerships 9,000 TEU	68,639	11.0	0.07	8.06	0.73	3,274
Containerships 6,000 TEU	60,199	11.0	0.07	8.06	0.73	3,082
Containerships 5,000 TEU	53,032	11.0	0.07	8.06	0.73	2,715
Containerships 4,000 TEU	42,216	11.0	0.08	8.06	0.73	2,442
Containerships 3,000 TEU	30,647	11.0	0.09	8.06	0.73	2,013
Containerships 1,000 TEU	8,610	11.0	0.15	8.06	0.73	926
Harbor Transit Inbound						
Containerships 10,000 TEU	84,280	7.0	0.02	3.50	0.50	707
Containerships 9,000 TEU	68,639	7.0	0.02	3.50	0.50	576
Containerships 6,000 TEU	60,199	7.0	0.02	3.50	0.50	542
Containerships 5,000 TEU	53,032	7.0	0.02	3.50	0.50	477
Containerships 4,000 TEU	42,216	7.0	0.02	3.50	0.50	429
Containerships 3,000 TEU	30,647	7.0	0.02	3.50	0.50	354
Containerships 1,000 TEU	8,610	7.0	0.04	3.50	0.50	163
Harbor Transit Outbound						
Containerships 10,000 TEU	84,280	8.0	0.03	3.50	0.44	923
Containerships 9,000 TEU	68,639	8.0	0.03	3.50	0.44	752
Containerships 6,000 TEU	60,199	8.0	0.03	3.50	0.44	708
Containerships 5,000 TEU	53,032	8.0	0.03	3.50	0.44	624
Containerships 4,000 TEU	42,216	8.0	0.03	3.50	0.44	561
Containerships 3,000 TEU	30,647	8.0	0.03	3.50	0.44	462
Containerships 1,000 TEU	8,610	8.0	0.06	3.50	0.44	213
Turning						
Containerships 10,000 TEU	84,280	n/a	0.02	n/a	0.23	393
Containerships 9,000 TEU	68,639	n/a	0.02	n/a	0.23	320
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.23	281
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.23	247
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.23	197
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.23	143
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.23	40
Docking						
Containerships 10,000 TEU	84,280	n/a	0.02	n/a	0.25	421
Containerships 9,000 TEU	68,639	n/a	0.02	n/a	0.25	343
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.25	301
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.25	265
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.25	211
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.25	153
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.25	43

Source: POLA 2009 Emission Inventory Report.

(1) VSR = vessel speed reduction (speed reduced to 12 knots).

(2) Turning time and turning and docking load factors from 2008 POLA EI, Section 3.5.6.

(3) Harbor transit distance and turning time assumed from China Shipping EIR.

Table 1.3-398. OGV Auxiliary Engine Usage per One-Way Transit: 2012-2027

Vessel Type	Auxiliary kW per Vessel (1)	Load Factor (2)	Hours/Transit	KW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR				
Containerships 10,000 TEU	14,000	0.13	1.09	2,030
Containerships 9,000 TEU	11,665	0.13	1.09	1,692
Containerships 6,000 TEU	1,694	NA	1.15	1,947
Containerships 5,000 TEU	1,256	NA	1.17	1,465
Containerships 4,000 TEU	1,611	NA	1.29	2,081
Containerships 3,000 TEU	667	NA	1.51	1,005
Containerships 1,000 TEU	443	NA	1.37	609
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR				
Containerships 10,000 TEU	14,000	0.13	1.73	3,215
Containerships 9,000 TEU	11,665	0.13	1.73	2,678
Containerships 6,000 TEU	1,694	NA	1.73	2,928
Containerships 5,000 TEU	1,256	NA	1.73	2,171
Containerships 4,000 TEU	1,611	NA	1.73	2,784
Containerships 3,000 TEU	667	NA	1.73	1,154
Containerships 1,000 TEU	443	NA	1.73	766
Fairway: 20nm to Precautionary Area, Without VSR				
Containerships 10,000 TEU	14,000	0.13	0.98	1,831
Containerships 9,000 TEU	11,665	0.13	0.98	1,526
Containerships 6,000 TEU	1,694	NA	1.04	1,756
Containerships 5,000 TEU	1,256	NA	1.05	1,321
Containerships 4,000 TEU	1,611	NA	1.17	1,877
Containerships 3,000 TEU	667	NA	1.36	907
Containerships 1,000 TEU	443	NA	1.24	549
Fairway: 20nm to Precautionary Area, With VSR				
Containerships 10,000 TEU	14,000	0.13	1.56	2,899
Containerships 9,000 TEU	11,665	0.13	1.56	2,416
Containerships 6,000 TEU	1,694	NA	1.56	2,641
Containerships 5,000 TEU	1,256	NA	1.56	1,958
Containerships 4,000 TEU	1,611	NA	1.56	2,511
Containerships 3,000 TEU	667	NA	1.56	1,041
Containerships 1,000 TEU	443	NA	1.56	691
Precautionary Area				
Containerships 10,000 TEU	14,000	0.13	0.73	1,363
Containerships 9,000 TEU	11,665	0.13	0.73	1,136
Containerships 6,000 TEU	1,694	NA	0.73	1,241
Containerships 5,000 TEU	1,256	NA	0.73	920
Containerships 4,000 TEU	1,611	NA	0.73	1,180
Containerships 3,000 TEU	667	NA	0.73	489
Containerships 1,000 TEU	443	NA	0.73	325
Harbor Transit Inbound				
Containerships 10,000 TEU	14,000	0.13	0.50	930
Containerships 9,000 TEU	11,665	0.13	0.50	775
Containerships 6,000 TEU	1,694	NA	0.50	847
Containerships 5,000 TEU	1,256	NA	0.50	628
Containerships 4,000 TEU	1,611	NA	0.50	805
Containerships 3,000 TEU	667	NA	0.50	334
Containerships 1,000 TEU	443	NA	0.50	222
Harbor Transit Outbound				
Containerships 10,000 TEU	14,000	0.13	0.44	814
Containerships 9,000 TEU	11,665	0.13	0.44	678
Containerships 6,000 TEU	1,694	NA	0.44	741
Containerships 5,000 TEU	1,256	NA	0.44	549
Containerships 4,000 TEU	1,611	NA	0.44	705
Containerships 3,000 TEU	667	NA	0.44	292
Containerships 1,000 TEU	443	NA	0.44	194
Turning				
Containerships 10,000 TEU	14,000	0.30	0.23	968
Containerships 9,000 TEU	11,665	0.30	0.23	806
Containerships 6,000 TEU	3,778	NA	0.23	882
Containerships 5,000 TEU	3,457	NA	0.23	807
Containerships 4,000 TEU	2,889	NA	0.23	674
Containerships 3,000 TEU	2,288	NA	0.23	534
Containerships 1,000 TEU	1,051	NA	0.23	245
Docking				
Containerships 10,000 TEU	14,000	0.30	0.25	1,037
Containerships 9,000 TEU	11,665	0.30	0.25	864
Containerships 6,000 TEU	3,778	NA	0.25	945
Containerships 5,000 TEU	3,457	NA	0.25	864
Containerships 4,000 TEU	2,889	NA	0.25	722
Containerships 3,000 TEU	2,288	NA	0.25	572
Containerships 1,000 TEU	1,051	NA	0.25	263

(1) Containership 10,000 kW provided by APL. Containership 9,000 data from the POLA 2009 Emission Inventory Report. Containership 1,000 to 6,000 data provided by Starcrest.

(2) Derived from POLA 2009 EI Table 3.13 and Table 3.26

Table 1.3-399. OGV Auxiliary Boiler Usage per One-Way Transit: 2012-2027

Vessel Type	Boiler kW	Hours/Transit	KW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (2)			
Containerships 10,000 TEU	440	1.09	-
Containerships 9,000 TEU	440	1.09	-
Containerships 6,000 TEU	326	1.15	-
Containerships 5,000 TEU	411	1.17	-
Containerships 4,000 TEU	367	1.29	-
Containerships 3,000 TEU	394	1.51	593
Containerships 1,000 TEU	58	1.37	-
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR (2)			
Containerships 10,000 TEU	440	1.73	761
Containerships 9,000 TEU	440	1.73	761
Containerships 6,000 TEU	326	1.73	564
Containerships 5,000 TEU	411	1.73	710
Containerships 4,000 TEU	367	1.73	635
Containerships 3,000 TEU	394	1.73	680
Containerships 1,000 TEU	58	1.73	100
Fairway: 20nm to Precautionary Area, Without VSR (2)			
Containerships 10,000 TEU	440	0.98	-
Containerships 9,000 TEU	440	0.98	-
Containerships 6,000 TEU	326	1.04	-
Containerships 5,000 TEU	411	1.05	-
Containerships 4,000 TEU	367	1.17	-
Containerships 3,000 TEU	394	1.36	535
Containerships 1,000 TEU	58	1.24	-
Fairway: 20nm to Precautionary Area, With VSR (2)			
Containerships 10,000 TEU	440	1.56	686
Containerships 9,000 TEU	440	1.56	686
Containerships 6,000 TEU	326	1.56	508
Containerships 5,000 TEU	411	1.56	641
Containerships 4,000 TEU	367	1.56	573
Containerships 3,000 TEU	394	1.56	614
Containerships 1,000 TEU	58	1.56	90
Precautionary Area			
Containerships 10,000 TEU	440	0.73	322
Containerships 9,000 TEU	440	0.73	322
Containerships 6,000 TEU	326	0.73	239
Containerships 5,000 TEU	411	0.73	301
Containerships 4,000 TEU	367	0.73	269
Containerships 3,000 TEU	394	0.73	288
Containerships 1,000 TEU	58	0.73	43
Harbor Transit Inbound			
Containerships 10,000 TEU	440	0.50	220
Containerships 9,000 TEU	440	0.50	220
Containerships 6,000 TEU	326	0.50	163
Containerships 5,000 TEU	411	0.50	205
Containerships 4,000 TEU	367	0.50	184
Containerships 3,000 TEU	394	0.50	197
Containerships 1,000 TEU	58	0.50	29
Harbor Transit Outbound			
Containerships 10,000 TEU	440	0.44	193
Containerships 9,000 TEU	440	0.44	193
Containerships 6,000 TEU	326	0.44	143
Containerships 5,000 TEU	411	0.44	180
Containerships 4,000 TEU	367	0.44	161
Containerships 3,000 TEU	394	0.44	172
Containerships 1,000 TEU	58	0.44	25
Turning			
Containerships 10,000 TEU	440	0.23	103
Containerships 9,000 TEU	440	0.23	103
Containerships 6,000 TEU	497	0.23	116
Containerships 5,000 TEU	608	0.23	142
Containerships 4,000 TEU	523	0.23	122
Containerships 3,000 TEU	513	0.23	120
Containerships 1,000 TEU	232	0.23	54
Docking			
Containerships 10,000 TEU	440	0.25	110
Containerships 9,000 TEU	440	0.25	110
Containerships 6,000 TEU	497	0.25	124
Containerships 5,000 TEU	608	0.25	152
Containerships 4,000 TEU	523	0.25	131
Containerships 3,000 TEU	513	0.25	128
Containerships 1,000 TEU	232	0.25	58

(1) Boilers for Containerships 9,000 to 10,000 data from the POLA 2009 Emission Inventory Report. Boiler data for Containerships 1,000 to 6,000 provided by Starcrest.

(2) Boilers assumed to operate under engine loads less than 20% (Starcrest, 2009).

(3) Boilers are assumed to not have an applied load factor.

Table 1.3-400. OGV Hotelling Aux. Gen. Usage per Ship Visit (Assuming No AMP)
CEQA Baseline & Alternative 3

Vessel Type	Auxiliary kW per Vessel	Load Factor (1)	Hours/ Visit	kW-Hrs/ Visit
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	1,347	NA	38.2	51,455
Containerships 5,000 TEU	1,040	NA	44.9	46,729
Containerships 4,000 TEU	1,372	NA	37.8	51,814
Containerships 3,000 TEU	572	NA	60.1	34,377
Containerships 1,000 TEU	339	NA	19.3	6,543
Project Year 2012				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	-	-
Containerships 6,000 TEU	1,347	NA	71.0	95,642
Containerships 5,000 TEU	1,040	NA	59.7	62,031
Containerships 4,000 TEU	1,372	NA	48.3	66,315
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2015				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	95.2	102,143
Containerships 6,000 TEU	1,347	NA	64.5	86,865
Containerships 5,000 TEU	1,040	NA	54.2	56,386
Containerships 4,000 TEU	1,372	NA	44.0	60,355
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2020				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	86.2	92,453
Containerships 6,000 TEU	1,347	NA	58.5	78,752
Containerships 5,000 TEU	1,040	NA	49.2	51,169
Containerships 4,000 TEU	1,372	NA	40.0	54,847
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2025				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	65.4	70,111
Containerships 6,000 TEU	1,347	NA	44.6	60,046
Containerships 5,000 TEU	1,040	NA	37.6	39,138
Containerships 4,000 TEU	1,372	NA	30.7	42,145
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2027				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	67.4	72,253
Containerships 6,000 TEU	1,347	NA	45.9	61,840
Containerships 5,000 TEU	1,040	NA	38.8	40,292
Containerships 4,000 TEU	1,372	NA	31.6	43,363
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-

(1) Derived from POLA 2009 EI Table 3.13 and Table 3.26

Table 1.3-401. OGV Hotelling Auxiliary Boiler Usage per Ship Visit
CEQA Baseline & Alternative 3

Vessel Type	Boiler kW	Hours/ Visit	kW-Hrs/ Visit
Baseline			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	38.2	18,985
Containerships 5,000 TEU	608	44.9	27,313
Containerships 4,000 TEU	523	37.8	19,763
Containerships 3,000 TEU	513	60.1	30,830
Containerships 1,000 TEU	232	19.3	4,478
Project Year 2012			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	-	-
Containerships 6,000 TEU	497	71.0	35,289
Containerships 5,000 TEU	608	59.7	36,257
Containerships 4,000 TEU	523	48.3	25,293
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2015			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	95.2	41,902
Containerships 6,000 TEU	497	64.5	32,050
Containerships 5,000 TEU	608	54.2	32,958
Containerships 4,000 TEU	523	44.0	23,020
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2020			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	86.2	37,927
Containerships 6,000 TEU	497	58.5	29,057
Containerships 5,000 TEU	608	49.2	29,908
Containerships 4,000 TEU	523	40.0	20,919
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2025			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	65.4	28,761
Containerships 6,000 TEU	497	44.6	22,155
Containerships 5,000 TEU	608	37.6	22,876
Containerships 4,000 TEU	523	30.7	16,075
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2027			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	67.4	29,640
Containerships 6,000 TEU	497	45.9	22,817
Containerships 5,000 TEU	608	38.8	23,550
Containerships 4,000 TEU	523	31.6	16,539
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-

Table 1.3-402. OGV Anchoring Auxiliary Engine Usage per Ship Visit
CEQA Baseline & Alternative 3

Vessel Type	Auxiliary kW per Vessel (1)	Load Factor (2)	Hours/ Visit	kW-Hrs/ Visit
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	1,694	NA	2.1	3,557
Containerships 5,000 TEU	1,053	NA	10.7	11,229
Containerships 4,000 TEU	1,378	NA	4.3	5,913
Containerships 3,000 TEU	NA	NA	NA	-
Containerships 1,000 TEU	443	NA	5.6	2,481
Project Year 2012				
Containerships 10,000 TEU	-	-	7.4	-
Containerships 9,000 TEU	-	-	7.4	-
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2015				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2020				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2025				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2027				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-

Note: (1) Average anchoring time was derived from actual anchoring data for APL ship visits for 2008 and 2009, provided by Starcrest.

- (2) Anchoring times assumed for the baseline are carried through 2027.
- (3) Anchoring times for OGVs larger than 6,000 TEU are assumed to be equal to the average for all sizes.

Table 1.3-403. OGV Anchoring Auxiliary Boiler Usage per Ship Visit
CEQA Baseline & Alternative 3

Vessel Type	Boiler kW	Hours/ Visit	kW-Hrs/ Visit
Baseline			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	2.1	1,044
Containerships 5,000 TEU	608	10.7	6,482
Containerships 4,000 TEU	523	4.3	2,246
Containerships 3,000 TEU	NA	NA	-
Containerships 1,000 TEU	232	5.6	1,299
Project Year 2012			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	-	7.4	-
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2015			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2020			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2025			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2027			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-

Table 1.3-404. Tugboat Main Engine Usage during Assists

Vessel Type	Tugboat Avg Hp (1)	Load Factor (1)	Hours/ Assist (2)	Tugboats per Assist	hp-Hrs/ Assist
Containerships 10,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 9,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 6,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 5,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 4,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 3,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 1,000 TEU	1,934	0.31	1.13	2	1,351

(1) Source: POLA 2009 Emission Inventory Report.

(2) Time spent operating per vessel trip. Equal to vessel "Harbor" transit times 1.3 to account for tug movement and assist time. Vessel turning time is divided by a factor of 2 because tugboats are assumed to assist containerships while turning to dock but not while turning to leave the berth.

Table 1.3-405. Tugboat Auxiliary Engine Usage during Assists

Vessel Type	Aux Engine Avg Hp (1)	Load Factor (1)	Hours/ Assist	Tugboats per Assist	hp-Hrs/ Assist
Containerships 10,000 TEU	149	0.43	1.13	2	144
Containerships 9,000 TEU	149	0.43	1.13	2	144
Containerships 6,000 TEU	149	0.43	1.13	2	144
Containerships 5,000 TEU	149	0.43	1.13	2	144
Containerships 4,000 TEU	149	0.43	1.13	2	144
Containerships 3,000 TEU	149	0.43	1.13	2	144
Containerships 1,000 TEU	149	0.43	1.13	2	144

(1) Source: POLA 2009 Emission Inventory Report.

Table 1.3-406. Emission Factors for Commercial Marine Vessels

Engine Type	Fuel Type	Description	CO	VOC	NOx	SOx	PM10	PM2.5	Notes
Main Propulsion Engine									
OGV Main Engines (g/kw-hr)	Residual Oil (2.7% S)	Slow speed diesel ≤ 1999	1.40	0.63	18.10	10.50	1.50	1.20	(1)
		Slow speed diesel 2000+	1.40	0.63	17.00	10.50	1.50	1.20	(1)
	MGO (0.2% S)	Slow speed diesel ≤ 1999	1.40	0.63	17.01	0.74	0.29	0.23	(2)
		Slow speed diesel 2000+	1.40	0.63	15.98	0.74	0.29	0.23	(2)
	MGO (0.1% S)	Slow speed diesel ≤ 1999	1.40	0.63	17.01	0.42	0.26	0.20	(2)
		Slow speed diesel 2000+	1.40	0.63	15.98	0.42	0.26	0.20	(2)
	Baseline	Slow speed diesel ≤ 1999	1.40	0.63	18.05	10.01	1.44	1.15	(5)
	(0.95 IFO, 0.5 0.2% MGO)	Slow speed diesel 2000+	1.40	0.63	16.95	10.01	1.44	1.15	(5)
Tugboat Main Engines (Medium Speed Diesel) (g/hp-hr)	Baseline Fleet		3.11	0.74	11.12	0.01	0.47	0.44	(6)
	CARB (15 ppm S)	2008	3.45	0.77	13.64	0.01	0.51	0.47	(3,4)
	CARB (15 ppm S)	2012	3.60	0.82	14.12	0.01	0.56	0.51	(3,4)
	CARB (15 ppm S)	2015	3.82	0.71	4.45	0.01	0.09	0.08	(3,4)
	CARB (15 ppm S)	2020	4.04	0.78	4.66	0.01	0.10	0.10	(3,4)
	CARB (15 ppm S)	2025	4.26	0.85	4.87	0.01	0.12	0.11	(3,4)
	CARB (15 ppm S)	2027	4.35	0.88	4.95	0.01	0.12	0.11	(3,4)
Auxiliary Engine									
OGV Auxiliary Engines (g/kw-hr)	Residual Oil (2.7% S)	Medium speed diesel ≤ 1999	1.10	0.42	14.70	12.30	1.50	1.20	(1)
		Medium speed diesel 2000+	1.10	0.42	13.00	12.30	1.50	1.20	(2)
	MGO (0.2% S)	Medium speed diesel ≤ 1999	1.10	0.42	13.82	0.86	0.29	0.23	(2)
		Medium speed diesel 2000+	1.10	0.42	12.22	0.86	0.29	0.23	(2)
	MGO (0.1% S)	Medium speed diesel ≤ 1999	1.10	0.42	13.82	0.49	0.26	0.20	(2)
		Medium speed diesel 2000+	1.10	0.42	12.22	0.49	0.26	0.20	(2)
	Baseline	Medium speed diesel ≤ 1999	1.10	0.42	14.66	11.73	1.44	1.15	(5)
	(0.95 IFO, 0.5 0.2% MGO)	Medium speed diesel 2000+	1.10	0.42	12.96	11.73	1.44	1.15	(5)
Tugboat Auxiliary Engines (High Speed Diesel) (g/hp-hr)	Baseline Fleet		3.92	0.81	7.62	0.01	0.36	0.33	(6)
	CARB (15 ppm S)	2008	2.97	0.65	8.23	0.01	0.30	0.28	(3,4)
	CARB (15 ppm S)	2012	3.03	0.68	8.38	0.01	0.32	0.29	(3,4)
	CARB (15 ppm S)	2015	3.76	0.82	3.62	0.01	0.08	0.07	(3,4)
	CARB (15 ppm S)	2020	3.89	0.87	3.73	0.01	0.09	0.08	(3,4)
	CARB (15 ppm S)	2025	4.02	0.92	3.84	0.01	0.09	0.09	(3,4)
	CARB (15 ppm S)	2027	4.07	0.94	3.89	0.01	0.10	0.09	(3,4)
Auxiliary Boiler									
Auxiliary Boilers (g/kw-hr)	Residual Oil (2.7% S)	Current in-use average	0.20	0.11	2.10	16.50	0.80	0.60	(1)
	MDO (0.5% S)	Low sulfur fuel	0.20	0.11	1.97	10.00	0.20	0.15	(2)
	MGO (0.2% S)	Low sulfur fuel	0.20	0.11	1.97	1.16	0.15	0.11	(2)
	MGO (0.1% S)	Low sulfur fuel	0.20	0.11	1.97	0.66	0.14	0.10	(2)
		Baseline (0.95 IFO/0.5 0.2% MGO)	Composite Factor	0.20	0.11	2.09	15.73	0.77	0.58

Notes:

- (1) The 2.7% sulfur content represents the assumed fuel sulfur content from the 2009 POLA EI of residual oil used by containerships.
- (2) Source: POLA 2009 Emission Inventory Report.
- (3) Source: CARB, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B.
- Emission factors for model years pre 2007 are corrected to account for the use of low-sulfur diesel fuel.
- (4) Fuel sulfur content regulated by CCR Title 13, Division 3, Chapter 5, Article 2, Section 2281.
- (5) All Containership engines use 5% 0.2% sulfur MGO and 95% 2.7% sulfur IFO from July 2008 to June 2009.
- (6) Source: Starcrest, 2009 Inventory
- (7) All Containership main engines are assumed to use "Slow" emission factors.

Table 1.3-407. Emission Factors for AMP Electricity Consumption

Emission Source	CO	VOC	NOx	SOx	PM10	PM2.5
Electricity Consumption Emissions (lb/MW-hr)	0.20	0.010	1.15	0.12	0.04	0.04

Source: SCAQMD CEQA Air Quality Handbook, Tbl. A9-11-B.

Table 1.3-408. Fuel Correction Factors for Ship Main Engines, Auxiliary Engines, Boilers

Fuel Type	CO	VOC	NOx	SOx	PM10	PM2.5
HFO (1.5% S)	1.00	1.00	1.00	0.56	0.82	0.82
MDO (1.5% S)	1.00	1.00	0.90	0.56	0.47	0.47
MGO (0.5% S)	1.00	1.00	0.94	0.18	0.25	0.25
MGO (0.2% S)	1.00	1.00	0.94	0.07	0.19	0.19
MGO (0.1% S)	1.00	1.00	0.94	0.04	0.17	0.17

Source: 2009 EI Table 3.18.

Table 1.3-409. Fuel Correction Factors for Tugboat Main & Auxiliary Engines

Fuel Type	CO	VOC	NOx	SOx	PM10	PM2.5
CARB On-Road Diesel	1.00	0.72	0.93	n/a	0.75	0.75
ULSD	1.00	0.72	0.93	n/a	0.72	0.72

Source: 2009 EI Table 4.8.

Table 1.3-410. Low-Load EF Regression Factors for OGV Main Propulsion Engines

Variable	CO	HC	NOx	SOx	PM10	PM2.5
Exponent	1.00	1.50	1.50	-	1.50	1.50
Intercept (b)	0.15	0.39	10.45	-	0.26	0.26
Coefficient (a)	0.84	0.07	0.13	1.00	0.01	0.01
Ref. EF @ 20% Load	4.33	1.13	11.85	1.00	0.32	0.32

Source: 2009 EI Table 3.8. $y = a (\text{fractional load})^x + b$. Factors are normalized by dividing by the factor @ 20% load.

Table 1.3-411. Vessel Speed Reduction Program (VSRP)

Historical Compliance Rates for APL (Unmitigated)

Year	Compliance Rate
Year 2008+	95.0%

Source: POLA staff (1/28/10).

Note: (1) POLA recognizes the APL terminal for VSR compliance, which is defined as at least 95%. This rate is assumed to remain constant for all study years.

Table 1.3-412. IMO MARPOL Annex VI Compliance Rates (Unmitigated)

Year	% Ship Calls
Year 2008	100.0%
Year 2012	100.0%
Year 2015	100.0%
Year 2020	100.0%
Year 2025	100.0%
Year 2027	100.0%

Table 1.3-413. Annual Emissions from OGV Main Engine - Alternative 3
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.06	1.60	0.99	0.14	0.11
Containerships 5,000 TEU	9.97	4.50	128.88	74.76	10.68	8.54
Containerships 4,000 TEU	2.43	1.10	29.56	18.26	2.61	2.09
Containerships 3,000 TEU	0.20	0.09	2.18	1.31	0.20	0.16
Containerships 1,000 TEU	0.03	0.01	0.34	0.21	0.03	0.02
Subtotal	12.8	5.8	162.6	95.5	13.7	10.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.3	6.4	163.1	4.3	2.6	2.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.03	1.82	46.04	1.21	0.73	0.59
Containerships 6,000 TEU	6.85	3.09	78.24	2.06	1.25	1.00
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.9	6.7	170.0	4.5	2.7	2.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.03	1.82	46.04	1.21	0.73	0.59
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.3	8.3	209.1	5.5	3.3	2.7
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.03	1.82	46.04	1.21	0.73	0.59
Containerships 6,000 TEU	13.71	6.19	156.48	4.11	2.50	2.00
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.7	9.8	248.2	6.5	4.0	3.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.03	1.82	46.04	1.21	0.73	0.59
Containerships 6,000 TEU	13.71	6.19	156.48	4.11	2.50	2.00
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.7	9.8	248.2	6.5	4.0	3.2

Notes: (1) Main engines are 100 percent compliant with MARPOL ANNEX VI requirements.
 (2) Main engines use slide valves.
 (3) Baseline main engines: 5% use MGO and 95% use IFO from July 2008 to June 2009.
 (4) Study years 2012-2027: main engines switch to residual fuel with 0.1% sulfur content at 2
 (5) All shipping routes in the study area fall within 24nm of the coast.
 (6) For study year 2012, MARPOL ANNEX VI requires 1% sulfur fuel content to 200nm.
 For study year 2015, the requirement is 0.1% sulfur content.

Table 1.3-414. Annual Emissions from OGV Main Engine - Alternative 3
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	0.83	0.40	0.08	0.06
Containerships 5,000 TEU	8.82	4.56	69.01	30.84	6.29	5.03
Containerships 4,000 TEU	2.33	1.17	18.22	9.07	1.73	1.38
Containerships 3,000 TEU	0.20	0.10	1.67	0.87	0.15	0.12
Containerships 1,000 TEU	0.02	0.01	0.20	0.12	0.02	0.01
Subtotal	11.5	5.9	89.9	41.3	8.3	6.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.5	6.5	87.4	1.9	1.6	1.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	5.93	3.07	41.13	0.87	0.75	0.60
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.0	6.7	89.6	1.9	1.6	1.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.9	8.3	110.1	2.3	2.0	1.6
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	11.86	6.13	82.27	1.74	1.50	1.20
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.9	9.8	130.7	2.8	2.4	1.9
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	11.86	6.13	82.27	1.74	1.50	1.20
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.9	9.8	130.7	2.8	2.4	1.9

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-415. Annual Emissions from OGV Main Engine - Alternative 3

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Precautionary Area						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.34	0.14	0.04	0.03
Containerships 5,000 TEU	4.15	2.37	27.83	10.61	2.73	2.18
Containerships 4,000 TEU	1.10	0.60	7.32	3.18	0.74	0.59
Containerships 3,000 TEU	0.10	0.05	0.67	0.31	0.07	0.05
Containerships 1,000 TEU	0.01	0.00	0.07	0.04	0.01	0.01
Subtotal	5.4	3.1	36.2	14.3	3.6	2.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.9	3.3	34.9	0.6	0.7	0.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	2.77	1.58	16.43	0.30	0.32	0.26
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.1	3.5	35.8	0.6	0.7	0.6
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	7.4	4.2	44.0	0.8	0.9	0.7
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	5.54	3.15	32.86	0.59	0.65	0.52
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.8	5.0	52.3	0.9	1.0	0.8
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	5.54	3.15	32.86	0.59	0.65	0.52
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.8	5.0	52.3	0.9	1.0	0.8

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-416. Annual Emissions from OGV Main Engine - Alternative 3
 Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.02	0.11	0.01	0.01	0.01
Containerships 5,000 TEU	1.40	1.46	8.85	0.93	1.13	0.90
Containerships 4,000 TEU	0.37	0.36	2.14	0.28	0.29	0.23
Containerships 3,000 TEU	0.03	0.03	0.18	0.03	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.8	1.9	11.3	1.3	1.5	1.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	2.0	11.0	0.1	0.3	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	0.94	0.97	5.23	0.03	0.13	0.11
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	2.1	11.5	0.1	0.3	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	2.6	14.1	0.1	0.4	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.87	1.94	10.45	0.05	0.27	0.21
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.0	3.1	16.7	0.1	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.87	1.94	10.45	0.05	0.27	0.21
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.0	3.1	16.7	0.1	0.4	0.3

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-417. Annual Emissions from OGV Main Engine - Alternative 3
 Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.09	0.02	0.01	0.01
Containerships 5,000 TEU	1.23	1.05	7.21	1.22	0.87	0.70
Containerships 4,000 TEU	0.33	0.26	1.78	0.37	0.22	0.18
Containerships 3,000 TEU	0.03	0.02	0.15	0.04	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.6	1.4	9.2	1.6	1.1	0.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	1.5	9.0	0.1	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	0.82	0.70	4.26	0.03	0.10	0.08
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	1.5	9.3	0.1	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.2	1.9	11.5	0.1	0.3	0.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.64	1.41	8.52	0.07	0.21	0.16
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	2.2	13.6	0.1	0.3	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.64	1.41	8.52	0.07	0.21	0.16
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	2.2	13.6	0.1	0.3	0.3

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-418. Annual Emissions from OGV Main Engine - Alternative 3

Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.01	0.05	0.01	0.01	0.01
Containerships 5,000 TEU	0.66	0.65	4.03	0.48	0.51	0.41
Containerships 4,000 TEU	0.17	0.17	1.00	0.13	0.13	0.11
Containerships 3,000 TEU	0.01	0.01	0.09	0.01	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	0.9	0.8	5.2	0.6	0.7	0.5
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.9	5.0	0.0	0.1	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.44	0.43	2.38	0.01	0.06	0.05
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.0	0.9	5.2	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.2	1.2	6.4	0.0	0.2	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.87	0.86	4.76	0.03	0.12	0.10
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.4	1.4	7.6	0.0	0.2	0.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.87	0.86	4.76	0.03	0.12	0.10
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.4	1.4	7.6	0.0	0.2	0.2

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

(2) Turning occurs during only one trip segment (arrival or departure).

Table 1.3-419. Max Daily Emissions from OGV Main Engine - Alternative 3
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.76	59.46	1,599.9	988.19	141.17	112.94
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.8	59.5	1,599.9	988.2	141.2	112.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.8	59.5	1,504.6	39.5	24.0	19.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.8	59.5	1,504.6	39.5	24.0	19.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	155.1	70.0	1,770.8	46.5	28.3	22.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	155.1	70.0	1,770.8	46.5	28.3	22.6
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	155.1	70.0	1,770.8	46.5	28.3	22.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	155.1	70.0	1,770.8	46.5	28.3	22.6
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	155.1	70.0	1,770.8	46.5	28.3	22.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	155.1	70.0	1,770.8	46.5	28.3	22.6
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	155.1	70.0	1,770.8	46.5	28.3	22.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	155.1	70.0	1,770.8	46.5	28.3	22.6

Notes: (1) Max Daily emissions assume the main engines are equipped with slide valves.
 (2) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009 .
 (3) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and no VSR at 40nm.

Table 1.3-420. Max Daily Emissions from OGV Main Engine - Alternative 3
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	113.24	58.58	833.46	396.84	80.87	64.70
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	113.2	58.6	833.5	396.8	80.9	64.7
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	114.0	59.0	791.1	16.8	14.4	11.5
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	114.0	59.0	791.1	16.8	14.4	11.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.1	68.7	874.4	18.0	16.2	12.9
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.1	68.7	874.4	18.0	16.2	12.9
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.1	68.7	874.4	18.0	16.2	12.9
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.1	68.7	874.4	18.0	16.2	12.9
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.1	68.7	874.4	18.0	16.2	12.9
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.1	68.7	874.4	18.0	16.2	12.9
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.1	68.7	874.4	18.0	16.2	12.9
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.1	68.7	874.4	18.0	16.2	12.9

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-421. Max Daily Emissions from OGV Main Engine - Alternative 3

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Precautionary Area						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.3	30.3	335.2	136.1	35.0	28.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.3	30.3	335.2	136.1	35.0	28.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.3	30.3	316.0	5.7	6.2	5.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.3	30.3	316.0	5.7	6.2	5.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.7	35.5	350.5	6.1	7.0	5.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.7	35.5	350.5	6.1	7.0	5.6
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.7	35.5	350.5	6.1	7.0	5.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.7	35.5	350.5	6.1	7.0	5.6
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.7	35.5	350.5	6.1	7.0	5.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.7	35.5	350.5	6.1	7.0	5.6
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.7	35.5	350.5	6.1	7.0	5.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.7	35.5	350.5	6.1	7.0	5.6

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-422. Max Daily Emissions from OGV Main Engine - Alternative 3
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.0	18.7	106.6	12.0	14.4	11.6
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	18.7	106.6	12.0	14.4	11.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.0	18.7	100.5	0.5	2.6	2.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	18.7	100.5	0.5	2.6	2.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.5	22.0	116.7	0.5	3.0	2.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.5	22.0	116.7	0.5	3.0	2.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.5	22.0	116.7	0.5	3.0	2.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.5	22.0	116.7	0.5	3.0	2.4
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.5	22.0	116.7	0.5	3.0	2.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.5	22.0	116.7	0.5	3.0	2.4
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.5	22.0	116.7	0.5	3.0	2.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.5	22.0	116.7	0.5	3.0	2.4

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-423. Max Daily Emissions from OGV Main Engine - Alternative 3
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.8	13.5	86.9	15.6	11.2	8.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	13.5	86.9	15.6	11.2	8.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.8	13.5	81.9	0.7	2.0	1.6
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	13.5	81.9	0.7	2.0	1.6
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	18.0	15.9	94.1	0.7	2.3	1.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	15.9	94.1	0.7	2.3	1.8
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	18.0	15.9	94.1	0.7	2.3	1.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	15.9	94.1	0.7	2.3	1.8
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	18.0	15.9	94.1	0.7	2.3	1.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	15.9	94.1	0.7	2.3	1.8
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	18.0	15.9	94.1	0.7	2.3	1.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	15.9	94.1	0.7	2.3	1.8

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-424. Max Daily Emissions from OGV Main Engine - Alternative 3

Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.4	8.3	48.6	6.2	6.5	5.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	8.3	48.6	6.2	6.5	5.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.4	8.3	45.8	0.3	1.2	0.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	8.3	45.8	0.3	1.2	0.9
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.6	9.4	52.2	0.3	1.3	1.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.6	9.4	52.2	0.3	1.3	1.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.6	9.4	52.2	0.3	1.3	1.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.6	9.4	52.2	0.3	1.3	1.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.6	9.4	52.2	0.3	1.3	1.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.6	9.4	52.2	0.3	1.3	1.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.6	9.4	52.2	0.3	1.3	1.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.6	9.4	52.2	0.3	1.3	1.1

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

(3) Assumes turning occurs during arrivals only.

Table 1.3-425 Max 1-Hour Emissions from OGV Main Engine - Alternative 3
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.33	25.87	696.10	429.94	61.42	49.14
Containerships 5,000 TEU	48.27	21.79	624.12	362.06	51.72	41.38
Containerships 4,000 TEU	31.93	14.41	387.72	239.47	34.21	27.37
Containerships 3,000 TEU	18.83	8.56	206.99	124.71	18.59	14.88
Containerships 1,000 TEU	10.08	4.55	122.42	75.61	10.80	8.64
Maximum	57.33	25.87	696.10	429.94	61.42	49.14
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	57.35	25.88	654.62	17.21	10.45	8.36
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	71.05	32.06	811.01	21.32	12.94	10.35
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	71.05	32.06	811.01	21.32	12.94	10.35
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	71.05	32.06	811.01	21.32	12.94	10.35
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	71.05	32.06	811.01	21.32	12.94	10.35

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Main engines in study years 2012-2027 use 0.1% sulfur fuel and slide valves.

(3) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(4) Max 1-hour emissions assume the ship does not comply with the VSRP at 40nm.

Table 1.3-426 Max 1-Hour Emissions from OGV Main Engine - Alternative 3
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	246.90	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	18.66	9.04	146.79	3.39	2.55	2.04
Containerships 1,000 TEU	5.55	2.51	61.14	1.59	0.98	0.79
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hr emissions assume the ship is 95% compliant with VSRP for all study years.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

(4) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-427 Max 1-Hour Emissions from OGV Main Engine - Alternative 3

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Precautionary Area						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.65	15.17	167.62	68.05	17.51	14.01
Containerships 5,000 TEU	23.47	13.37	157.22	59.95	15.42	12.34
Containerships 4,000 TEU	18.71	10.20	124.05	53.91	12.58	10.06
Containerships 3,000 TEU	13.61	7.12	96.02	44.44	9.45	7.56
Containerships 1,000 TEU	3.86	1.79	37.03	20.44	3.30	2.64
Maximum	26.65	15.17	167.62	68.05	17.51	14.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-428 Max 1-Hour Emissions from OGV Main Engine - Alternative 3

Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	106.61	11.96	14.45	11.56
Containerships 5,000 TEU	15.87	16.45	99.99	10.54	12.73	10.18
Containerships 4,000 TEU	12.64	12.36	72.70	9.48	9.71	7.77
Containerships 3,000 TEU	9.18	8.45	51.55	7.81	6.77	5.42
Containerships 1,000 TEU	2.58	1.89	14.12	3.59	1.70	1.36
Maximum	18.01	18.67	106.61	11.96	14.45	11.56
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-429 Max 1-Hour Emissions from OGV Main Engine - Alternative 3
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	86.88	15.62	11.15	8.92
Containerships 5,000 TEU	13.91	11.92	81.49	13.76	9.82	7.86
Containerships 4,000 TEU	11.08	8.97	60.41	12.38	7.59	6.08
Containerships 3,000 TEU	8.05	6.15	43.80	10.20	5.38	4.30
Containerships 1,000 TEU	2.27	1.40	13.28	4.69	1.46	1.17
Maximum	15.78	13.53	86.88	15.62	11.15	8.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-430 Max 1-Hour Emissions from OGV Main Engine - Alternative 3

Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	48.55	6.20	6.50	5.20
Containerships 5,000 TEU	7.41	7.30	45.54	5.46	5.73	4.58
Containerships 4,000 TEU	5.90	5.81	34.05	4.35	4.56	3.65
Containerships 3,000 TEU	4.28	4.22	24.72	3.16	3.31	2.65
Containerships 1,000 TEU	1.20	1.19	6.94	0.89	0.93	0.74
Maximum	8.41	8.29	48.55	6.20	6.50	5.20
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-431. Annual Emissions from OGV Auxiliary Engines - Alternative 3
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.11	0.11	0.01	0.01
Containerships 5,000 TEU	0.63	0.24	8.40	7.03	0.86	0.69
Containerships 4,000 TEU	0.30	0.11	3.52	3.33	0.41	0.32
Containerships 3,000 TEU	0.02	0.01	0.20	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Subtotal	1.0	0.4	12.3	10.7	1.3	1.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.1	0.4	11.7	0.5	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 6,000 TEU	0.49	0.19	5.45	0.22	0.11	0.09
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.0	0.4	11.3	0.5	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.3	0.5	14.1	0.6	0.3	0.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.6	16.8	0.7	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.6	16.8	0.7	0.4	0.3

Notes: (1) Auxiliary engines use 0.1% sulfur MGO at 24nm. All routes stay within 24nm of the coast.
(2) Baseline auxiliary engines: 5% use MGO and 95% use IFO from July 2008 to June 2009.
(3) No VSR

n

Table 1.3-432. Annual Emissions from OGV Auxiliary Boilers - Alternative 3
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.00	0.00	0.02	0.15	0.01	0.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Auxiliary boilers are assumed to operate when engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-433. Annual Emissions from OGV Auxiliary Engines - Alternative 3
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.15	0.13	0.02	0.01
Containerships 5,000 TEU	0.82	0.31	10.94	8.76	1.07	0.86
Containerships 4,000 TEU	0.35	0.13	4.15	3.76	0.46	0.37
Containerships 3,000 TEU	0.02	0.01	0.21	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.04	0.04	0.00	0.00
Subtotal	1.2	0.5	15.5	12.9	1.6	1.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.4	0.5	15.3	0.6	0.3	0.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.65	0.25	7.28	0.29	0.15	0.12
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.4	0.5	15.0	0.6	0.3	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.6	18.7	0.8	0.4	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	1.31	0.50	14.55	0.59	0.30	0.24
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.8	22.3	0.9	0.5	0.4
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	1.31	0.50	14.55	0.59	0.30	0.24
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.8	22.3	0.9	0.5	0.4

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.
(2) No VSR

Table 1.3-434. Annual Emissions from OGV Auxiliary Boilers - Alternative 3
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 5,000 TEU	0.05	0.02	0.49	3.71	0.18	0.14
Containerships 4,000 TEU	0.01	0.01	0.15	1.11	0.05	0.04
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Subtotal	0.06	0.03	0.67	5.00	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.02	0.01
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.57	0.19	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.67	0.23	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.44	0.15	0.03	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.44	0.15	0.03	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.78	0.26	0.05	0.04

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.
(2) No VSR

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-435. Annual Emissions from OGV Auxiliary Engines - Alternative 3
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.07	0.06	0.01	0.01
Containerships 5,000 TEU	0.40	0.15	5.27	4.21	0.52	0.41
Containerships 4,000 TEU	0.17	0.06	1.99	1.80	0.22	0.18
Containerships 3,000 TEU	0.01	0.00	0.10	0.09	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Subtotal	0.6	0.2	7.4	6.2	0.8	0.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.7	0.3	7.3	0.3	0.2	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.31	0.12	3.48	0.14	0.07	0.06
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.6	0.2	7.2	0.3	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.8	0.3	8.9	0.4	0.2	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.63	0.24	6.96	0.28	0.15	0.12
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.0	0.4	10.7	0.4	0.2	0.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.63	0.24	6.96	0.28	0.15	0.12
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.0	0.4	10.7	0.4	0.2	0.2

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-436. Annual Emissions from OGV Auxiliary Boilers - Alternative 3
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 5,000 TEU	0.02	0.01	0.25	1.85	0.09	0.07
Containerships 4,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 3,000 TEU	0.00	0.00	0.01	0.07	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.03	0.02	0.33	2.49	0.12	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.28	0.09	0.02	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.02	0.33	0.11	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.04	0.02	0.39	0.13	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.04	0.02	0.39	0.13	0.03	0.02

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-437. Annual Emissions from OGV Auxiliary Engines - Alternative 3
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.13	0.05	1.80	1.44	0.18	0.14
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	2.5	2.1	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.5	0.1	0.1	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.11	0.04	1.19	0.05	0.02	0.02
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.5	0.1	0.1	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.0	0.1	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.6	0.1	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.6	0.1	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-438. Annual Emissions from OGV Auxiliary Boilers - Alternative 3
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.08	0.63	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.03	0.19	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.01	0.11	0.85	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-439. Annual Emissions from OGV Auxiliary Engines - Alternative 3
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.12	0.05	1.57	1.26	0.15	0.12
Containerships 4,000 TEU	0.05	0.02	0.59	0.54	0.07	0.05
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	2.2	1.8	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.2	0.1	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.09	0.04	1.04	0.04	0.02	0.02
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.1	0.1	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.19	0.07	2.08	0.08	0.04	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.2	0.1	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.19	0.07	2.08	0.08	0.04	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.2	0.1	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-440. Annual Emissions from OGV Auxiliary Boilers - Alternative 3
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.10	0.74	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.12	0.04	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.12	0.04	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-441. Annual Emissions from OGV Auxiliary Engines - Alternative 3

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.03	0.02	0.00	0.00
Containerships 5,000 TEU	0.17	0.07	2.31	1.85	0.23	0.18
Containerships 4,000 TEU	0.05	0.02	0.57	0.51	0.06	0.05
Containerships 3,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	3.0	2.4	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.11	0.04	1.23	0.05	0.03	0.02
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.6	0.1	0.1	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.2	0.1	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.22	0.09	2.47	0.10	0.05	0.04
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.8	0.2	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.22	0.09	2.47	0.10	0.05	0.04
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.8	0.2	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.
(2) Turning occurs during only one trip segment (arrival or departure).

Table 1.3-442. Annual Emissions from OGV Auxiliary Boilers - Alternative 3

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.06	0.44	0.02	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.12	0.01	0.00
Containerships 3,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.08	0.58	0.03	0.02
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.07	0.02	0.01	0.00
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.
Turning occurs during only one trip segment (arrival or departure).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-443. Annual Emissions from OGV Auxiliary Engines - Alternative 3

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 5,000 TEU	0.37	0.14	4.94	3.96	0.49	0.39
Containerships 4,000 TEU	0.10	0.04	1.22	1.10	0.14	0.11
Containerships 3,000 TEU	0.01	0.00	0.11	0.10	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Subtotal	0.5	0.2	6.3	5.2	0.6	0.5
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.2	5.7	0.2	0.1	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.24	0.09	2.65	0.11	0.06	0.04
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.2	5.6	0.2	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.6	0.2	6.9	0.3	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.48	0.18	5.29	0.21	0.11	0.09
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.7	0.3	8.2	0.3	0.2	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.48	0.18	5.29	0.21	0.11	0.09
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.7	0.3	8.2	0.3	0.2	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-444. Annual Emissions from OGV Auxiliary Boilers - Alternative 3

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.01	0.12	0.93	0.05	0.03
Containerships 4,000 TEU	0.00	0.00	0.04	0.27	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.02	0.01	0.17	1.24	0.06	0.05
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.06	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.06	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-445. Annual Emissions from OGV Auxiliary Engines - Alternative 3

Hotelling

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.12	0.05	1.47	1.33	0.16	0.13
Containerships 5,000 TEU	10.03	3.84	133.62	106.93	13.12	10.50
Containerships 4,000 TEU	3.71	1.42	43.68	39.52	4.85	3.88
Containerships 3,000 TEU	0.29	0.11	3.44	3.11	0.38	0.31
Containerships 1,000 TEU	0.02	0.01	0.19	0.17	0.02	0.02
Subtotal	14.2	5.4	182.4	151.1	18.5	14.8
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.09	6.93	200.98	8.09	4.19	3.36
Containerships 5,000 TEU	3.91	1.50	43.45	1.75	0.91	0.73
Containerships 4,000 TEU	2.09	0.80	23.23	0.94	0.48	0.39
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.1	9.2	267.7	10.8	5.6	4.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.22	1.23	35.77	1.44	0.75	0.60
Containerships 6,000 TEU	5.48	2.10	60.85	2.45	1.27	1.02
Containerships 5,000 TEU	1.78	0.68	19.75	0.80	0.41	0.33
Containerships 4,000 TEU	0.95	0.36	10.57	0.43	0.22	0.18
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.4	4.4	126.9	5.1	2.6	2.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.17	0.45	12.95	0.52	0.27	0.22
Containerships 6,000 TEU	2.98	1.14	33.10	1.33	0.69	0.55
Containerships 5,000 TEU	0.65	0.25	7.17	0.29	0.15	0.12
Containerships 4,000 TEU	0.35	0.13	3.84	0.15	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.1	2.0	57.1	2.3	1.2	1.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.88	0.34	9.82	0.40	0.20	0.16
Containerships 6,000 TEU	3.03	1.16	33.65	1.35	0.70	0.56
Containerships 5,000 TEU	0.49	0.19	5.48	0.22	0.11	0.09
Containerships 4,000 TEU	0.27	0.10	2.95	0.12	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.7	1.8	51.9	2.1	1.1	0.9
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.91	0.35	10.12	0.41	0.21	0.17
Containerships 6,000 TEU	3.12	1.19	34.65	1.40	0.72	0.58
Containerships 5,000 TEU	0.51	0.19	5.64	0.23	0.12	0.09
Containerships 4,000 TEU	0.27	0.10	3.04	0.12	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.8	1.8	53.5	2.2	1.1	0.9

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-446. Annual Emissions from OGV Auxiliary Boilers - Alternative 3

Hotelling

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.09	0.66	0.03	0.02
Containerships 5,000 TEU	1.07	0.56	11.16	83.84	4.09	3.07
Containerships 4,000 TEU	0.26	0.14	2.69	20.22	0.99	0.74
Containerships 3,000 TEU	0.05	0.03	0.50	3.74	0.18	0.14
Containerships 1,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Subtotal	1.38	0.73	14.45	108.62	5.30	3.97
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.21	0.64	11.98	4.01	0.83	0.62
Containerships 5,000 TEU	0.42	0.22	4.10	1.37	0.28	0.21
Containerships 4,000 TEU	0.14	0.08	1.43	0.48	0.10	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.77	0.93	17.51	5.86	1.21	0.90
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.48	0.25	4.74	1.59	0.33	0.24
Containerships 6,000 TEU	0.73	0.39	7.25	2.43	0.50	0.37
Containerships 5,000 TEU	0.38	0.20	3.73	1.25	0.26	0.19
Containerships 4,000 TEU	0.13	0.07	1.30	0.44	0.09	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.73	0.91	17.03	5.69	1.17	0.88
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.43	0.23	4.29	1.43	0.30	0.22
Containerships 6,000 TEU	1.00	0.53	9.86	3.30	0.68	0.51
Containerships 5,000 TEU	0.34	0.18	3.38	1.13	0.23	0.17
Containerships 4,000 TEU	0.12	0.06	1.18	0.40	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.90	1.00	18.72	6.26	1.29	0.97
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.17	3.25	1.09	0.22	0.17
Containerships 6,000 TEU	1.02	0.53	10.03	3.35	0.69	0.52
Containerships 5,000 TEU	0.26	0.14	2.59	0.87	0.18	0.13
Containerships 4,000 TEU	0.09	0.05	0.91	0.30	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.70	0.90	16.78	5.61	1.16	0.87
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.34	0.18	3.35	1.12	0.23	0.17
Containerships 6,000 TEU	1.05	0.55	10.33	3.45	0.71	0.53
Containerships 5,000 TEU	0.27	0.14	2.66	0.89	0.18	0.14
Containerships 4,000 TEU	0.09	0.05	0.94	0.31	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.75	0.92	17.28	5.78	1.19	0.89

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

(2) Boilers are assumed to operate during hotelling regardless of whether the ship uses AMP.

Table 1.3-447. Annual Emissions from OGV Auxiliary Engines - Alternative 3

Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.15	0.06	2.00	1.60	0.20	0.16
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.04	0.03	0.00	0.00
Subtotal	0.2	0.1	2.7	2.2	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.1	0.1	1.6	0.1	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.49	0.02	0.01	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	1.9	0.1	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.2	0.1	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.09	0.03	0.99	0.04	0.02	0.02
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.4	0.1	0.1	0.0
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.09	0.03	0.99	0.04	0.02	0.02
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.4	0.1	0.1	0.0

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-448. Annual Emissions from OGV Auxiliary Boilers - Alternative 3

Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.02	0.01	0.16	1.24	0.06	0.05
Containerships 4,000 TEU	0.00	0.00	0.04	0.31	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Subtotal	0.02	0.01	0.21	1.57	0.08	0.06
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.15	0.05	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-449. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.4	3.6	111.5	105.5	12.9	10.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.4	3.6	111.5	105.5	12.9	10.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.4	3.6	104.9	4.2	2.2	1.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.4	3.6	104.9	4.2	2.2	1.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.2	3.1	91.1	3.7	1.9	1.5
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.2	3.1	91.1	3.7	1.9	1.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.2	3.1	91.1	3.7	1.9	1.5
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.2	3.1	91.1	3.7	1.9	1.5
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.2	3.1	91.1	3.7	1.9	1.5
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.2	3.1	91.1	3.7	1.9	1.5
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.2	3.1	91.1	3.7	1.9	1.5
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.2	3.1	91.1	3.7	1.9	1.5

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and no VSR at 40nm.

Table 1.3-450. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-451. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.5	4.8	147.4	133.4	16.4	13.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.5	4.8	147.4	133.4	16.4	13.1
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.6	4.8	139.9	5.6	2.9	2.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.6	4.8	139.9	5.6	2.9	2.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.5	4.4	127.8	5.1	2.7	2.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.5	4.4	127.8	5.1	2.7	2.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.5	4.4	127.8	5.1	2.7	2.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.5	4.4	127.8	5.1	2.7	2.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.5	4.4	127.8	5.1	2.7	2.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.5	4.4	127.8	5.1	2.7	2.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.5	4.4	127.8	5.1	2.7	2.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.5	4.4	127.8	5.1	2.7	2.1

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-452. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.43	33.27	1.62	1.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.43	33.27	1.62	1.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.
(4) All study years are 95% compliant with VSR for the peak day.

Table 1.3-453. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.0	2.3	71.0	64.2	7.9	6.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.0	2.3	71.0	64.2	7.9	6.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.0	2.3	66.9	2.7	1.4	1.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.0	2.3	66.9	2.7	1.4	1.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.5	2.1	61.2	2.5	1.3	1.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.5	2.1	61.2	2.5	1.3	1.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.5	2.1	61.2	2.5	1.3	1.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.5	2.1	61.2	2.5	1.3	1.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.5	2.1	61.2	2.5	1.3	1.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.5	2.1	61.2	2.5	1.3	1.0
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.5	2.1	61.2	2.5	1.3	1.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.5	2.1	61.2	2.5	1.3	1.0

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-454. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.21	16.58	0.81	0.61
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.21	16.58	0.81	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-455. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	24.2	21.9	2.7	2.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	24.2	21.9	2.7	2.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	22.8	0.9	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	22.8	0.9	0.5	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.9	0.7	20.9	0.8	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.7	20.9	0.8	0.4	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.9	0.7	20.9	0.8	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.7	20.9	0.8	0.4	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.9	0.7	20.9	0.8	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.7	20.9	0.8	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.9	0.7	20.9	0.8	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.7	20.9	0.8	0.4	0.3

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-456. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.75	5.65	0.28	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-457. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.8	0.7	21.2	19.2	2.4	1.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.7	21.2	19.2	2.4	1.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.8	0.7	20.0	0.8	0.4	0.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.7	20.0	0.8	0.4	0.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.6	0.6	18.3	0.7	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.6	18.3	0.7	0.4	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.6	0.6	18.3	0.7	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.6	18.3	0.7	0.4	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.6	0.6	18.3	0.7	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.6	18.3	0.7	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.6	0.6	18.3	0.7	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.6	18.3	0.7	0.4	0.3

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-458. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.66	4.95	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-459. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	25.2	22.8	2.8	2.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	25.2	22.8	2.8	2.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	23.7	1.0	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	23.7	1.0	0.5	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.0	0.7	21.7	0.9	0.5	0.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.7	21.7	0.9	0.5	0.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.0	0.7	21.7	0.9	0.5	0.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.7	21.7	0.9	0.5	0.4
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.0	0.7	21.7	0.9	0.5	0.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.7	21.7	0.9	0.5	0.4
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.0	0.7	21.7	0.9	0.5	0.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.7	21.7	0.9	0.5	0.4

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-460. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.54	4.02	0.20	0.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-461. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.6	1.8	54.0	48.8	6.0	4.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	54.0	48.8	6.0	4.8
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.6	1.8	50.9	2.0	1.1	0.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	50.9	2.0	1.1	0.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.2	1.6	46.6	1.9	1.0	0.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.2	1.6	46.6	1.9	1.0	0.8
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.2	1.6	46.6	1.9	1.0	0.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.2	1.6	46.6	1.9	1.0	0.8
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.2	1.6	46.6	1.9	1.0	0.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.2	1.6	46.6	1.9	1.0	0.8
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.2	1.6	46.6	1.9	1.0	0.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.2	1.6	46.6	1.9	1.0	0.8

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-462. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.15	8.62	0.42	0.32
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.15	8.62	0.42	0.32
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-463. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3

Hotelling

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.1	80.1	2,463.8	2,229.5	273.6	218.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.1	80.1	2,463.8	2,229.5	273.6	218.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.0	80.0	2,322.3	93.5	48.5	38.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.0	80.0	2,322.3	93.5	48.5	38.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	83.4	32.0	927.1	37.3	19.3	15.5
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	83.4	32.0	927.1	37.3	19.3	15.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	33.4	12.8	370.8	14.9	7.7	6.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	33.4	12.8	370.8	14.9	7.7	6.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	33.4	12.8	370.8	14.9	7.7	6.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	33.4	12.8	370.8	14.9	7.7	6.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	33.4	12.8	370.8	14.9	7.7	6.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	33.4	12.8	370.8	14.9	7.7	6.2

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (80%).

Table 1.3-464. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3

Hotelling

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.03	7.39	146.85	1,103.49	53.84	40.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.03	7.39	146.85	1,103.49	53.84	40.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.02	7.38	138.42	46.28	9.54	7.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.02	7.38	138.42	46.28	9.54	7.15
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.45	6.55	122.87	41.08	8.46	6.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.45	6.55	122.87	41.08	8.46	6.35
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.45	6.55	122.87	41.08	8.46	6.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.45	6.55	122.87	41.08	8.46	6.35
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.45	6.55	122.87	41.08	8.46	6.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.45	6.55	122.87	41.08	8.46	6.35
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.45	6.55	122.87	41.08	8.46	6.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.45	6.55	122.87	41.08	8.46	6.35

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-465. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3

Anchoring

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Peak day ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

Table 1.3-466. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3

Anchoring

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Peak day ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-467 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.55	45.94	5.60	4.48
Containerships 5,000 TEU	3.05	1.17	40.70	34.06	4.15	3.32
Containerships 4,000 TEU	3.91	1.50	46.16	43.67	5.33	4.26
Containerships 3,000 TEU	1.62	0.62	19.13	18.10	2.21	1.77
Containerships 1,000 TEU	1.07	0.41	12.70	12.01	1.46	1.17
Maximum	4.11	1.57	48.55	45.94	5.60	4.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.91	1.50	43.39	1.75	0.91	0.72
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Study years 2012-2027 assume worst case container vessel auxiliary engines use 0.1% sulfur fuel.
(3) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-468 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.17	0.09	1.82	14.32	0.69	0.52
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.82	14.32	0.69	0.52
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(4) Auxiliary boilers are assumed to operate if the main engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-469 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.40	43.80	5.38	4.30
Containerships 5,000 TEU	3.05	1.17	40.58	32.47	3.98	3.19
Containerships 4,000 TEU	3.91	1.50	46.02	41.64	5.11	4.09
Containerships 3,000 TEU	1.62	0.62	19.07	17.26	2.12	1.69
Containerships 1,000 TEU	1.07	0.41	12.66	11.45	1.41	1.12
Maximum	4.11	1.57	48.40	43.80	5.38	4.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.
(3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

Table 1.3-470. Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.43	10.74	0.52	0.39
Containerships 5,000 TEU	0.17	0.09	1.80	13.54	0.66	0.50
Containerships 4,000 TEU	0.15	0.08	1.61	12.11	0.59	0.44
Containerships 3,000 TEU	0.17	0.09	1.82	13.65	0.67	0.50
Containerships 1,000 TEU	0.02	0.01	0.25	1.91	0.09	0.07
Maximum	0.17	0.09	1.82	13.65	0.67	0.50
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary boiler would use residual fuel with 0.1% sulfur.
(3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

Table 1.3-471 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	35.48	32.11	3.94	3.15
Containerships 5,000 TEU	2.23	0.85	29.75	23.80	2.92	2.34
Containerships 4,000 TEU	2.86	1.10	33.74	30.53	3.75	3.00
Containerships 3,000 TEU	1.19	0.45	13.98	12.65	1.55	1.24
Containerships 1,000 TEU	0.79	0.30	9.28	8.40	1.03	0.82
Maximum	3.01	1.15	35.48	32.11	3.94	3.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-472. Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.10	8.29	0.40	0.30
Containerships 5,000 TEU	0.13	0.07	1.39	10.45	0.51	0.38
Containerships 4,000 TEU	0.12	0.06	1.24	9.34	0.46	0.34
Containerships 3,000 TEU	0.13	0.07	1.33	10.01	0.49	0.37
Containerships 1,000 TEU	0.02	0.01	0.20	1.47	0.07	0.05
Maximum	0.13	0.07	1.39	10.45	0.51	0.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-473 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	1.52	0.58	20.29	16.24	1.99	1.59
Containerships 4,000 TEU	1.95	0.75	23.01	20.82	2.56	2.04
Containerships 3,000 TEU	0.81	0.31	9.54	8.63	1.06	0.85
Containerships 1,000 TEU	0.54	0.21	6.33	5.73	0.70	0.56
Maximum	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-474. Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	0.09	0.05	0.95	7.13	0.35	0.26
Containerships 4,000 TEU	0.08	0.04	0.85	6.37	0.31	0.23
Containerships 3,000 TEU	0.09	0.05	0.91	6.83	0.33	0.25
Containerships 1,000 TEU	0.01	0.01	0.13	1.01	0.05	0.04
Maximum	0.09	0.05	0.95	7.13	0.35	0.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-475 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	1.33	0.51	17.75	14.21	1.74	1.39
Containerships 4,000 TEU	1.71	0.65	20.13	18.22	2.24	1.79
Containerships 3,000 TEU	0.71	0.27	8.34	7.55	0.93	0.74
Containerships 1,000 TEU	0.47	0.18	5.54	5.01	0.61	0.49
Maximum	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-476 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	0.08	0.04	0.83	6.24	0.30	0.23
Containerships 4,000 TEU	0.07	0.04	0.74	5.58	0.27	0.20
Containerships 3,000 TEU	0.08	0.04	0.79	5.97	0.29	0.22
Containerships 1,000 TEU	0.01	0.01	0.12	0.88	0.04	0.03
Maximum	0.08	0.04	0.83	6.24	0.30	0.23
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-477 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3

Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	1.96	0.75	26.06	20.86	2.56	2.05
Containerships 4,000 TEU	1.64	0.63	19.26	17.43	2.14	1.71
Containerships 3,000 TEU	1.29	0.50	15.25	13.80	1.69	1.36
Containerships 1,000 TEU	0.59	0.23	7.01	6.34	0.78	0.62
Maximum	2.14	0.82	26.06	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-478. Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3

Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	0.06	0.03	0.65	4.92	0.24	0.18
Containerships 4,000 TEU	0.05	0.03	0.56	4.24	0.21	0.15
Containerships 3,000 TEU	0.05	0.03	0.55	4.15	0.20	0.15
Containerships 1,000 TEU	0.02	0.01	0.25	1.88	0.09	0.07
Maximum	0.06	0.03	0.65	4.92	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-479 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	26.99	24.42	3.00	2.40
Containerships 5,000 TEU	2.10	0.80	27.93	22.35	2.74	2.19
Containerships 4,000 TEU	1.75	0.67	20.64	18.68	2.29	1.83
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.64	0.24	7.51	6.79	0.83	0.67
Maximum	2.29	0.88	27.93	24.42	3.00	2.40
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-480. Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.57	4.31	0.21	0.16
Containerships 5,000 TEU	0.07	0.04	0.70	5.27	0.26	0.19
Containerships 4,000 TEU	0.06	0.03	0.60	4.54	0.22	0.17
Containerships 3,000 TEU	0.06	0.03	0.59	4.45	0.22	0.16
Containerships 1,000 TEU	0.03	0.01	0.27	2.01	0.10	0.07
Maximum	0.07	0.04	0.70	5.27	0.26	0.19
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-481 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3

Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	38.49	34.83	4.27	3.42
Containerships 5,000 TEU	2.52	0.97	33.59	26.88	3.30	2.64
Containerships 4,000 TEU	3.33	1.27	39.20	35.47	4.35	3.48
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.82	0.31	9.69	8.77	1.08	0.86
Maximum	3.33	1.27	39.20	35.47	4.35	3.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-482. Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3

Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.29	17.24	0.84	0.63
Containerships 5,000 TEU	0.27	0.14	2.80	21.08	1.03	0.77
Containerships 4,000 TEU	0.23	0.12	2.42	18.15	0.89	0.66
Containerships 3,000 TEU	0.23	0.12	2.37	17.79	0.87	0.65
Containerships 1,000 TEU	0.10	0.05	1.07	8.05	0.39	0.29
Maximum	0.27	0.14	2.80	21.08	1.03	0.77
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-483. Annual Emissions from Tugboat Main Engine - Alternative 3

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Containerships 5,000 TEU	1.64	0.39	5.86	0.00	0.25	0.23
Containerships 4,000 TEU	0.55	0.13	1.95	0.00	0.08	0.08
Containerships 3,000 TEU	0.06	0.02	0.23	0.00	0.01	0.01
Containerships 1,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Subtotal	2.3	0.5	8.2	0.0	0.3	0.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.67	0.38	6.56	0.00	0.26	0.24
Containerships 5,000 TEU	0.56	0.13	2.19	0.00	0.09	0.08
Containerships 4,000 TEU	0.28	0.06	1.09	0.00	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	9.8	0.0	0.4	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 6,000 TEU	1.18	0.22	1.38	0.00	0.03	0.03
Containerships 5,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 4,000 TEU	0.30	0.05	0.34	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.7	0.5	3.1	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 6,000 TEU	1.88	0.36	2.17	0.00	0.05	0.04
Containerships 5,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 4,000 TEU	0.31	0.06	0.36	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.4	0.7	4.0	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 6,000 TEU	2.64	0.53	3.02	0.00	0.07	0.07
Containerships 5,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 4,000 TEU	0.33	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.3	0.9	4.9	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 6,000 TEU	2.70	0.54	3.07	0.00	0.08	0.07
Containerships 5,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 4,000 TEU	0.34	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.4	0.9	5.0	0.0	0.1	0.1

(1) Assist tug main engines are assumed to be replaced by 1/1/2013

Table 1.3-484. Annual Emissions from Tugboat Auxiliary Engines - Alternative 3

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.22	0.05	0.43	0.00	0.02	0.02
Containerships 4,000 TEU	0.07	0.02	0.14	0.00	0.01	0.01
Containerships 3,000 TEU	0.01	0.00	0.02	0.00	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.3	0.1	0.6	0.0	0.0	0.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.15	0.03	0.42	0.00	0.02	0.01
Containerships 5,000 TEU	0.05	0.01	0.14	0.00	0.01	0.00
Containerships 4,000 TEU	0.03	0.01	0.07	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	0.6	0.0	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.12	0.03	0.12	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	0.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.19	0.04	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.3	0.0	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.27	0.06	0.25	0.00	0.01	0.01
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.27	0.06	0.26	0.00	0.01	0.01
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0

(1) Assist tug auxiliary engines are assumed to be replaced by 1/1/2014.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-485. Max Daily Emissions from Tugboat Main Engine - Alternative 3

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.53	4.38	66.25	0.03	2.83	2.60
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.53	4.38	66.25	0.03	2.83	2.60
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	21.42	4.89	84.13	0.03	3.31	3.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.42	4.89	84.13	0.03	3.31	3.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	22.75	4.22	26.52	0.03	0.54	0.50
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	22.7	4.2	26.5	0.0	0.5	0.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	24.07	4.64	27.76	0.03	0.62	0.57
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.1	4.6	27.8	0.0	0.6	0.6
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.39	5.07	28.99	0.03	0.70	0.65
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.4	5.1	29.0	0.0	0.7	0.6
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.92	5.24	29.49	0.03	0.73	0.68
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.9	5.2	29.5	0.0	0.7	0.7

(1) Assist tug main engines are assumed to be replaced after a useful life of 23 yrs (in 2018).

Table 1.3-486. Max Daily Emissions from Tugboat Auxiliary Engines - Alternative 3

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.49	0.52	4.85	0.00	0.23	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.5	4.8	0.0	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.93	0.43	5.33	0.00	0.20	0.19
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.4	5.3	0.0	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.39	0.52	2.31	0.00	0.05	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.4	0.5	2.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.47	0.55	2.38	0.00	0.05	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	2.4	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.56	0.58	2.45	0.00	0.06	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	0.6	2.4	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.59	0.60	2.47	0.00	0.06	0.06
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	0.6	2.5	0.0	0.1	0.1

(1) Assist tug auxiliary engines are assumed to be replaced after a useful life of 23yrs (in 2022).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-487. Max 1-Hour Emissions from Tugboat Main Engine - Alternative 3

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 5,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 4,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 3,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 1,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Maximum	8.22	1.94	29.40	0.01	1.25	1.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 5,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 4,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.50	2.17	37.34	0.01	1.47	1.35
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 6,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 5,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 4,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.10	1.87	11.77	0.01	0.24	0.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 6,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 5,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 4,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.68	2.06	12.32	0.01	0.28	0.25
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 6,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 5,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 4,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.27	2.25	12.87	0.01	0.31	0.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 6,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 5,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 4,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.50	2.32	13.09	0.01	0.33	0.30

Notes: (1) Emissions assume use of two tugboats for 1 hour.
(2) Assist tug main engines are assumed to be replaced after a useful life of 23 yrs (in 2018).

Table 1.3-488. Max 1-Hour Emissions from Tugboat Auxiliary Engines - Alternative 3

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 5,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 4,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 3,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 1,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Maximum	1.11	0.23	2.15	0.00	0.10	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 5,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 4,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.86	0.19	2.37	0.00	0.09	0.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 6,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 5,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 4,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.06	0.23	1.02	0.00	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 6,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 5,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 4,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.10	0.25	1.05	0.00	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 6,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 5,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 4,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.13	0.26	1.09	0.00	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 6,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 5,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 4,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.15	0.27	1.10	0.00	0.03	0.02

Notes: (1) Emissions assume use of two tugboats for 1 hour.
(2) Assist tug auxiliary engines are assumed to be replaced after a useful life of 23yrs (in 2022).

Table 1.3-489. Annual Emissions from AMP Electricity Consumption - Alternative 3 without Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.27	0.01	1.53	0.16	0.05	0.05
Containerships 6,000 TEU	0.45	0.02	2.60	0.27	0.09	0.09
Containerships 5,000 TEU	0.15	0.01	0.84	0.09	0.03	0.03
Containerships 4,000 TEU	0.08	0.00	0.45	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.0	5.4	0.6	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.38	0.02	2.21	0.23	0.08	0.08
Containerships 6,000 TEU	0.98	0.05	5.65	0.59	0.20	0.20
Containerships 5,000 TEU	0.21	0.01	1.22	0.13	0.04	0.04
Containerships 4,000 TEU	0.11	0.01	0.66	0.07	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.1	9.7	1.0	0.3	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.29	0.01	1.68	0.17	0.06	0.06
Containerships 6,000 TEU	1.00	0.05	5.75	0.60	0.20	0.20
Containerships 5,000 TEU	0.16	0.01	0.94	0.10	0.03	0.03
Containerships 4,000 TEU	0.09	0.00	0.50	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.1	8.9	0.9	0.3	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.02	1.73	0.18	0.06	0.06
Containerships 6,000 TEU	1.03	0.05	5.92	0.62	0.21	0.21
Containerships 5,000 TEU	0.17	0.01	0.96	0.10	0.03	0.03
Containerships 4,000 TEU	0.09	0.00	0.52	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.1	9.1	1.0	0.3	0.3

Table 1.3-490. Max Daily Emissions from AMP Electricity Consumption - Alternative 3

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	6.88	0.34	39.57	4.13	1.38	1.37
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.9	0.3	39.6	4.1	1.4	1.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.01	0.55	63.32	6.61	2.20	2.20
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.0	0.6	63.3	6.6	2.2	2.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.01	0.55	63.32	6.61	2.20	2.20
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.0	0.6	63.3	6.6	2.2	2.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.01	0.55	63.32	6.61	2.20	2.20
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.0	0.6	63.3	6.6	2.2	2.2

Table 1.3-491. Summary of Annual Marine Vessel Emissions without Mitigation
 Alternative 3

Project Scenario/Activity	Tons Per Year						Lead
	CO	VOC	NOx	SOx	PM10	PM2.5	
Baseline							
Ships - AQMD 40nm to 20nm	13.7	6.1	174.8	106.4	15.0	12.0	0.0077
Ships - 20nm to PA	12.8	6.4	106.1	59.2	10.1	8.1	0.0090
Ships - PA	6.0	3.3	44.0	23.0	4.5	3.6	0.0043
Ships - Harbor Transit	3.8	3.4	25.5	8.4	3.1	2.5	0.0028
Ships - Turning & Docking	1.6	1.1	14.7	10.1	1.7	1.3	0.0052
Ships - Anchoring	0.2	0.1	2.9	3.8	0.4	0.3	0.0015
Ships - Hotelling	15.5	6.2	196.8	259.7	23.8	18.8	0.1020
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	2.6	0.6	8.8	0.0	0.4	0.3	-
Total	56.3	27.2	573.7	470.5	58.9	46.9	0.1325
Project Year 2012							
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3	0.0015
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6	0.0018
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7	0.0009
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5	0.0006
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3	0.0010
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0	0.0002
Ships - Hotelling	25.9	10.2	285.2	16.6	6.8	5.4	0.0307
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	2.7	0.6	10.5	0.0	0.4	0.4	-
Total	70.5	33.2	656.4	26.0	13.8	11.0	0.0366
Project Year 2015							
Ships - AQMD 40nm to 20nm	15.9	7.1	181.3	4.9	2.9	2.4	0.0014
Ships - 20nm to PA	14.4	7.3	105.2	2.7	2.0	1.6	0.0018
Ships - PA	6.7	3.7	43.3	1.0	0.9	0.7	0.0009
Ships - Harbor Transit	4.3	3.8	25.6	0.4	0.6	0.5	0.0005
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3	0.0009
Ships - Anchoring	0.2	0.1	2.1	0.1	0.1	0.0	0.0002
Ships - Hotelling	13.2	5.3	144.0	10.8	3.8	3.0	0.0146
AMP - Hotelling	0.9	0.0	5.4	0.6	0.2	0.2	-
Tugboats	2.9	0.6	3.4	0.0	0.1	0.1	-
Total	60.2	29.1	523.7	20.9	10.9	8.7	0.0203
Project Year 2020							
Ships - AQMD 40nm to 20nm	19.6	8.8	223.2	6.1	3.6	2.9	0.0018
Ships - 20nm to PA	17.7	8.9	129.5	3.3	2.4	2.0	0.0022
Ships - PA	8.3	4.6	53.3	1.3	1.1	0.9	0.0011
Ships - Harbor Transit	5.3	4.7	31.4	0.5	0.8	0.6	0.0007
Ships - Turning & Docking	2.1	1.5	16.7	0.5	0.4	0.3	0.0012
Ships - Anchoring	0.2	0.1	2.3	0.1	0.1	0.0	0.0003
Ships - Hotelling	7.0	3.0	75.8	8.6	2.5	1.9	0.0065
AMP - Hotelling	1.7	0.1	9.7	1.0	0.3	0.3	-
Tugboats	3.8	0.7	4.3	0.0	0.1	0.1	-
Total	65.6	32.4	546.3	21.3	11.3	9.0	0.0137
Project Year 2025							
Ships - AQMD 40nm to 20nm	23.3	10.4	265.0	7.2	4.3	3.4	0.0021
Ships - 20nm to PA	21.0	10.6	153.8	3.9	2.9	2.3	0.0027
Ships - PA	9.8	5.4	63.3	1.5	1.3	1.0	0.0013
Ships - Harbor Transit	6.2	5.6	37.3	0.5	0.9	0.7	0.0008
Ships - Turning & Docking	2.5	1.8	19.9	0.6	0.5	0.4	0.0014
Ships - Anchoring	0.2	0.1	2.6	0.2	0.1	0.0	0.0003
Ships - Hotelling	6.4	2.7	68.7	7.7	2.2	1.7	0.0060
AMP - Hotelling	1.5	0.1	8.9	0.9	0.3	0.3	-
Tugboats	4.7	1.0	5.3	0.0	0.1	0.1	-
Total	75.7	37.6	624.8	22.6	12.6	10.1	0.0145
Project Year 2027							
Ships - AQMD 40nm to 20nm	23.3	10.4	265.0	7.2	4.3	3.4	0.0021
Ships - 20nm to PA	21.0	10.6	153.8	3.9	2.9	2.3	0.0027
Ships - PA	9.8	5.4	63.3	1.5	1.3	1.0	0.0013
Ships - Harbor Transit	6.2	5.6	37.3	0.5	0.9	0.7	0.0008
Ships - Turning & Docking	2.5	1.8	19.9	0.6	0.5	0.4	0.0014
Ships - Anchoring	0.2	0.1	2.6	0.2	0.1	0.0	0.0003
Ships - Hotelling	6.6	2.8	70.7	7.9	2.3	1.8	0.0061
AMP - Hotelling	1.6	0.1	9.1	1.0	0.3	0.3	-
Tugboats	4.8	1.0	5.4	0.0	0.1	0.1	-
Total	76.0	37.7	627.2	22.8	12.7	10.2	0.0146

Table 1.3-492. Summary of Maximum Daily Marine Vessel Emissions without Mitigation
 Alternative 3

Project Scenario/Activity	Pounds per Day						Lead
	CO	VOC	NOx	SOx	PM10	PM2.5	
Baseline							
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123	0.0767
Ships - 20nm to PA	126	64	985	564	99	79	0.0934
Ships - PA	60	33	408	217	44	35	0.0448
Ships - Harbor Transit	38	34	240	79	31	25	0.0288
Ships - Turning & Docking	15	11	129	90	16	13	0.0486
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259	1.5048
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3	-
Total	624	296	6,157	5,377	674	537	1.7972
Project Year 2012							
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21	0.0130
Ships - 20nm to PA	127	64	935	24	18	14	0.0167
Ships - PA	60	33	385	9	8	6	0.0079
Ships - Harbor Transit	38	34	227	3	6	4	0.0051
Ships - Turning & Docking	15	11	122	4	3	2	0.0086
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46	0.2665
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3	-
Total	627	297	5,828	224	121	97	0.3179
Project Year 2015							
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24	0.0116
Ships - 20nm to PA	142	73	1,008	25	19	15	0.0153
Ships - PA	66	38	414	9	8	7	0.0073
Ships - Harbor Transit	42	39	252	3	6	5	0.0047
Ships - Turning & Docking	16	12	122	4	3	2	0.0079
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	96	39	1,050	78	28	22	0.1064
AMP - Hotelling	7	0	40	4	1	1	-
Tugboats	25	5	29	0	1	1	-
Total	558	279	4,776	174	97	77	0.1533
Project Year 2020							
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24	0.0116
Ships - 20nm to PA	142	73	1,008	25	19	15	0.0153
Ships - PA	66	38	414	9	8	7	0.0073
Ships - Harbor Transit	42	39	252	3	6	5	0.0047
Ships - Turning & Docking	16	12	122	4	3	2	0.0079
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13	0.0426
AMP - Hotelling	11	1	63	7	2	2	-
Tugboats	27	5	30	0	1	1	-
Total	513	261	4,245	154	86	69	0.0895
Project Year 2025							
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24	0.0116
Ships - 20nm to PA	142	73	1,008	25	19	15	0.0153
Ships - PA	66	38	414	9	8	7	0.0073
Ships - Harbor Transit	42	39	252	3	6	5	0.0047
Ships - Turning & Docking	16	12	122	4	3	2	0.0079
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13	0.0426
AMP - Hotelling	11	1	63	7	2	2	-
Tugboats	28	6	31	0	1	1	-
Total	515	261	4,246	154	86	69	0.0895
Project Year 2027							
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24	0.0116
Ships - 20nm to PA	142	73	1,008	25	19	15	0.0153
Ships - PA	66	38	414	9	8	7	0.0073
Ships - Harbor Transit	42	39	252	3	6	5	0.0047
Ships - Turning & Docking	16	12	122	4	3	2	0.0025
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13	0.0426
AMP - Hotelling	11	1	63	7	2	2	-
Tugboats	29	6	32	0	1	1	-
Total	515	261	4,247	154	86	69	0.0841

Table 1.3-493. Summary of Average Daily Marine Vessel Emissions without Mitigation
Alternative 3

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	75	34	958	583	82	66
Ships - 20nm to PA	70	35	581	324	55	44
Ships - PA	33	18	241	126	24	20
Ships - Harbor Transit	21	19	140	46	17	14
Ships - Turning & Docking	9	6	81	55	9	7
Ships - Anchoring	1	0	16	21	2	2
Ships - Hotelling	85	34	1,079	1,423	131	103
AMP - Hotelling	-	-	-	-	-	-
Tugboats	14	3	48	0	2	2
Total	308	149	3,144	2,578	323	257
Project Year 2012						
Ships - AQMD 40nm to 20nm	84	38	958	26	16	12
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	142	56	1,563	91	37	29
AMP - Hotelling	-	-	-	-	-	-
Tugboats	15	3	57	0	2	2
Total	386	182	3,597	142	76	60
Project Year 2015						
Ships - AQMD 40nm to 20nm	87	39	994	27	16	13
Ships - 20nm to PA	79	40	576	15	11	9
Ships - PA	37	20	237	6	5	4
Ships - Harbor Transit	23	21	140	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	11	1	0	0
Ships - Hotelling	72	29	789	59	21	16
AMP - Hotelling	5	0	30	3	1	1
Tugboats	16	3	18	0	0	0
Total	330	160	2,870	115	60	48
Project Year 2020						
Ships - AQMD 40nm to 20nm	107	48	1,223	33	20	16
Ships - 20nm to PA	97	49	709	18	13	11
Ships - PA	45	25	292	7	6	5
Ships - Harbor Transit	29	26	172	3	4	3
Ships - Turning & Docking	12	8	92	3	2	2
Ships - Anchoring	1	0	13	1	0	0
Ships - Hotelling	39	16	415	47	14	11
AMP - Hotelling	9	0	53	6	2	2
Tugboats	21	4	24	0	1	0
Total	360	177	2,993	117	62	49
Project Year 2025						
Ships - AQMD 40nm to 20nm	127	57	1,452	39	24	19
Ships - 20nm to PA	115	58	843	21	16	13
Ships - PA	54	30	347	8	7	6
Ships - Harbor Transit	34	31	205	3	5	4
Ships - Turning & Docking	14	10	109	3	3	2
Ships - Anchoring	1	1	14	1	0	0
Ships - Hotelling	35	15	376	42	12	9
AMP - Hotelling	8	0	49	5	2	2
Tugboats	26	5	29	0	1	1
Total	415	206	3,424	124	69	55
Project Year 2027						
Ships - AQMD 40nm to 20nm	127	57	1,452	39	24	19
Ships - 20nm to PA	115	58	843	21	16	13
Ships - PA	54	30	347	8	7	6
Ships - Harbor Transit	34	31	205	3	5	4
Ships - Turning & Docking	14	10	109	3	3	2
Ships - Anchoring	1	1	14	1	0	0
Ships - Hotelling	36	15	388	43	13	10
AMP - Hotelling	9	0	50	5	2	2
Tugboats	26	5	30	0	1	1
Total	416	207	3,437	125	70	56

Table 1.3-494. Summary of Maximum Hourly Marine Vessel Emissions without Mitigation
 Alternative 3

Project Scenario/Activity	Pounds per Hour						Lead
	CO	VOC	NOx	SOx	PM10	PM2.5	
Baseline							
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54	0.0334
Ships - 20nm to PA	42	21	315	63	11	9	0.0298
Ships - PA	30	16	204	111	22	18	0.0224
Ships - Harbor Transit	38	34	241	82	31	25	0.0288
Ships - Turning & Docking	13	10	104	64	13	10	0.0321
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4	0.0239
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1	-
Total	197	112	1,684	866	151	121	0.1704
Project Year 2012							
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9	0.0057
Ships - 20nm to PA	42	21	312	8	6	5	0.0054
Ships - PA	30	16	193	5	4	3	0.0040
Ships - Harbor Transit	38	34	227	3	6	4	0.0051
Ships - Turning & Docking	13	10	96	3	2	2	0.0057
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1	0.0042
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1	-
Total	198	112	1,607	40	31	25	0.0301
Project Year 2015							
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11	0.0058
Ships - 20nm to PA	47	24	342	9	6	5	0.0055
Ships - PA	34	19	210	5	4	3	0.0040
Ships - Harbor Transit	43	40	255	4	6	5	0.0051
Ships - Turning & Docking	14	11	103	3	2	2	0.0057
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1	0.0042
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0	-
Total	227	131	1,819	45	35	28	0.0303
Project Year 2020							
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11	0.0058
Ships - 20nm to PA	47	24	342	9	6	5	0.0055
Ships - PA	34	19	210	5	4	3	0.0040
Ships - Harbor Transit	43	40	255	4	6	5	0.0051
Ships - Turning & Docking	14	11	103	3	2	2	0.0057
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1	0.0042
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0	-
Total	228	131	1,820	45	35	28	0.0303
Project Year 2025							
Ships - AQMD 40nm to 20nm	75	34	854	23	14	11	0.0055
Ships - 20nm to PA	47	24	342	9	6	5	0.0055
Ships - PA	34	19	210	5	4	3	0.0040
Ships - Harbor Transit	43	40	255	4	6	5	0.0051
Ships - Turning & Docking	14	11	103	3	2	2	0.0057
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1	0.0042
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0	-
Total	228	131	1,818	45	35	28	0.0301
Project Year 2027							
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11	0.0058
Ships - 20nm to PA	47	24	342	9	6	5	0.0055
Ships - PA	34	19	210	5	4	3	0.0040
Ships - Harbor Transit	43	40	255	4	6	5	0.0051
Ships - Turning & Docking	14	11	103	3	2	2	0.0057
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1	0.0042
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0	-
Total	229	132	1,821	45	35	28	0.0303

Table 1.3-495. AMP Compliance Rates
 Alternative 3 with and without Mitigation

Project Year	Unmitigated Compliance Rate	Mitigated Compliance Rate
Project Year Baseline	0%	0%
Project Year 2012	0%	0%
Project Year 2014	50%	50%
Project Year 2015	50%	50%
Project Year 2016	50%	70%
Project Year 2020	80%	80%
Project Year 2025	80%	80%
Project Year 2027	80%	95%

Source: 17 CCR 93118.3, POLA

Table 1.3-496. Vessel Speed Reduction Program (VSRP) Compliance Rates
 Alternative 3 with Mitigation

Year	Compliance Rate	Compliance Boundary (nm)
Year 2008 - 2012	95%	20
Year 2014	95%	40

Notes: (1) POLA recognizes APL for VSR compliance, which is defined as a compliance rate of at least 95%.

(2) VSR mitigation measure starting in 2009 applies from 40 nm to the PA.

Table 1.3-497. Annual Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.06	1.60	0.99	0.14	0.11
Containerships 5,000 TEU	9.97	4.50	128.88	74.76	10.68	8.54
Containerships 4,000 TEU	2.43	1.10	29.56	18.26	2.61	2.09
Containerships 3,000 TEU	0.20	0.09	2.18	1.31	0.20	0.16
Containerships 1,000 TEU	0.03	0.01	0.34	0.21	0.03	0.02
Subtotal	12.76	5.76	162.56	95.53	13.66	10.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.29	6.45	163.05	4.29	2.60	2.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.98	25.21	0.52	0.47	0.37
Containerships 6,000 TEU	6.57	3.40	45.61	0.97	0.83	0.67
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.36	7.45	99.30	2.10	1.81	1.45
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.98	25.21	0.52	0.47	0.37
Containerships 6,000 TEU	9.86	5.10	68.41	1.45	1.25	1.00
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.65	9.15	122.11	2.58	2.23	1.78
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.98	25.21	0.52	0.47	0.37
Containerships 6,000 TEU	13.15	6.80	91.22	1.93	1.66	1.33
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.93	10.85	144.91	3.06	2.65	2.12
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.98	25.21	0.52	0.47	0.37
Containerships 6,000 TEU	13.15	6.80	91.22	1.93	1.66	1.33
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.93	10.85	144.91	3.06	2.65	2.12

Notes: (1) Mitigation measures include VSR, slide valves, and low sulfur fuel.

Table 1.3-498. Annual Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	0.83	0.40	0.08	0.06
Containerships 5,000 TEU	8.82	4.56	69.01	30.84	6.29	5.03
Containerships 4,000 TEU	2.33	1.17	18.22	9.07	1.73	1.38
Containerships 3,000 TEU	0.20	0.10	1.67	0.87	0.15	0.12
Containerships 1,000 TEU	0.02	0.01	0.20	0.12	0.02	0.01
Subtotal	11.48	5.89	89.93	41.29	8.27	6.62
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.53	6.47	87.40	1.86	1.59	1.27
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	5.93	3.07	41.13	0.87	0.75	0.60
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.95	6.72	89.56	1.89	1.64	1.31
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.92	8.25	110.13	2.33	2.01	1.61
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	11.86	6.13	82.27	1.74	1.50	1.20
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.88	9.79	130.70	2.76	2.39	1.91
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	11.86	6.13	82.27	1.74	1.50	1.20
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.88	9.79	130.70	2.76	2.39	1.91

Notes: (1) Mitigation measures include VSR, slide valves, and low sulfur fuel.

Table 1.3-499. Annual Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.34	0.14	0.04	0.03
Containerships 5,000 TEU	4.15	2.37	27.83	10.61	2.73	2.18
Containerships 4,000 TEU	1.10	0.60	7.32	3.18	0.74	0.59
Containerships 3,000 TEU	0.10	0.05	0.67	0.31	0.07	0.05
Containerships 1,000 TEU	0.01	0.00	0.07	0.04	0.01	0.01
Subtotal	5.42	3.05	36.23	14.28	3.58	2.86
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.86	3.33	34.92	0.63	0.68	0.55
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	2.77	1.58	16.43	0.30	0.32	0.26
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.06	3.46	35.82	0.64	0.70	0.56
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	7.44	4.25	44.04	0.79	0.87	0.69
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	5.54	3.15	32.86	0.59	0.65	0.52
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.83	5.04	52.25	0.94	1.03	0.82
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	5.54	3.15	32.86	0.59	0.65	0.52
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.83	5.04	52.25	0.94	1.03	0.82

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-500. Annual Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.02	0.11	0.01	0.01	0.01
Containerships 5,000 TEU	1.40	1.46	8.85	0.93	1.13	0.90
Containerships 4,000 TEU	0.37	0.36	2.14	0.28	0.29	0.23
Containerships 3,000 TEU	0.03	0.03	0.18	0.03	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.83	1.87	11.30	1.25	1.45	1.16
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.98	2.04	11.03	0.06	0.28	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	0.94	0.97	5.23	0.03	0.13	0.11
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	2.13	11.45	0.06	0.29	0.23
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.52	2.62	14.07	0.07	0.36	0.29
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.87	1.94	10.45	0.05	0.27	0.21
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.98	3.10	16.68	0.08	0.43	0.34
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.87	1.94	10.45	0.05	0.27	0.21
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.98	3.10	16.68	0.08	0.43	0.34

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-501. Annual Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.09	0.02	0.01	0.01
Containerships 5,000 TEU	1.23	1.05	7.21	1.22	0.87	0.70
Containerships 4,000 TEU	0.33	0.26	1.78	0.37	0.22	0.18
Containerships 3,000 TEU	0.03	0.02	0.15	0.04	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.60	1.36	9.25	1.64	1.12	0.90
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.74	1.48	9.01	0.07	0.22	0.17
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	0.82	0.70	4.26	0.03	0.10	0.08
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.79	1.54	9.32	0.07	0.23	0.18
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.20	1.90	11.45	0.09	0.28	0.22
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.64	1.41	8.52	0.07	0.21	0.16
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.61	2.25	13.58	0.11	0.33	0.26
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.64	1.41	8.52	0.07	0.21	0.16
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.61	2.25	13.58	0.11	0.33	0.26

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-502. Annual Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.01	0.05	0.01	0.01	0.01
Containerships 5,000 TEU	0.66	0.65	4.03	0.48	0.51	0.41
Containerships 4,000 TEU	0.17	0.17	1.00	0.13	0.13	0.11
Containerships 3,000 TEU	0.01	0.01	0.09	0.01	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	0.85	0.84	5.18	0.63	0.66	0.53
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.93	0.91	5.04	0.03	0.13	0.10
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.44	0.43	2.38	0.01	0.06	0.05
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.96	0.94	5.20	0.03	0.13	0.10
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.17	1.16	6.39	0.04	0.16	0.13
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.87	0.86	4.76	0.03	0.12	0.10
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.39	1.37	7.58	0.04	0.19	0.15
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.87	0.86	4.76	0.03	0.12	0.10
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.39	1.37	7.58	0.04	0.19	0.15

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.
 Turning occurs during only one trip segment (arrival or departure).

Table 1.3-503. Max Daily Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.76	59.46	1,599.93	988.19	141.17	112.94
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.76	59.46	1,599.93	988.19	141.17	112.94
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.82	59.49	1,504.61	39.55	24.01	19.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.82	59.49	1,504.61	39.55	24.01	19.21
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	144.21	76.22	969.46	19.96	17.93	14.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	144.21	76.22	969.46	19.96	17.93	14.35
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	144.21	76.22	969.46	19.96	17.93	14.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	144.21	76.22	969.46	19.96	17.93	14.35
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	144.21	76.22	969.46	19.96	17.93	14.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	144.21	76.22	969.46	19.96	17.93	14.35
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	144.21	76.22	969.46	19.96	17.93	14.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	144.21	76.22	969.46	19.96	17.93	14.35

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and VSR at 40nm.

Table 1.3-504. Max Daily Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	113.24	58.58	833.46	396.84	80.87	64.70
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	113.24	58.58	833.46	396.84	80.87	64.70
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	114.00	58.98	791.06	16.76	14.42	11.54
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	114.00	58.98	791.06	16.76	14.42	11.54
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.07	68.74	874.36	18.01	16.17	12.94
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.07	68.74	874.36	18.01	16.17	12.94
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.07	68.74	874.36	18.01	16.17	12.94
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.07	68.74	874.36	18.01	16.17	12.94
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.07	68.74	874.36	18.01	16.17	12.94
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.07	68.74	874.36	18.01	16.17	12.94
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.07	68.74	874.36	18.01	16.17	12.94
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.07	68.74	874.36	18.01	16.17	12.94

(2) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

(4) All study years are 95% compliant with VSR for the peak day.

Table 1.3-505. Max Daily Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.29	30.34	335.24	136.10	35.02	28.01
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.29	30.34	335.24	136.10	35.02	28.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.28	30.34	315.99	5.71	6.20	4.96
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.28	30.34	315.99	5.71	6.20	4.96
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.70	35.49	350.48	6.06	7.00	5.60
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.70	35.49	350.48	6.06	7.00	5.60
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.70	35.49	350.48	6.06	7.00	5.60
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.70	35.49	350.48	6.06	7.00	5.60
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.70	35.49	350.48	6.06	7.00	5.60
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.70	35.49	350.48	6.06	7.00	5.60
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.70	35.49	350.48	6.06	7.00	5.60
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.70	35.49	350.48	6.06	7.00	5.60

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-506. Max Daily Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	106.61	11.96	14.45	11.56
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.01	18.67	106.61	11.96	14.45	11.56
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.53	22.03	116.73	0.53	2.99	2.40

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-507. Max Daily Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	86.88	15.62	11.15	8.92
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.78	13.53	86.88	15.62	11.15	8.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.99	15.94	94.15	0.70	2.30	1.84

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-508. Max Daily Emissions from OGV Main Engine - Alternative 3 with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	48.55	6.20	6.50	5.20
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.41	8.29	48.55	6.20	6.50	5.20
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.59	9.45	52.19	0.30	1.31	1.05

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) Assumes turning occurs during arrivals only.

Table 1.3-509 Max 1-Hour Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.33	25.87	696.10	429.94	61.42	49.14
Containerships 5,000 TEU	48.27	21.79	624.12	362.06	51.72	41.38
Containerships 4,000 TEU	31.93	14.41	387.72	239.47	34.21	27.37
Containerships 3,000 TEU	18.83	8.56	206.99	124.71	18.59	14.88
Containerships 1,000 TEU	10.08	4.55	122.42	75.61	10.80	8.64
Maximum	57.33	25.87	696.10	429.94	61.42	49.14
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	57.35	25.88	654.62	17.21	10.45	8.36
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	43.02	22.64	295.35	6.17	5.43	4.34
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	43.02	22.64	295.35	6.17	5.43	4.34
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	43.02	22.64	295.35	6.17	5.43	4.34
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	43.02	22.64	295.35	6.17	5.43	4.34
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	43.02	22.64	295.35	6.17	5.43	4.34
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	43.02	22.64	295.35	6.17	5.43	4.34
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	43.02	22.64	295.35	6.17	5.43	4.34
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	43.02	22.64	295.35	6.17	5.43	4.34

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Main engines in study years 2012-2027 use 0.1% sulfur fuel.
 (3) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (4) Max 1-hour emissions assume the ship does not comply with the VSRP at 40nm.

Table 1.3-510 Max 1-Hour Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	246.90	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	18.66	9.04	146.79	3.39	2.55	2.04
Containerships 1,000 TEU	5.55	2.51	61.14	1.59	0.98	0.79
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.
 (4) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009 .

Table 1.3-511 Max 1-Hour Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.65	15.17	167.62	68.05	17.51	14.01
Containerships 5,000 TEU	23.47	13.37	157.22	59.95	15.42	12.34
Containerships 4,000 TEU	18.71	10.20	124.05	53.91	12.58	10.06
Containerships 3,000 TEU	13.61	7.12	96.02	44.44	9.45	7.56
Containerships 1,000 TEU	3.86	1.79	37.03	20.44	3.30	2.64
Maximum	26.65	15.17	167.62	68.05	17.51	14.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-512 Max 1-Hour Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	106.61	11.96	14.45	11.56
Containerships 5,000 TEU	15.87	16.45	99.99	10.54	12.73	10.18
Containerships 4,000 TEU	12.64	12.36	72.70	9.48	9.71	7.77
Containerships 3,000 TEU	9.18	8.45	51.55	7.81	6.77	5.42
Containerships 1,000 TEU	2.58	1.89	14.12	3.59	1.70	1.36
Maximum	18.01	18.67	106.61	11.96	14.45	11.56
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-513 Max 1-Hour Emissions from OGV Main Engine - Alternative 3 with Mitigation
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	86.88	15.62	11.15	8.92
Containerships 5,000 TEU	13.91	11.92	81.49	13.76	9.82	7.86
Containerships 4,000 TEU	11.08	8.97	60.41	12.38	7.59	6.08
Containerships 3,000 TEU	8.05	6.15	43.80	10.20	5.38	4.30
Containerships 1,000 TEU	2.27	1.40	13.28	4.69	1.46	1.17
Maximum	15.78	13.53	86.88	15.62	11.15	8.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-514 Max 1-Hour Emissions from OGV Main Engine - Alternative 3 with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	48.55	6.20	6.50	5.20
Containerships 5,000 TEU	7.41	7.30	45.54	5.46	5.73	4.58
Containerships 4,000 TEU	5.90	5.81	34.05	4.35	4.56	3.65
Containerships 3,000 TEU	4.28	4.22	24.72	3.16	3.31	2.65
Containerships 1,000 TEU	1.20	1.19	6.94	0.89	0.93	0.74
Maximum	8.41	8.29	48.55	6.20	6.50	5.20
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-515. Annual Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	1.00	2.00
Containerships 6,000 TEU	0.01	0.00	0.11	0.11	0.01	0.01
Containerships 5,000 TEU	0.63	0.24	8.40	7.03	0.86	0.69
Containerships 4,000 TEU	0.30	0.11	3.52	3.33	0.41	0.32
Containerships 3,000 TEU	0.02	0.01	0.20	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Subtotal	0.96	0.37	12.27	10.69	2.30	3.04
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.05	0.40	11.69	0.47	0.24	0.20
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.13	3.68	0.15	0.08	0.06
Containerships 6,000 TEU	0.73	0.28	8.07	0.32	0.17	0.13
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.50	0.57	16.67	0.67	0.35	0.28
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.13	3.68	0.15	0.08	0.06
Containerships 6,000 TEU	1.09	0.42	12.10	0.49	0.25	0.20
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.86	0.71	20.70	0.83	0.43	0.35
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.13	3.68	0.15	0.08	0.06
Containerships 6,000 TEU	1.45	0.56	16.13	0.65	0.34	0.27
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.23	0.85	24.73	1.00	0.52	0.41
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.13	3.68	0.15	0.08	0.06
Containerships 6,000 TEU	1.45	0.56	16.13	0.65	0.34	0.27
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.23	0.85	24.73	1.00	0.52	0.41

Notes: (1) Mitigation measures include VSR and low sulfur fuel.

Table 1.3-516. Annual Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.00	0.00	0.02	0.15	0.01	0.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 6,000 TEU	0.02	0.01	0.24	0.08	0.02	0.01
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.63	0.21	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.36	0.12	0.03	0.02
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.75	0.25	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 6,000 TEU	0.05	0.03	0.48	0.16	0.03	0.03
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.87	0.29	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 6,000 TEU	0.05	0.03	0.48	0.16	0.03	0.03
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.87	0.29	0.06	0.04

Notes: (1) Auxiliary boilers are assumed to operate when engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-517. Annual Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.15	0.13	0.02	0.01
Containerships 5,000 TEU	0.82	0.31	10.94	8.76	1.07	0.86
Containerships 4,000 TEU	0.35	0.13	4.15	3.76	0.46	0.37
Containerships 3,000 TEU	0.02	0.01	0.21	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.04	0.04	0.00	0.00
Subtotal	1.21	0.46	15.49	12.87	1.58	1.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.38	0.53	15.35	0.62	0.32	0.26
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.65	0.25	7.28	0.29	0.15	0.12
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.35	0.52	15.03	0.61	0.31	0.25
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.68	0.64	18.67	0.75	0.39	0.31
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	1.31	0.50	14.55	0.59	0.30	0.24
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.01	0.77	22.31	0.90	0.47	0.37
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	1.31	0.50	14.55	0.59	0.30	0.24
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.01	0.77	22.31	0.90	0.47	0.37

Notes: (1) Mitigation measures include VSR and low sulfur fuel.

Table 1.3-518. Annual Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 5,000 TEU	0.05	0.02	0.49	3.71	0.18	0.14
Containerships 4,000 TEU	0.01	0.01	0.15	1.11	0.05	0.04
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Subtotal	0.06	0.03	0.67	5.00	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.02	0.01
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.57	0.19	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.67	0.23	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.44	0.15	0.03	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.44	0.15	0.03	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.78	0.26	0.05	0.04

Auxiliary boilers are assumed not to operate in the fairway.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-519. Annual Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.07	0.06	0.01	0.01
Containerships 5,000 TEU	0.40	0.15	5.27	4.21	0.52	0.41
Containerships 4,000 TEU	0.17	0.06	1.99	1.80	0.22	0.18
Containerships 3,000 TEU	0.01	0.00	0.10	0.09	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Subtotal	0.58	0.22	7.44	6.18	0.76	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.66	0.25	7.33	0.30	0.15	0.12
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.31	0.12	3.48	0.14	0.07	0.06
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.65	0.25	7.19	0.29	0.15	0.12
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.80	0.31	8.92	0.36	0.19	0.15
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.63	0.24	6.96	0.28	0.15	0.12
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.96	0.37	10.66	0.43	0.22	0.18
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.63	0.24	6.96	0.28	0.15	0.12
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.96	0.37	10.66	0.43	0.22	0.18

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-520. Annual Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 5,000 TEU	0.02	0.01	0.25	1.85	0.09	0.07
Containerships 4,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 3,000 TEU	0.00	0.00	0.01	0.07	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.03	0.02	0.33	2.49	0.12	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.28	0.09	0.02	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.02	0.33	0.11	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.04	0.02	0.39	0.13	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.04	0.02	0.39	0.13	0.03	0.02

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-521. Annual Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.13	0.05	1.80	1.44	0.18	0.14
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.20	0.08	2.54	2.11	0.26	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.23	0.09	2.50	0.10	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.11	0.04	1.19	0.05	0.02	0.02
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.22	0.08	2.45	0.10	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.27	0.10	3.04	0.12	0.06	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.33	0.13	3.64	0.15	0.08	0.06
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.33	0.13	3.64	0.15	0.08	0.06

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-522. Annual Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.08	0.63	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.03	0.19	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.01	0.11	0.85	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-523. Annual Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.12	0.05	1.57	1.26	0.15	0.12
Containerships 4,000 TEU	0.05	0.02	0.59	0.54	0.07	0.05
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.17	0.07	2.22	1.85	0.23	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.20	0.08	2.19	0.09	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.09	0.04	1.04	0.04	0.02	0.02
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.07	2.14	0.09	0.04	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.24	0.09	2.66	0.11	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.19	0.07	2.08	0.08	0.04	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.29	0.11	3.18	0.13	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.19	0.07	2.08	0.08	0.04	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.29	0.11	3.18	0.13	0.07	0.05

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-524. Annual Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.10	0.74	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.12	0.04	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.12	0.04	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-525. Annual Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.03	0.02	0.00	0.00
Containerships 5,000 TEU	0.17	0.07	2.31	1.85	0.23	0.18
Containerships 4,000 TEU	0.05	0.02	0.57	0.51	0.06	0.05
Containerships 3,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.23	0.09	2.96	2.44	0.30	0.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.24	0.09	2.65	0.11	0.06	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.11	0.04	1.23	0.05	0.03	0.02
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.23	0.09	2.60	0.10	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.29	0.11	3.22	0.13	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.22	0.09	2.47	0.10	0.05	0.04
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.35	0.13	3.84	0.15	0.08	0.06
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.22	0.09	2.47	0.10	0.05	0.04
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.35	0.13	3.84	0.15	0.08	0.06

Notes: (1) Mitigation measures include low sulfur fuel.
Turning occurs during only one trip segment (arrival or departure).

Table 1.3-526. Annual Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.06	0.44	0.02	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.12	0.01	0.00
Containerships 3,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.08	0.58	0.03	0.02
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.07	0.02	0.01	0.00
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00

Notes: (1) Mitigation measures include low sulfur fuel.
Turning occurs during only one trip segment (arrival or departure).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-527. Annual Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 5,000 TEU	0.37	0.14	4.94	3.96	0.49	0.39
Containerships 4,000 TEU	0.10	0.04	1.22	1.10	0.14	0.11
Containerships 3,000 TEU	0.01	0.00	0.11	0.10	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Subtotal	0.49	0.19	6.34	5.22	0.64	0.51
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.51	0.20	5.69	0.23	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.24	0.09	2.65	0.11	0.06	0.04
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.50	0.19	5.57	0.22	0.12	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.62	0.24	6.90	0.28	0.14	0.12
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.48	0.18	5.29	0.21	0.11	0.09
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.74	0.28	8.22	0.33	0.17	0.14
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.48	0.18	5.29	0.21	0.11	0.09
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.74	0.28	8.22	0.33	0.17	0.14

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-528. Annual Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.01	0.12	0.93	0.05	0.03
Containerships 4,000 TEU	0.00	0.00	0.04	0.27	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.02	0.01	0.17	1.24	0.06	0.05
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.06	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.06	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-529. Annual Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.12	0.05	1.47	1.33	0.16	0.13
Containerships 5,000 TEU	10.03	3.84	133.62	106.93	13.12	10.50
Containerships 4,000 TEU	3.71	1.42	43.68	39.52	4.85	3.88
Containerships 3,000 TEU	0.29	0.11	3.44	3.11	0.38	0.31
Containerships 1,000 TEU	0.02	0.01	0.19	0.17	0.02	0.02
Subtotal	14.17	5.43	182.39	151.06	18.54	14.83
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.09	6.93	200.98	8.09	4.19	3.36
Containerships 5,000 TEU	3.91	1.50	43.45	1.75	0.91	0.73
Containerships 4,000 TEU	2.09	0.80	23.23	0.94	0.48	0.39
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.09	9.23	267.65	10.78	5.59	4.47
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.22	1.23	35.77	1.44	0.75	0.60
Containerships 6,000 TEU	5.48	2.10	60.85	2.45	1.27	1.02
Containerships 5,000 TEU	1.78	0.68	19.75	0.80	0.41	0.33
Containerships 4,000 TEU	0.95	0.36	10.57	0.43	0.22	0.18
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.43	4.38	126.94	5.11	2.65	2.12
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.17	0.45	12.95	0.52	0.27	0.22
Containerships 6,000 TEU	2.98	1.14	33.10	1.33	0.69	0.55
Containerships 5,000 TEU	0.65	0.25	7.17	0.29	0.15	0.12
Containerships 4,000 TEU	0.35	0.13	3.84	0.15	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.14	1.97	57.06	2.30	1.19	0.95
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.88	0.34	9.82	0.40	0.20	0.16
Containerships 6,000 TEU	3.03	1.16	33.65	1.35	0.70	0.56
Containerships 5,000 TEU	0.49	0.19	5.48	0.22	0.11	0.09
Containerships 4,000 TEU	0.27	0.10	2.95	0.12	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.67	1.79	51.90	2.09	1.08	0.87
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.23	0.09	2.53	0.10	0.05	0.04
Containerships 6,000 TEU	0.78	0.30	8.66	0.35	0.18	0.14
Containerships 5,000 TEU	0.13	0.05	1.41	0.06	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.76	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.20	0.46	13.36	0.54	0.28	0.22

Notes: (1) Mitigation measures include AMP and low sulfur fuel (for non-AMP ships).

Table 1.3-530. Annual Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.09	0.66	0.03	0.02
Containerships 5,000 TEU	1.07	0.56	11.16	83.84	4.09	3.07
Containerships 4,000 TEU	0.26	0.14	2.69	20.22	0.99	0.74
Containerships 3,000 TEU	0.05	0.03	0.50	3.74	0.18	0.14
Containerships 1,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Subtotal	1.38	0.73	14.45	108.62	5.30	3.97
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.21	0.64	11.98	4.01	0.83	0.62
Containerships 5,000 TEU	0.42	0.22	4.10	1.37	0.28	0.21
Containerships 4,000 TEU	0.14	0.08	1.43	0.48	0.10	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.77	0.93	17.51	5.86	1.21	0.90
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.48	0.25	4.74	1.59	0.33	0.24
Containerships 6,000 TEU	0.73	0.39	7.25	2.43	0.50	0.37
Containerships 5,000 TEU	0.38	0.20	3.73	1.25	0.26	0.19
Containerships 4,000 TEU	0.13	0.07	1.30	0.44	0.09	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.73	0.91	17.03	5.69	1.17	0.88
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.43	0.23	4.29	1.43	0.30	0.22
Containerships 6,000 TEU	1.00	0.53	9.86	3.30	0.68	0.51
Containerships 5,000 TEU	0.34	0.18	3.38	1.13	0.23	0.17
Containerships 4,000 TEU	0.12	0.06	1.18	0.40	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.90	1.00	18.72	6.26	1.29	0.97
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.17	3.25	1.09	0.22	0.17
Containerships 6,000 TEU	1.02	0.53	10.03	3.35	0.69	0.52
Containerships 5,000 TEU	0.26	0.14	2.59	0.87	0.18	0.13
Containerships 4,000 TEU	0.09	0.05	0.91	0.30	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.70	0.90	16.78	5.61	1.16	0.87
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.34	0.18	3.35	1.12	0.23	0.17
Containerships 6,000 TEU	1.05	0.55	10.33	3.45	0.71	0.53
Containerships 5,000 TEU	0.27	0.14	2.66	0.89	0.18	0.14
Containerships 4,000 TEU	0.09	0.05	0.94	0.31	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.75	0.92	17.28	5.78	1.19	0.89

Notes: (1) Mitigation measures include low sulfur fuel.

(2) Boilers are assumed to operate during hotelling regardless of whether the ship uses AMP.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-531. Annual Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.15	0.06	2.00	1.60	0.20	0.16
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.04	0.03	0.00	0.00
Subtotal	0.21	0.08	2.71	2.24	0.27	0.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.15	0.06	1.63	0.07	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.49	0.02	0.01	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.07	1.94	0.08	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.20	0.08	2.19	0.09	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.09	0.03	0.99	0.04	0.02	0.02
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.22	0.08	2.44	0.10	0.05	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.09	0.03	0.99	0.04	0.02	0.02
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.22	0.08	2.44	0.10	0.05	0.04

Notes: (1) Mitigation measures include low sulfur fuel.
(2) AMP mitigation would not apply during anchoring.

Table 1.3-532. Annual Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.02	0.01	0.16	1.24	0.06	0.05
Containerships 4,000 TEU	0.00	0.00	0.04	0.31	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Subtotal	0.02	0.01	0.21	1.57	0.08	0.06
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.15	0.05	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.
(2) AMP mitigation would not apply during anchoring.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-533. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.44	3.61	111.54	105.53	12.87	10.30
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.44	3.61	111.54	105.53	12.87	10.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.44	3.62	104.89	4.22	2.19	1.75
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.44	3.62	104.89	4.22	2.19	1.75
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.75	4.88	141.66	5.70	2.96	2.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.75	4.88	141.66	5.70	2.96	2.36
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.75	4.88	141.66	5.70	2.96	2.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.75	4.88	141.66	5.70	2.96	2.36
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.75	4.88	141.66	5.70	2.96	2.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.75	4.88	141.66	5.70	2.96	2.36
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.75	4.88	141.66	5.70	2.96	2.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.75	4.88	141.66	5.70	2.96	2.36

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and VSR at 40nm.

Table 1.3-534. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.64	0.34	6.29	2.10	0.43	0.32
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.64	0.34	6.29	2.10	0.43	0.32
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.64	0.34	6.29	2.10	0.43	0.32
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.64	0.34	6.29	2.10	0.43	0.32
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.64	0.34	6.29	2.10	0.43	0.32
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.64	0.34	6.29	2.10	0.43	0.32
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.64	0.34	6.29	2.10	0.43	0.32
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.64	0.34	6.29	2.10	0.43	0.32

Notes: (1) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-535. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.51	4.79	147.42	133.39	16.37	13.10
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.51	4.79	147.42	133.39	16.37	13.10
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.59	4.82	139.92	5.63	2.92	2.34
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.59	4.82	139.92	5.63	2.92	2.34
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	4.40	127.76	5.14	2.67	2.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.50	4.40	127.76	5.14	2.67	2.13
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	4.40	127.76	5.14	2.67	2.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.50	4.40	127.76	5.14	2.67	2.13
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	4.40	127.76	5.14	2.67	2.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.50	4.40	127.76	5.14	2.67	2.13
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	4.40	127.76	5.14	2.67	2.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.50	4.40	127.76	5.14	2.67	2.13

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-536. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.43	33.27	1.62	1.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.43	33.27	1.62	1.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.
(4) All study years are 95% compliant with VSR for the peak day.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-537. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.02	2.31	70.97	64.22	7.88	6.30
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.02	2.31	70.97	64.22	7.88	6.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.02	2.31	66.89	2.69	1.40	1.12
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.02	2.31	66.89	2.69	1.40	1.12
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.51	2.11	61.19	2.46	1.28	1.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.51	2.11	61.19	2.46	1.28	1.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.51	2.11	61.19	2.46	1.28	1.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.51	2.11	61.19	2.46	1.28	1.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.51	2.11	61.19	2.46	1.28	1.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.51	2.11	61.19	2.46	1.28	1.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.51	2.11	61.19	2.46	1.28	1.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.51	2.11	61.19	2.46	1.28	1.02

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-538. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.21	16.58	0.81	0.61
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.21	16.58	0.81	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-539. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.72	20.87	0.84	0.44	0.35
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.72	20.87	0.84	0.44	0.35
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.72	20.87	0.84	0.44	0.35
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.72	20.87	0.84	0.44	0.35

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-540. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.75	5.65	0.28	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-541. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.64	0.63	18.26	0.74	0.38	0.30
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.64	0.63	18.26	0.74	0.38	0.30
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.64	0.63	18.26	0.74	0.38	0.30
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.64	0.63	18.26	0.74	0.38	0.30

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-542. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.66	4.95	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-543. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.14	0.82	25.19	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.96	0.75	21.73	0.87	0.45	0.36
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.96	0.75	21.73	0.87	0.45	0.36
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.96	0.75	21.73	0.87	0.45	0.36
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.96	0.75	21.73	0.87	0.45	0.36

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-544. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.54	4.02	0.20	0.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-545. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation Docking

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.58	1.75	53.98	48.84	5.99	4.80
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.58	1.75	53.98	48.84	5.99	4.80
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.58	1.75	50.89	2.05	1.06	0.85
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.58	1.75	50.89	2.05	1.06	0.85
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.19	1.60	46.56	1.87	0.97	0.78
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.19	1.60	46.56	1.87	0.97	0.78
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.19	1.60	46.56	1.87	0.97	0.78
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.19	1.60	46.56	1.87	0.97	0.78
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.19	1.60	46.56	1.87	0.97	0.78
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.19	1.60	46.56	1.87	0.97	0.78
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.19	1.60	46.56	1.87	0.97	0.78
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.19	1.60	46.56	1.87	0.97	0.78

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-546. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation Docking

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.15	8.62	0.42	0.32
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.15	8.62	0.42	0.32
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-547. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Hotelling

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.11	80.07	2,463.84	2,229.46	273.60	218.88
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.11	80.07	2,463.84	2,229.46	273.60	218.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.05	80.05	2,322.34	93.50	48.46	38.77
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.05	80.05	2,322.34	93.50	48.46	38.77
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	82.66	31.65	918.31	36.97	19.16	15.33
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	82.66	31.65	918.31	36.97	19.16	15.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	33.07	12.66	367.32	14.79	7.67	6.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	33.07	12.66	367.32	14.79	7.67	6.13
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	33.07	12.66	367.32	14.79	7.67	6.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	33.07	12.66	367.32	14.79	7.67	6.13
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.27	3.17	91.83	3.70	1.92	1.53
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.27	3.17	91.83	3.70	1.92	1.53

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (95%).

Table 1.3-548. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Hotelling

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.03	7.39	146.85	1,103.49	53.84	40.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.03	7.39	146.85	1,103.49	53.84	40.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.02	7.38	138.42	46.28	9.54	7.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.02	7.38	138.42	46.28	9.54	7.15
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.33	6.49	121.71	40.69	8.39	6.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.33	6.49	121.71	40.69	8.39	6.29
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.33	6.49	121.71	40.69	8.39	6.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.33	6.49	121.71	40.69	8.39	6.29
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.33	6.49	121.71	40.69	8.39	6.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.33	6.49	121.71	40.69	8.39	6.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.33	6.49	121.71	40.69	8.39	6.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.33	6.49	121.71	40.69	8.39	6.29

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-549. Max Daily Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation Anchoring

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Peak day ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

Table 1.3-550. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation Anchoring

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Peak day ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-551 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.55	45.94	5.60	4.48
Containerships 5,000 TEU	3.05	1.17	40.70	34.06	4.15	3.32
Containerships 4,000 TEU	3.91	1.50	46.16	43.67	5.33	4.26
Containerships 3,000 TEU	1.62	0.62	19.13	18.10	2.21	1.77
Containerships 1,000 TEU	1.07	0.41	12.70	12.01	1.46	1.17
Maximum	4.11	1.57	48.55	45.94	5.60	4.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Study years 2012-2027 assume worst case container vessel auxiliary engines use 0.1% sulfur fuel.
(3) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-552 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.17	0.09	1.82	14.32	0.69	0.52
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.82	14.32	0.69	0.52
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(4) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-553 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.40	43.80	5.38	4.30
Containerships 5,000 TEU	3.05	1.17	40.58	32.47	3.98	3.19
Containerships 4,000 TEU	3.91	1.50	46.02	41.64	5.11	4.09
Containerships 3,000 TEU	1.62	0.62	19.07	17.26	2.12	1.69
Containerships 1,000 TEU	1.07	0.41	12.66	11.45	1.41	1.12
Maximum	4.11	1.57	48.40	43.80	5.38	4.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.
 (3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

Table 1.3-554 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.43	10.74	0.52	0.39
Containerships 5,000 TEU	0.17	0.09	1.80	13.54	0.66	0.50
Containerships 4,000 TEU	0.15	0.08	1.61	12.11	0.59	0.44
Containerships 3,000 TEU	0.17	0.09	1.82	13.65	0.67	0.50
Containerships 1,000 TEU	0.02	0.01	0.25	1.91	0.09	0.07
Maximum	0.17	0.09	1.82	13.65	0.67	0.50
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Assumes worst case auxiliary boiler would use residual fuel with 0.1% sulfur.
 (3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-555 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	35.48	32.11	3.94	3.15
Containerships 5,000 TEU	2.23	0.85	29.75	23.80	2.92	2.34
Containerships 4,000 TEU	2.86	1.10	33.74	30.53	3.75	3.00
Containerships 3,000 TEU	1.19	0.45	13.98	12.65	1.55	1.24
Containerships 1,000 TEU	0.79	0.30	9.28	8.40	1.03	0.82
Maximum	3.01	1.15	35.48	32.11	3.94	3.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-556 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.10	8.29	0.40	0.30
Containerships 5,000 TEU	0.13	0.07	1.39	10.45	0.51	0.38
Containerships 4,000 TEU	0.12	0.06	1.24	9.34	0.46	0.34
Containerships 3,000 TEU	0.13	0.07	1.33	10.01	0.49	0.37
Containerships 1,000 TEU	0.02	0.01	0.20	1.47	0.07	0.05
Maximum	0.13	0.07	1.39	10.45	0.51	0.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-557 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	1.52	0.58	20.29	16.24	1.99	1.59
Containerships 4,000 TEU	1.95	0.75	23.01	20.82	2.56	2.04
Containerships 3,000 TEU	0.81	0.31	9.54	8.63	1.06	0.85
Containerships 1,000 TEU	0.54	0.21	6.33	5.73	0.70	0.56
Maximum	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-558 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	0.09	0.05	0.95	7.13	0.35	0.26
Containerships 4,000 TEU	0.08	0.04	0.85	6.37	0.31	0.23
Containerships 3,000 TEU	0.09	0.05	0.91	6.83	0.33	0.25
Containerships 1,000 TEU	0.01	0.01	0.13	1.01	0.05	0.04
Maximum	0.09	0.05	0.95	7.13	0.35	0.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-559 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	1.33	0.51	17.75	14.21	1.74	1.39
Containerships 4,000 TEU	1.71	0.65	20.13	18.22	2.24	1.79
Containerships 3,000 TEU	0.71	0.27	8.34	7.55	0.93	0.74
Containerships 1,000 TEU	0.47	0.18	5.54	5.01	0.61	0.49
Maximum	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33

Notes: (1) For the baseline, assume the ship does not comply with VSR, and auxiliary engines use 0.2% S MGO to April 2008, 2.7% S IFO for May/June 2008, and 5% MGO and 95% IFO July 2008 to March 2009.
(2) For 2012-2027, max daily emissions assume auxiliary engines use fuel with 0.1% sulfur.

Table 1.3-560 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	0.08	0.04	0.83	6.24	0.30	0.23
Containerships 4,000 TEU	0.07	0.04	0.74	5.58	0.27	0.20
Containerships 3,000 TEU	0.08	0.04	0.79	5.97	0.29	0.22
Containerships 1,000 TEU	0.01	0.01	0.12	0.88	0.04	0.03
Maximum	0.08	0.04	0.83	6.24	0.30	0.23
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-561 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	1.96	0.75	26.06	20.86	2.56	2.05
Containerships 4,000 TEU	1.64	0.63	19.26	17.43	2.14	1.71
Containerships 3,000 TEU	1.29	0.50	15.25	13.80	1.69	1.36
Containerships 1,000 TEU	0.59	0.23	7.01	6.34	0.78	0.62
Maximum	2.14	0.82	26.06	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-562 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	0.06	0.03	0.65	4.92	0.24	0.18
Containerships 4,000 TEU	0.05	0.03	0.56	4.24	0.21	0.15
Containerships 3,000 TEU	0.05	0.03	0.55	4.15	0.20	0.15
Containerships 1,000 TEU	0.02	0.01	0.25	1.88	0.09	0.07
Maximum	0.06	0.03	0.65	4.92	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-563 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation Docking

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	26.99	24.42	3.00	2.40
Containerships 5,000 TEU	2.10	0.80	27.93	22.35	2.74	2.19
Containerships 4,000 TEU	1.75	0.67	20.64	18.68	2.29	1.83
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.64	0.24	7.51	6.79	0.83	0.67
Maximum	2.29	0.88	27.93	24.42	3.00	2.40
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-564 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation Docking

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.57	4.31	0.21	0.16
Containerships 5,000 TEU	0.07	0.04	0.70	5.27	0.26	0.19
Containerships 4,000 TEU	0.06	0.03	0.60	4.54	0.22	0.17
Containerships 3,000 TEU	0.06	0.03	0.59	4.45	0.22	0.16
Containerships 1,000 TEU	0.03	0.01	0.27	2.01	0.10	0.07
Maximum	0.07	0.04	0.70	5.27	0.26	0.19
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-565 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 3 with Mitigation
Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	38.49	34.83	4.27	3.42
Containerships 5,000 TEU	2.52	0.97	33.59	26.88	3.30	2.64
Containerships 4,000 TEU	3.33	1.27	39.20	35.47	4.35	3.48
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.82	0.31	9.69	8.77	1.08	0.86
Maximum	3.33	1.27	39.20	35.47	4.35	3.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.
(3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (95%).

Table 1.3-566 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 3 with Mitigation
Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.29	17.24	0.84	0.63
Containerships 5,000 TEU	0.27	0.14	2.80	21.08	1.03	0.77
Containerships 4,000 TEU	0.23	0.12	2.42	18.15	0.89	0.66
Containerships 3,000 TEU	0.23	0.12	2.37	17.79	0.87	0.65
Containerships 1,000 TEU	0.10	0.05	1.07	8.05	0.39	0.29
Maximum	0.27	0.14	2.80	21.08	1.03	0.77
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-567. Annual Emissions from Tugboat Main Engine - Alternative 3 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Containerships 5,000 TEU	1.64	0.39	5.86	0.00	0.25	0.23
Containerships 4,000 TEU	0.55	0.13	1.95	0.00	0.08	0.08
Containerships 3,000 TEU	0.06	0.02	0.23	0.00	0.01	0.01
Containerships 1,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Subtotal	2.3	0.5	8.2	0.0	0.3	0.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.67	0.38	6.56	0.00	0.26	0.24
Containerships 5,000 TEU	0.56	0.13	2.19	0.00	0.09	0.08
Containerships 4,000 TEU	0.28	0.06	1.09	0.00	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	9.8	0.0	0.4	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 6,000 TEU	1.18	0.22	1.38	0.00	0.03	0.03
Containerships 5,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 4,000 TEU	0.30	0.05	0.34	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.7	0.5	3.1	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 6,000 TEU	1.88	0.36	2.17	0.00	0.05	0.04
Containerships 5,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 4,000 TEU	0.31	0.06	0.36	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.4	0.7	4.0	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 6,000 TEU	2.64	0.53	3.02	0.00	0.07	0.07
Containerships 5,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 4,000 TEU	0.33	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.3	0.9	4.9	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 6,000 TEU	2.70	0.54	3.07	0.00	0.08	0.07
Containerships 5,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 4,000 TEU	0.34	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.4	0.9	5.0	0.0	0.1	0.1

Table 1.3-568. Annual Emissions from Tugboat Aux. Engines - Alternative 3 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.22	0.05	0.43	0.00	0.02	0.02
Containerships 4,000 TEU	0.07	0.02	0.14	0.00	0.01	0.01
Containerships 3,000 TEU	0.01	0.00	0.02	0.00	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.3	0.1	0.6	0.0	0.0	0.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.15	0.03	0.42	0.00	0.02	0.01
Containerships 5,000 TEU	0.05	0.01	0.14	0.00	0.01	0.00
Containerships 4,000 TEU	0.03	0.01	0.07	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	0.6	0.0	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.12	0.03	0.12	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	0.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.19	0.04	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.3	0.0	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.27	0.06	0.25	0.00	0.01	0.01
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.27	0.06	0.26	0.00	0.01	0.01
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-569. Max Daily Emissions from Tugboat Main Engine - Alternative 3

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.53	4.38	66.25	0.03	2.83	2.60
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.5	4.4	66.2	0.0	2.8	2.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	21.42	4.89	84.13	0.03	3.31	3.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.4	4.9	84.1	0.0	3.3	3.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	22.75	4.22	26.52	0.03	0.54	0.50
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	22.7	4.2	26.5	0.0	0.5	0.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	24.07	4.64	27.76	0.03	0.62	0.57
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.1	4.6	27.8	0.0	0.6	0.6
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.39	5.07	28.99	0.03	0.70	0.65
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.4	5.1	29.0	0.0	0.7	0.6
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.92	5.24	29.49	0.03	0.73	0.68
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.9	5.2	29.5	0.0	0.7	0.7

Table 1.3-570. Max Daily Emissions from Tugboat Auxiliary Engines - Alternative 3

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.49	0.52	4.85	0.00	0.23	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.5	4.8	0.0	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.93	0.43	5.33	0.00	0.20	0.19
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.4	5.3	0.0	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.39	0.52	2.31	0.00	0.05	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.4	0.5	2.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.47	0.55	2.38	0.00	0.05	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	2.4	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.56	0.58	2.45	0.00	0.06	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	0.6	2.4	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.59	0.60	2.47	0.00	0.06	0.06
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	0.6	2.5	0.0	0.1	0.1

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-571 Max 1-Hr Emissions from Tugboat Main Engine - Alternative 3 with Mitigation

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 5,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 4,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 3,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 1,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Maximum	8.22	1.94	29.40	0.01	1.25	1.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 5,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 4,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.50	2.17	37.34	0.01	1.47	1.35
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 6,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 5,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 4,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.10	1.87	11.77	0.01	0.24	0.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 6,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 5,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 4,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.68	2.06	12.32	0.01	0.28	0.25
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 6,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 5,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 4,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.27	2.25	12.87	0.01	0.31	0.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 6,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 5,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 4,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.50	2.32	13.09	0.01	0.33	0.30

Notes: (1) Emissions assume use of two tugboats for 1 hour.

Table 1.3-572 Max 1-Hour Emissions from Tugboat Aux. Engines - Alternative 3 with Mitigation

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 5,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 4,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 3,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 1,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Maximum	1.11	0.23	2.15	0.00	0.10	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 5,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 4,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.86	0.19	2.37	0.00	0.09	0.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 6,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 5,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 4,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.06	0.23	1.02	0.00	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 6,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 5,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 4,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.10	0.25	1.05	0.00	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 6,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 5,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 4,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.13	0.26	1.09	0.00	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 6,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 5,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 4,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.15	0.27	1.10	0.00	0.03	0.02

Notes: (1) Emissions assume use of two tugboats for 1 hour.

Table 1.3-573. Annual Emissions from AMP Electricity Consumption - Alternative 3 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.27	0.01	1.53	0.16	0.05	0.05
Containerships 6,000 TEU	0.45	0.02	2.60	0.27	0.09	0.09
Containerships 5,000 TEU	0.15	0.01	0.84	0.09	0.03	0.03
Containerships 4,000 TEU	0.08	0.00	0.45	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.0	5.4	0.6	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.38	0.02	2.21	0.23	0.08	0.08
Containerships 6,000 TEU	0.98	0.05	5.65	0.59	0.20	0.20
Containerships 5,000 TEU	0.21	0.01	1.22	0.13	0.04	0.04
Containerships 4,000 TEU	0.11	0.01	0.66	0.07	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.1	9.7	1.0	0.3	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.29	0.01	1.68	0.17	0.06	0.06
Containerships 6,000 TEU	1.00	0.05	5.75	0.60	0.20	0.20
Containerships 5,000 TEU	0.16	0.01	0.94	0.10	0.03	0.03
Containerships 4,000 TEU	0.09	0.00	0.50	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.1	8.9	0.9	0.3	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.36	0.02	2.05	0.21	0.07	0.07
Containerships 6,000 TEU	1.22	0.06	7.03	0.73	0.24	0.24
Containerships 5,000 TEU	0.20	0.01	1.14	0.12	0.04	0.04
Containerships 4,000 TEU	0.11	0.01	0.62	0.06	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.1	10.8	1.1	0.4	0.4

Note: These emissions represent regional power plant emissions associated with AMP generation.

Table 1.3-574. Max Daily Emissions from AMP Electricity Consumption - Alternative 3 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	6.8	0.3	39.2	4.1	1.4	1.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.8	0.3	39.2	4.1	1.4	1.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.9	0.5	62.7	6.5	2.2	2.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.9	0.5	62.7	6.5	2.2	2.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.9	0.5	62.7	6.5	2.2	2.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.9	0.5	62.7	6.5	2.2	2.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	13.0	0.6	74.5	7.8	2.6	2.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.0	0.6	74.5	7.8	2.6	2.6

Notes: (1) These emissions represent regional power plant emissions associated with AMP generation.

(2) Peak Day AMP usage is assumed to be equivalent to annual AMP usage.

Table 1.3-575. Summary of Annual Marine Vessel Emissions with Mitigation
 Alternative 3 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	13.7	6.1	174.8	106.4	16.0	14.0
Ships - 20nm to PA	12.8	6.4	106.1	59.2	10.1	8.1
Ships - PA	6.0	3.3	44.0	23.0	4.5	3.6
Ships - Harbor Transit	3.8	3.4	25.5	8.4	3.1	2.5
Ships - Turning & Docking	1.6	1.1	14.7	10.1	1.7	1.3
Ships - Anchoring	0.2	0.1	2.9	3.8	0.4	0.3
Ships - Hotelling	15.5	6.2	196.8	259.7	23.8	18.8
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.6	0.6	8.8	0.0	0.4	0.3
Total	56.3	27.2	573.7	470.5	59.9	48.9
Project Year 2012						
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	25.9	10.2	285.2	16.6	6.8	5.4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.7	0.6	10.5	0.0	0.4	0.4
Total	70.5	33.2	656.4	26.0	13.8	11.0
Project Year 2015						
Ships - AQMD 40nm to 20nm	15.9	8.1	116.6	3.0	2.2	1.8
Ships - 20nm to PA	14.4	7.3	105.2	2.7	2.0	1.6
Ships - PA	6.7	3.7	43.3	1.0	0.9	0.7
Ships - Harbor Transit	4.3	3.8	25.6	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	2.1	0.1	0.1	0.0
Ships - Hotelling	13.2	5.3	144.0	10.8	3.8	3.0
AMP - Hotelling	0.9	0.0	5.4	0.6	0.2	0.2
Tugboats	2.9	0.6	3.4	0.0	0.1	0.1
Total	60.2	30.1	459.0	19.0	10.1	8.1
Project Year 2020						
Ships - AQMD 40nm to 20nm	19.6	9.9	143.6	3.7	2.7	2.2
Ships - 20nm to PA	17.7	8.9	129.5	3.3	2.4	2.0
Ships - PA	8.3	4.6	53.3	1.3	1.1	0.9
Ships - Harbor Transit	5.3	4.7	31.4	0.5	0.8	0.6
Ships - Turning & Docking	2.1	1.5	16.7	0.5	0.4	0.3
Ships - Anchoring	0.2	0.1	2.3	0.1	0.1	0.0
Ships - Hotelling	7.0	3.0	75.8	8.6	2.5	1.9
AMP - Hotelling	1.7	0.1	9.7	1.0	0.3	0.3
Tugboats	3.8	0.7	4.3	0.0	0.1	0.1
Total	65.6	33.5	466.7	18.9	10.4	8.3
Project Year 2025						
Ships - AQMD 40nm to 20nm	23.2	11.8	170.5	4.3	3.2	2.6
Ships - 20nm to PA	21.0	10.6	153.8	3.9	2.9	2.3
Ships - PA	9.8	5.4	63.3	1.5	1.3	1.0
Ships - Harbor Transit	6.2	5.6	37.3	0.5	0.9	0.7
Ships - Turning & Docking	2.5	1.8	19.9	0.6	0.5	0.4
Ships - Anchoring	0.2	0.1	2.6	0.2	0.1	0.0
Ships - Hotelling	6.4	2.7	68.7	7.7	2.2	1.7
AMP - Hotelling	1.5	0.1	8.9	0.9	0.3	0.3
Tugboats	4.7	1.0	5.3	0.0	0.1	0.1
Total	75.7	39.0	530.3	19.7	11.5	9.2
Project Year 2027						
Ships - AQMD 40nm to 20nm	23.2	11.8	170.5	4.3	3.2	2.6
Ships - 20nm to PA	21.0	10.6	153.8	3.9	2.9	2.3
Ships - PA	9.8	5.4	63.3	1.5	1.3	1.0
Ships - Harbor Transit	6.2	5.6	37.3	0.5	0.9	0.7
Ships - Turning & Docking	2.5	1.8	19.9	0.6	0.5	0.4
Ships - Anchoring	0.2	0.1	2.6	0.2	0.1	0.0
Ships - Hotelling	3.0	1.4	30.6	6.3	1.5	1.1
AMP - Hotelling	1.9	0.1	10.8	1.1	0.4	0.4
Tugboats	4.8	1.0	5.4	0.0	0.1	0.1
Total	72.7	37.7	494.3	18.5	10.8	8.7

AMP Hotelling emissions include the emissions generated by regional power plants to generate the electricity consumed by the ships while hotelling.

Table 1.3-576. Summary of Maximum Daily Marine Vessel Emissions with Mitigation
 Alternative 3 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	95	38	1,040	78	28	22
AMP - Hotelling	7	0	39	4	1	1
Tugboats	25	5	29	0	1	1
Total	551	287	4,021	151	88	70
Project Year 2020						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	45	19	489	55	16	12
AMP - Hotelling	11	1	63	7	2	2
Tugboats	27	5	30	0	1	1
Total	507	269	3,495	131	77	62
Project Year 2025						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	45	19	489	55	16	12
AMP - Hotelling	11	1	63	7	2	2
Tugboats	28	6	31	0	1	1
Total	509	269	3,497	131	77	62
Project Year 2027						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	21	10	214	44	10	8
AMP - Hotelling	13	1	74	8	3	3
Tugboats	29	6	32	0	1	1
Total	486	260	3,233	121	72	58

Table 1.3-577. Summary of Average Daily Marine Vessel Emissions with Mitigation
 Alternative 3 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	75	34	958	583	87	77
Ships - 20nm to PA	70	35	581	324	55	44
Ships - PA	33	18	241	126	24	20
Ships - Harbor Transit	21	19	140	46	17	14
Ships - Turning & Docking	9	6	81	55	9	7
Ships - Anchoring	1	0	16	21	2	2
Ships - Hotelling	85	34	1,079	1,423	131	103
AMP - Hotelling	-	-	-	-	-	-
Tugboats	14	3	48	0	2	2
Total	308	149	3,144	2,578	328	268
Project Year 2012						
Ships - AQMD 40nm to 20nm	84	38	958	26	16	12
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	142	56	1,563	91	37	29
AMP - Hotelling	-	-	-	-	-	-
Tugboats	15	3	57	0	2	2
Total	386	182	3,597	142	76	60
Project Year 2015						
Ships - AQMD 40nm to 20nm	87	44	639	16	12	10
Ships - 20nm to PA	79	40	576	15	11	9
Ships - PA	37	20	237	6	5	4
Ships - Harbor Transit	23	21	140	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	11	1	0	0
Ships - Hotelling	72	29	789	59	21	16
AMP - Hotelling	5	0	30	3	1	1
Tugboats	16	3	18	0	0	0
Total	330	165	2,515	104	56	44
Project Year 2020						
Ships - AQMD 40nm to 20nm	107	54	787	20	15	12
Ships - 20nm to PA	97	49	709	18	13	11
Ships - PA	45	25	292	7	6	5
Ships - Harbor Transit	29	26	172	3	4	3
Ships - Turning & Docking	12	8	92	3	2	2
Ships - Anchoring	1	0	13	1	0	0
Ships - Hotelling	39	16	415	47	14	11
AMP - Hotelling	9	0	53	6	2	2
Tugboats	21	4	24	0	1	0
Total	360	184	2,557	104	57	45
Project Year 2025						
Ships - AQMD 40nm to 20nm	127	64	934	24	18	14
Ships - 20nm to PA	115	58	843	21	16	13
Ships - PA	54	30	347	8	7	6
Ships - Harbor Transit	34	31	205	3	5	4
Ships - Turning & Docking	14	10	109	3	3	2
Ships - Anchoring	1	1	14	1	0	0
Ships - Hotelling	35	15	376	42	12	9
AMP - Hotelling	8	0	49	5	2	2
Tugboats	26	5	29	0	1	1
Total	415	214	2,906	108	63	51
Project Year 2027						
Ships - AQMD 40nm to 20nm	127	64	934	24	18	14
Ships - 20nm to PA	115	58	843	21	16	13
Ships - PA	54	30	347	8	7	6
Ships - Harbor Transit	34	31	205	3	5	4
Ships - Turning & Docking	14	10	109	3	3	2
Ships - Anchoring	1	1	14	1	0	0
Ships - Hotelling	16	8	168	35	8	6
AMP - Hotelling	10	1	59	6	2	2
Tugboats	26	5	30	0	1	1
Total	398	207	2,709	102	59	48

Table 1.3-578. Summary of Maximum Hourly Marine Vessel Emissions with Mitigation
 Alternative 3

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	200	122	1,306	31	27	22
Project Year 2020						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	200	122	1,306	31	27	22
Project Year 2025						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	201	122	1,307	31	27	22
Project Year 2027						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	201	122	1,307	31	27	22

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-579. Annual Ship Visit Data - Alternative 4

Project Scenario/Ship Type	Annual Ship Calls	Annual Anchorage Calls (1)	Engine Year (2)	Avg Hotelling per Ship (hr)
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	2	-	2008	38.2
Containerships 5,000 TEU	177	11	1998	44.9
Containerships 4,000 TEU	59	8	2002	37.8
Containerships 3,000 TEU	7	-	2004	60.1
Containerships 1,000 TEU	2	1	2002	19.3
Total	247	20		n/a
Project Year 2012				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	-	-	2007	-
Containerships 6,000 TEU	156	16	2003	71.0
Containerships 5,000 TEU	52	5	2002	59.7
Containerships 4,000 TEU	26	3	2000	48.3
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	234	23		n/a
Project Year 2015				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	52	5	2007	94.4
Containerships 6,000 TEU	104	10	2003	63.9
Containerships 5,000 TEU	52	5	2002	53.8
Containerships 4,000 TEU	26	3	2000	43.6
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	234	23		n/a
Project Year 2020				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	52	5	2007	85.4
Containerships 6,000 TEU	156	16	2003	58.0
Containerships 5,000 TEU	52	5	2002	48.8
Containerships 4,000 TEU	26	3	2000	39.6
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	286	29		n/a
Project Year 2025				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	52	5	2007	65.7
Containerships 6,000 TEU	208	21	2003	44.8
Containerships 5,000 TEU	52	5	2002	37.8
Containerships 4,000 TEU	26	3	2000	30.9
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	338	34		n/a
Project Year 2027				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	104	10	2007	63.2
Containerships 6,000 TEU	156	16	2003	43.1
Containerships 5,000 TEU	52	5	2002	36.4
Containerships 4,000 TEU	26	3	2000	29.8
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	338	34		n/a

(1) Anchor calls in 2015-2027 are assumed to be 10 percent of total calls at berth for each study year.

(2) Source POLA 2008 EI, Table 3.25

Table 1.3-580. Peak Day Ship Visit Data - Alternative 4

Project Scenario/Ship Type	Peak Day Arrivals	Peak Day Departures	Peak Day At Berth	Peak Day Hotelling (hr)	
				Unmitigated	Mitigated (2)
Baseline					
Containerships 10,000 TEU	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-
Containerships 6,000 TEU	1	1	1	64.0	64.0
Containerships 5,000 TEU	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-
Total	1	1	1	64.0	64.0
Project Year 2012					
Containerships 10,000 TEU	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-
Containerships 6,000 TEU	1	1	1	64.0	64.0
Containerships 5,000 TEU	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-
Total	1	1	1	64.0	64.0
Project Year 2015					
Containerships 10,000 TEU	-	-	-	-	-
Containerships 9,000 TEU	1	1	1	64.2	63.6
Containerships 6,000 TEU	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-
Total	1	1	1	64.2	63.6
Project Year 2020					
Containerships 10,000 TEU	-	-	-	-	-
Containerships 9,000 TEU	1	1	1	64.2	63.6
Containerships 6,000 TEU	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-
Total	1	1	1	64.2	63.6
Project Year 2025					
Containerships 10,000 TEU	-	-	-	-	-
Containerships 9,000 TEU	1	1	1	64.2	63.6
Containerships 6,000 TEU	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-
Total	1	1	1	64.2	63.6
Project Year 2027					
Containerships 10,000 TEU	-	-	-	-	-
Containerships 9,000 TEU	1	1	1	64.2	63.6
Containerships 6,000 TEU	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-
Total	1	1	1	64.2	63.6

Notes: (1) Hotelling time equals 24 hours minus vessel transit time within the SCAB. Because the Vessel Speed Reduction (VSR) program increases transit time, the hotelling times are shorter when VSR is implemented as mitigation.

(2) For the Mitigated Project, 95% VSR is assumed out to 40nm. 95% VSR is assumed out to 20nm for the unmitigated project.

(3) Peak daily arrivals and departures provided by APL.

Table 1.3-581. OGV Main Engine Usage per One-Way Transit: Baseline

Vessel Type	Propulsion Max kW	Speed (Kts)	Load Factor	Distance (nm/trip)	Duration (hr/trip)	Energy Consumed (kW-hr/trip)
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (1)						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	18.1	0.31	20.73	1.15	21,345
Containerships 5,000 TEU	53,032	17.8	0.30	20.73	1.17	18,247
Containerships 4,000 TEU	42,216	16.1	0.25	20.73	1.29	13,370
Containerships 3,000 TEU	30,647	13.8	0.18	20.73	1.51	8,115
Containerships 1,000 TEU	8,610	15.1	0.38	20.73	1.37	4,487
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR						
Doesn't apply to the baseline						
Fairway: 20nm to Precautionary Area, Without VSR						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	18.1	0.31	18.58	1.03	19,131
Containerships 5,000 TEU	53,032	17.8	0.30	18.58	1.05	16,355
Containerships 4,000 TEU	42,216	16.1	0.25	18.58	1.16	11,984
Containerships 3,000 TEU	30,647	13.8	0.18	18.58	1.35	7,273
Containerships 1,000 TEU	8,610	15.1	0.38	18.58	1.23	4,022
Fairway: 20nm to Precautionary Area, With VSR						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	12.0	0.09	18.58	1.55	8,456
Containerships 5,000 TEU	53,032	12.0	0.09	18.58	1.55	7,449
Containerships 4,000 TEU	42,216	12.0	0.10	18.58	1.55	6,699
Containerships 3,000 TEU	30,647	12.0	0.12	18.58	1.55	5,522
Containerships 1,000 TEU	8,610	12.0	0.19	18.58	1.55	2,540
Precautionary Area						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	11.0	0.07	8.06	0.73	3,083
Containerships 5,000 TEU	53,032	11.0	0.07	8.06	0.73	2,716
Containerships 4,000 TEU	42,216	11.0	0.08	8.06	0.73	2,442
Containerships 3,000 TEU	30,647	11.0	0.09	8.06	0.73	2,014
Containerships 1,000 TEU	8,610	11.0	0.15	8.06	0.73	926
Harbor Transit Inbound						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	7.0	0.02	3.50	0.50	542
Containerships 5,000 TEU	53,032	7.0	0.02	3.50	0.50	477
Containerships 4,000 TEU	42,216	7.0	0.02	3.50	0.50	429
Containerships 3,000 TEU	30,647	7.0	0.02	3.50	0.50	354
Containerships 1,000 TEU	8,610	7.0	0.04	3.50	0.50	163
Harbor Transit Outbound						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	8.0	0.03	3.50	0.44	708
Containerships 5,000 TEU	53,032	8.0	0.03	3.50	0.44	624
Containerships 4,000 TEU	42,216	8.0	0.03	3.50	0.44	561
Containerships 3,000 TEU	30,647	8.0	0.03	3.50	0.44	462
Containerships 1,000 TEU	8,610	8.0	0.06	3.50	0.44	213
Turning						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.23	281
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.23	247
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.23	197
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.23	143
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.23	40
Docking						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.25	301
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.25	265
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.25	211
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.25	153
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.25	43

Source: POLA 2009 Emission Inventory Report.

(1) VSR = vessel speed reduction (speed reduced to 12 knots).

(2) Turning time and turning and docking load factors from 2008 POLA EI, Section 3.5.6.

(3) Harbor transit distance and turning time assumed from China Shipping EIR.

Table 1.3-582. OGV Auxiliary Engine Usage per One-Way Transit: Baseline

Vessel Type	Auxiliary kW per Vessel (1)	Hours/Transit	kW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.15	1,946
Containerships 5,000 TEU	1,256	1.17	1,464
Containerships 4,000 TEU	1,611	1.29	2,081
Containerships 3,000 TEU	667	1.51	1,005
Containerships 1,000 TEU	443	1.37	608
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR			
Doesn't apply to the baseline			
Fairway: 20nm to Precautionary Area, Without VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.03	1,744
Containerships 5,000 TEU	1,256	1.05	1,313
Containerships 4,000 TEU	1,611	1.16	1,865
Containerships 3,000 TEU	667	1.35	901
Containerships 1,000 TEU	443	1.23	545
Fairway: 20nm to Precautionary Area, With VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.55	2,623
Containerships 5,000 TEU	1,256	1.55	1,945
Containerships 4,000 TEU	1,611	1.55	2,494
Containerships 3,000 TEU	667	1.55	1,034
Containerships 1,000 TEU	443	1.55	686
Precautionary Area			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.73	1,242
Containerships 5,000 TEU	1,256	0.73	921
Containerships 4,000 TEU	1,611	0.73	1,181
Containerships 3,000 TEU	667	0.73	489
Containerships 1,000 TEU	443	0.73	325
Harbor Transit Inbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.50	847
Containerships 5,000 TEU	1,256	0.50	628
Containerships 4,000 TEU	1,611	0.50	805
Containerships 3,000 TEU	667	0.50	334
Containerships 1,000 TEU	443	0.50	222
Harbor Transit Outbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.44	741
Containerships 5,000 TEU	1,256	0.44	549
Containerships 4,000 TEU	1,611	0.44	705
Containerships 3,000 TEU	667	0.44	292
Containerships 1,000 TEU	443	0.44	194
Turning			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	3,778	0.23	882
Containerships 5,000 TEU	3,457	0.23	807
Containerships 4,000 TEU	2,889	0.23	674
Containerships 3,000 TEU	2,288	0.23	534
Containerships 1,000 TEU	1,051	0.23	245
Docking			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	3,778	0.25	945
Containerships 5,000 TEU	3,457	0.25	864
Containerships 4,000 TEU	2,889	0.25	722
Containerships 3,000 TEU	2,288	0.25	572
Containerships 1,000 TEU	1,051	0.25	263

(1) Auxiliary engine data provided by Starcrest.

Table 1.3-583. OGV Auxiliary Boiler Usage per One-Way Transit: Baseline

Vessel Type	Boiler kW	Hours/ Transit	kW-Hrs/ Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.15	-
Containerships 5,000 TEU	411	1.17	-
Containerships 4,000 TEU	367	1.29	-
Containerships 3,000 TEU	394	1.51	593
Containerships 1,000 TEU	58	1.37	-
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR (2)			
Doesn't apply to the baseline			
Fairway: 20nm to Precautionary Area, Without VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.03	-
Containerships 5,000 TEU	411	1.05	-
Containerships 4,000 TEU	367	1.16	-
Containerships 3,000 TEU	394	1.35	531
Containerships 1,000 TEU	58	1.23	-
Fairway: 20nm to Precautionary Area, With VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.55	505
Containerships 5,000 TEU	411	1.55	636
Containerships 4,000 TEU	367	1.55	569
Containerships 3,000 TEU	394	1.55	610
Containerships 1,000 TEU	58	1.55	90
Precautionary Area			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.73	239
Containerships 5,000 TEU	411	0.73	301
Containerships 4,000 TEU	367	0.73	269
Containerships 3,000 TEU	394	0.73	289
Containerships 1,000 TEU	58	0.73	43
Harbor Transit Inbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.50	163
Containerships 5,000 TEU	411	0.50	205
Containerships 4,000 TEU	367	0.50	184
Containerships 3,000 TEU	394	0.50	197
Containerships 1,000 TEU	58	0.50	29
Harbor Transit Outbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.44	143
Containerships 5,000 TEU	411	0.44	180
Containerships 4,000 TEU	367	0.44	161
Containerships 3,000 TEU	394	0.44	172
Containerships 1,000 TEU	58	0.44	25
Turning			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	0.23	116
Containerships 5,000 TEU	608	0.23	142
Containerships 4,000 TEU	523	0.23	122
Containerships 3,000 TEU	513	0.23	120
Containerships 1,000 TEU	232	0.23	54
Docking			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	0.25	124
Containerships 5,000 TEU	608	0.25	152
Containerships 4,000 TEU	523	0.25	131
Containerships 3,000 TEU	513	0.25	128
Containerships 1,000 TEU	232	0.25	58

(1) The boiler is assumed to be operated under engine loads less than 20% (Starcrest, 2009).
(2) Boilers are assumed to not have an applied load factor.

Table 1.3-584. OGV Main Engine Usage per One-Way Transit: 2012-2027

Vessel Type	Propulsion Max kW	Speed (Kts)	Load Factor	Distance (nm/trip)	Duration (hr/trip)	Energy Consumed (kW-hr/trip)
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (1)						
Containerships 10,000 TEU	84,280	19.0	0.34	20.74	1.09	30,860
Containerships 9,000 TEU	68,639	19.0	0.34	20.74	1.09	25,133
Containerships 6,000 TEU	60,199	18.1	0.31	20.74	1.15	21,354
Containerships 5,000 TEU	53,032	17.8	0.30	20.74	1.17	18,255
Containerships 4,000 TEU	42,216	16.1	0.25	20.74	1.29	13,376
Containerships 3,000 TEU	30,647	13.8	0.18	20.74	1.51	8,118
Containerships 1,000 TEU	8,610	15.1	0.38	20.74	1.37	4,489
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR						
Containerships 10,000 TEU	84,280	12.0	0.08	20.74	1.73	12,310
Containerships 9,000 TEU	68,639	12.0	0.08	20.74	1.73	10,025
Containerships 6,000 TEU	60,199	12.0	0.09	20.74	1.73	9,438
Containerships 5,000 TEU	53,032	12.0	0.09	20.74	1.73	8,315
Containerships 4,000 TEU	42,216	12.0	0.10	20.74	1.73	7,477
Containerships 3,000 TEU	30,647	12.0	0.12	20.74	1.73	6,164
Containerships 1,000 TEU	8,610	12.0	0.19	20.74	1.73	2,835
Fairway: 20nm to Precautionary Area, Without VSR						
Containerships 10,000 TEU	84,280	19.0	0.34	18.71	0.98	27,832
Containerships 9,000 TEU	68,639	19.0	0.34	18.71	0.98	22,667
Containerships 6,000 TEU	60,199	18.1	0.31	18.71	1.04	19,259
Containerships 5,000 TEU	53,032	17.8	0.30	18.71	1.05	16,464
Containerships 4,000 TEU	42,216	16.1	0.25	18.71	1.17	12,064
Containerships 3,000 TEU	30,647	13.8	0.18	18.71	1.36	7,322
Containerships 1,000 TEU	8,610	15.1	0.38	18.71	1.24	4,049
Fairway: 20nm to Precautionary Area, With VSR						
Containerships 10,000 TEU	84,280	12.0	0.08	18.71	1.56	11,102
Containerships 9,000 TEU	68,639	12.0	0.08	18.71	1.56	9,042
Containerships 6,000 TEU	60,199	12.0	0.09	18.71	1.56	8,512
Containerships 5,000 TEU	53,032	12.0	0.09	18.71	1.56	7,499
Containerships 4,000 TEU	42,216	12.0	0.10	18.71	1.56	6,744
Containerships 3,000 TEU	30,647	12.0	0.12	18.71	1.56	5,559
Containerships 1,000 TEU	8,610	12.0	0.19	18.71	1.56	2,557
Precautionary Area						
Containerships 10,000 TEU	84,280	11.0	0.07	8.06	0.73	4,020
Containerships 9,000 TEU	68,639	11.0	0.07	8.06	0.73	3,274
Containerships 6,000 TEU	60,199	11.0	0.07	8.06	0.73	3,082
Containerships 5,000 TEU	53,032	11.0	0.07	8.06	0.73	2,715
Containerships 4,000 TEU	42,216	11.0	0.08	8.06	0.73	2,442
Containerships 3,000 TEU	30,647	11.0	0.09	8.06	0.73	2,013
Containerships 1,000 TEU	8,610	11.0	0.15	8.06	0.73	926
Harbor Transit Inbound						
Containerships 10,000 TEU	84,280	7.0	0.02	3.50	0.50	707
Containerships 9,000 TEU	68,639	7.0	0.02	3.50	0.50	576
Containerships 6,000 TEU	60,199	7.0	0.02	3.50	0.50	542
Containerships 5,000 TEU	53,032	7.0	0.02	3.50	0.50	477
Containerships 4,000 TEU	42,216	7.0	0.02	3.50	0.50	429
Containerships 3,000 TEU	30,647	7.0	0.02	3.50	0.50	354
Containerships 1,000 TEU	8,610	7.0	0.04	3.50	0.50	163
Harbor Transit Outbound						
Containerships 10,000 TEU	84,280	8.0	0.03	3.50	0.44	923
Containerships 9,000 TEU	68,639	8.0	0.03	3.50	0.44	752
Containerships 6,000 TEU	60,199	8.0	0.03	3.50	0.44	708
Containerships 5,000 TEU	53,032	8.0	0.03	3.50	0.44	624
Containerships 4,000 TEU	42,216	8.0	0.03	3.50	0.44	561
Containerships 3,000 TEU	30,647	8.0	0.03	3.50	0.44	462
Containerships 1,000 TEU	8,610	8.0	0.06	3.50	0.44	213
Turning						
Containerships 10,000 TEU	84,280	n/a	0.02	n/a	0.23	393
Containerships 9,000 TEU	68,639	n/a	0.02	n/a	0.23	320
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.23	281
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.23	247
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.23	197
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.23	143
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.23	40
Docking						
Containerships 10,000 TEU	84,280	n/a	0.02	n/a	0.25	421
Containerships 9,000 TEU	68,639	n/a	0.02	n/a	0.25	343
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.25	301
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.25	265
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.25	211
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.25	153
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.25	43

Source: POLA 2009 Emission Inventory Report.
(1) VSR = vessel speed reduction (speed reduced to 12 knots).
(2) Turning time and turning and docking load factors from 2008 POLA EI, Section 3.5.6.
(3) Harbor transit distance and turning time assumed from China Shipping EIR.

Table 1.3-585. OGV Auxiliary Engine Usage per One-Way Transit: 2012-2027

Vessel Type	Auxiliary kW per Vessel (1)	Load Factor (2)	Hours/Transit	KW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR				
Containerships 10,000 TEU	14,000	0.13	1.09	2,030
Containerships 9,000 TEU	11,665	0.13	1.09	1,692
Containerships 6,000 TEU	1,694	NA	1.15	1,947
Containerships 5,000 TEU	1,256	NA	1.17	1,465
Containerships 4,000 TEU	1,611	NA	1.29	2,081
Containerships 3,000 TEU	667	NA	1.51	1,005
Containerships 1,000 TEU	443	NA	1.37	609
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR				
Containerships 10,000 TEU	14,000	0.13	1.73	3,215
Containerships 9,000 TEU	11,665	0.13	1.73	2,678
Containerships 6,000 TEU	1,694	NA	1.73	2,928
Containerships 5,000 TEU	1,256	NA	1.73	2,171
Containerships 4,000 TEU	1,611	NA	1.73	2,784
Containerships 3,000 TEU	667	NA	1.73	1,154
Containerships 1,000 TEU	443	NA	1.73	766
Fairway: 20nm to Precautionary Area, Without VSR				
Containerships 10,000 TEU	14,000	0.13	0.98	1,831
Containerships 9,000 TEU	11,665	0.13	0.98	1,526
Containerships 6,000 TEU	1,694	NA	1.04	1,756
Containerships 5,000 TEU	1,256	NA	1.05	1,321
Containerships 4,000 TEU	1,611	NA	1.17	1,877
Containerships 3,000 TEU	667	NA	1.36	907
Containerships 1,000 TEU	443	NA	1.24	549
Fairway: 20nm to Precautionary Area, With VSR				
Containerships 10,000 TEU	14,000	0.13	1.56	2,899
Containerships 9,000 TEU	11,665	0.13	1.56	2,416
Containerships 6,000 TEU	1,694	NA	1.56	2,641
Containerships 5,000 TEU	1,256	NA	1.56	1,958
Containerships 4,000 TEU	1,611	NA	1.56	2,511
Containerships 3,000 TEU	667	NA	1.56	1,041
Containerships 1,000 TEU	443	NA	1.56	691
Precautionary Area				
Containerships 10,000 TEU	14,000	0.13	0.73	1,363
Containerships 9,000 TEU	11,665	0.13	0.73	1,136
Containerships 6,000 TEU	1,694	NA	0.73	1,241
Containerships 5,000 TEU	1,256	NA	0.73	920
Containerships 4,000 TEU	1,611	NA	0.73	1,180
Containerships 3,000 TEU	667	NA	0.73	489
Containerships 1,000 TEU	443	NA	0.73	325
Harbor Transit Inbound				
Containerships 10,000 TEU	14,000	0.13	0.50	930
Containerships 9,000 TEU	11,665	0.13	0.50	775
Containerships 6,000 TEU	1,694	NA	0.50	847
Containerships 5,000 TEU	1,256	NA	0.50	628
Containerships 4,000 TEU	1,611	NA	0.50	805
Containerships 3,000 TEU	667	NA	0.50	334
Containerships 1,000 TEU	443	NA	0.50	222
Harbor Transit Outbound				
Containerships 10,000 TEU	14,000	0.13	0.44	814
Containerships 9,000 TEU	11,665	0.13	0.44	678
Containerships 6,000 TEU	1,694	NA	0.44	741
Containerships 5,000 TEU	1,256	NA	0.44	549
Containerships 4,000 TEU	1,611	NA	0.44	705
Containerships 3,000 TEU	667	NA	0.44	292
Containerships 1,000 TEU	443	NA	0.44	194
Turning				
Containerships 10,000 TEU	14,000	0.30	0.23	968
Containerships 9,000 TEU	11,665	0.30	0.23	806
Containerships 6,000 TEU	3,778	NA	0.23	882
Containerships 5,000 TEU	3,457	NA	0.23	807
Containerships 4,000 TEU	2,889	NA	0.23	674
Containerships 3,000 TEU	2,288	NA	0.23	534
Containerships 1,000 TEU	1,051	NA	0.23	245
Docking				
Containerships 10,000 TEU	14,000	0.30	0.25	1,037
Containerships 9,000 TEU	11,665	0.30	0.25	864
Containerships 6,000 TEU	3,778	NA	0.25	945
Containerships 5,000 TEU	3,457	NA	0.25	864
Containerships 4,000 TEU	2,889	NA	0.25	722
Containerships 3,000 TEU	2,288	NA	0.25	572
Containerships 1,000 TEU	1,051	NA	0.25	263

(1) Containership 10,000 kW provided by APL. Containership 9,000 data from the POLA 2009 Emission Inventory Report. Containership 1,000 to 6,000 data provided by Starcrest.

(2) Derived from POLA 2009 EI Table 3.13 and Table 3.26

Table 1.3-586. OGV Auxiliary Boiler Usage per One-Way Transit:2012-2027

Vessel Type	Boiler kW	Hours/Transit	KW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (2)			
Containerships 10,000 TEU	440	1.09	-
Containerships 9,000 TEU	440	1.09	-
Containerships 6,000 TEU	326	1.15	-
Containerships 5,000 TEU	411	1.17	-
Containerships 4,000 TEU	367	1.29	-
Containerships 3,000 TEU	394	1.51	593
Containerships 1,000 TEU	58	1.37	-
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR (2)			
Containerships 10,000 TEU	440	1.73	761
Containerships 9,000 TEU	440	1.73	761
Containerships 6,000 TEU	326	1.73	564
Containerships 5,000 TEU	411	1.73	710
Containerships 4,000 TEU	367	1.73	635
Containerships 3,000 TEU	394	1.73	680
Containerships 1,000 TEU	58	1.73	100
Fairway: 20nm to Precautionary Area, Without VSR (2)			
Containerships 10,000 TEU	440	0.98	-
Containerships 9,000 TEU	440	0.98	-
Containerships 6,000 TEU	326	1.04	-
Containerships 5,000 TEU	411	1.05	-
Containerships 4,000 TEU	367	1.17	-
Containerships 3,000 TEU	394	1.36	535
Containerships 1,000 TEU	58	1.24	-
Fairway: 20nm to Precautionary Area, With VSR (2)			
Containerships 10,000 TEU	440	1.56	686
Containerships 9,000 TEU	440	1.56	686
Containerships 6,000 TEU	326	1.56	508
Containerships 5,000 TEU	411	1.56	641
Containerships 4,000 TEU	367	1.56	573
Containerships 3,000 TEU	394	1.56	614
Containerships 1,000 TEU	58	1.56	90
Precautionary Area			
Containerships 10,000 TEU	440	0.73	322
Containerships 9,000 TEU	440	0.73	322
Containerships 6,000 TEU	326	0.73	239
Containerships 5,000 TEU	411	0.73	301
Containerships 4,000 TEU	367	0.73	269
Containerships 3,000 TEU	394	0.73	288
Containerships 1,000 TEU	58	0.73	43
Harbor Transit Inbound			
Containerships 10,000 TEU	440	0.50	220
Containerships 9,000 TEU	440	0.50	220
Containerships 6,000 TEU	326	0.50	163
Containerships 5,000 TEU	411	0.50	205
Containerships 4,000 TEU	367	0.50	184
Containerships 3,000 TEU	394	0.50	197
Containerships 1,000 TEU	58	0.50	29
Harbor Transit Outbound			
Containerships 10,000 TEU	440	0.44	193
Containerships 9,000 TEU	440	0.44	193
Containerships 6,000 TEU	326	0.44	143
Containerships 5,000 TEU	411	0.44	180
Containerships 4,000 TEU	367	0.44	161
Containerships 3,000 TEU	394	0.44	172
Containerships 1,000 TEU	58	0.44	25
Turning			
Containerships 10,000 TEU	440	0.23	103
Containerships 9,000 TEU	440	0.23	103
Containerships 6,000 TEU	497	0.23	116
Containerships 5,000 TEU	608	0.23	142
Containerships 4,000 TEU	523	0.23	122
Containerships 3,000 TEU	513	0.23	120
Containerships 1,000 TEU	232	0.23	54
Docking			
Containerships 10,000 TEU	440	0.25	110
Containerships 9,000 TEU	440	0.25	110
Containerships 6,000 TEU	497	0.25	124
Containerships 5,000 TEU	608	0.25	152
Containerships 4,000 TEU	523	0.25	131
Containerships 3,000 TEU	513	0.25	128
Containerships 1,000 TEU	232	0.25	58

(1) Boilers for Containerships 9,000 to 10,000 data from the POLA 2009 Emission Inventory Report. Boiler data for Containerships 1,000 to 6,000 provided by Starcrest.

(2) Boilers assumed to operate under engine loads less than 20% (Starcrest, 2009).

(3) Boilers are assumed to not have an applied load factor.

Table 1.3-587. OGV Hotelling Aux. Gen. Usage per Ship Visit (Assuming No AMP)
CEQA Baseline & Alternative 4

Vessel Type	Auxiliary kW per Vessel	Load Factor (1)	Hours/ Visit	kW-Hrs/ Visit
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	1,347	NA	38.2	51,455
Containerships 5,000 TEU	1,040	NA	44.9	46,729
Containerships 4,000 TEU	1,372	NA	37.8	51,814
Containerships 3,000 TEU	572	NA	60.1	34,377
Containerships 1,000 TEU	339	NA	19.3	6,543
Project Year 2012				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	-	-
Containerships 6,000 TEU	1,347	NA	71.0	95,642
Containerships 5,000 TEU	1,040	NA	59.7	62,031
Containerships 4,000 TEU	1,372	NA	48.3	66,315
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2015				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	94.4	101,200
Containerships 6,000 TEU	1,347	NA	63.9	86,075
Containerships 5,000 TEU	1,040	NA	53.8	55,879
Containerships 4,000 TEU	1,372	NA	43.6	59,819
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2020				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	85.4	91,635
Containerships 6,000 TEU	1,347	NA	58.0	78,067
Containerships 5,000 TEU	1,040	NA	48.8	50,728
Containerships 4,000 TEU	1,372	NA	39.6	54,381
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2025				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	65.7	70,478
Containerships 6,000 TEU	1,347	NA	44.8	60,354
Containerships 5,000 TEU	1,040	NA	37.8	39,336
Containerships 4,000 TEU	1,372	NA	30.9	42,354
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2027				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	63.2	67,797
Containerships 6,000 TEU	1,347	NA	43.1	58,109
Containerships 5,000 TEU	1,040	NA	36.4	37,892
Containerships 4,000 TEU	1,372	NA	29.8	40,829
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-

(1) Derived from POLA 2009 EI Table 3.13 and Table 3.26

Table 1.3-588. OGV Hotelling Auxiliary Boiler Usage per Ship Visit
CEQA Baseline & Alternative 4

Vessel Type	Boiler kW	Hours/ Visit	kW-Hrs/ Visit
Baseline			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	38.2	18,985
Containerships 5,000 TEU	608	44.9	27,313
Containerships 4,000 TEU	523	37.8	19,763
Containerships 3,000 TEU	513	60.1	30,830
Containerships 1,000 TEU	232	19.3	4,478
Project Year 2012			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	-	-
Containerships 6,000 TEU	497	71.0	35,289
Containerships 5,000 TEU	608	59.7	36,257
Containerships 4,000 TEU	523	48.3	25,293
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2015			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	94.4	41,515
Containerships 6,000 TEU	497	63.9	31,759
Containerships 5,000 TEU	608	53.8	32,661
Containerships 4,000 TEU	523	43.6	22,816
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2020			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	85.4	37,591
Containerships 6,000 TEU	497	58.0	28,804
Containerships 5,000 TEU	608	48.8	29,650
Containerships 4,000 TEU	523	39.6	20,742
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2025			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	65.7	28,912
Containerships 6,000 TEU	497	44.8	22,269
Containerships 5,000 TEU	608	37.8	22,992
Containerships 4,000 TEU	523	30.9	16,154
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2027			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	63.2	27,812
Containerships 6,000 TEU	497	43.1	21,440
Containerships 5,000 TEU	608	36.4	22,148
Containerships 4,000 TEU	523	29.8	15,573
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-

**Table 1.3-589. OGV Anchoring Auxiliary Engine Usage per Ship Visit
CEQA Baseline & Alternative 4**

Vessel Type	Auxiliary kW per Vessel (1)	Load Factor (2)	Hours/ Visit	kW-Hrs/ Visit
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	1,694	NA	2.1	3,557
Containerships 5,000 TEU	1,053	NA	10.7	11,229
Containerships 4,000 TEU	1,378	NA	4.3	5,913
Containerships 3,000 TEU	NA	NA	NA	-
Containerships 1,000 TEU	443	NA	5.6	2,481
Project Year 2012				
Containerships 10,000 TEU	-	-	7.4	-
Containerships 9,000 TEU	-	-	7.4	-
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2015				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2020				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2025				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2027				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-

Note: (1) Average anchoring time was derived from actual anchoring data for APL ship visits for 2008 and 2009, provided by Starcrest.

- (2) Anchoring times assumed for the baseline are carried through 2027.
- (3) Anchoring times for OGVs larger than 6,000 TEU are assumed to be equal to the average for all sizes.

**Table 1.3-590. OGV Anchoring Auxiliary Boiler Usage per Ship Visit
CEQA Baseline & Alternative 4**

Vessel Type	Boiler kW	Hours/ Visit	kW-Hrs/ Visit
Baseline			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	2.1	1,044
Containerships 5,000 TEU	608	10.7	6,482
Containerships 4,000 TEU	523	4.3	2,246
Containerships 3,000 TEU	NA	NA	-
Containerships 1,000 TEU	232	5.6	1,299
Project Year 2012			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	-	7.4	-
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2015			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2020			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2025			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2027			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-

Table 1.3-591. Tugboat Main Engine Usage during Assists

Vessel Type	Tugboat Avg Hp (1)	Load Factor (1)	Hours/ Assist (2)	Tugboats per Assist	hp-Hrs/ Assist
Containerships 10,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 9,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 6,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 5,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 4,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 3,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 1,000 TEU	1,934	0.31	1.13	2	1,351

(1) Source: POLA 2009 Emission Inventory Report.

(2) Time spent operating per vessel trip. Equal to vessel "Harbor" transit times 1.3 to account for tug movement and assist time. Vessel turning time is divided by a factor of 2 because tugboats are assumed to assist containerships while turning to dock but not while turning to leave the berth.

Table 1.3-592. Tugboat Auxiliary Engine Usage during Assists

Vessel Type	Aux Engine Avg Hp (1)	Load Factor (1)	Hours/ Assist	Tugboats per Assist	hp-Hrs/ Assist
Containerships 10,000 TEU	149	0.43	1.13	2	144
Containerships 9,000 TEU	149	0.43	1.13	2	144
Containerships 6,000 TEU	149	0.43	1.13	2	144
Containerships 5,000 TEU	149	0.43	1.13	2	144
Containerships 4,000 TEU	149	0.43	1.13	2	144
Containerships 3,000 TEU	149	0.43	1.13	2	144
Containerships 1,000 TEU	149	0.43	1.13	2	144

(1) Source: POLA 2009 Emission Inventory Report.

Table 1.3-593. Emission Factors for Commercial Marine Vessels

Engine Type	Fuel Type	Description	CO	VOC	NOx	SOx	PM10	PM2.5	Notes
Main Propulsion Engine									
OGV Main Engines (g/kw-hr)	Residual Oil (2.7% S)	Slow speed diesel ≤ 1999	1.40	0.63	18.10	10.50	1.50	1.20	(1)
		Slow speed diesel 2000+	1.40	0.63	17.00	10.50	1.50	1.20	(1)
	MGO (0.2% S)	Slow speed diesel ≤ 1999	1.40	0.63	17.01	0.74	0.29	0.23	(2)
		Slow speed diesel 2000+	1.40	0.63	15.98	0.74	0.29	0.23	(2)
	MGO (0.1% S)	Slow speed diesel ≤ 1999	1.40	0.63	17.01	0.42	0.26	0.20	(2)
		Slow speed diesel 2000+	1.40	0.63	15.98	0.42	0.26	0.20	(2)
	Baseline	Slow speed diesel ≤ 1999	1.40	0.63	18.05	10.01	1.44	1.15	(5)
	(0.95 IFO, 0.5 0.2% MGO)	Slow speed diesel 2000+	1.40	0.63	16.95	10.01	1.44	1.15	(5)
Tugboat Main Engines (Medium Speed Diesel) (g/hp-hr)	Baseline Fleet		3.11	0.74	11.12	0.01	0.47	0.44	(6)
	CARB (15 ppm S)	2008	3.45	0.77	13.64	0.01	0.51	0.47	(3,4)
	CARB (15 ppm S)	2012	3.60	0.82	14.12	0.01	0.56	0.51	(3,4)
	CARB (15 ppm S)	2015	3.82	0.71	4.45	0.01	0.09	0.08	(3,4)
	CARB (15 ppm S)	2020	4.04	0.78	4.66	0.01	0.10	0.10	(3,4)
	CARB (15 ppm S)	2025	4.26	0.85	4.87	0.01	0.12	0.11	(3,4)
	CARB (15 ppm S)	2027	4.35	0.88	4.95	0.01	0.12	0.11	(3,4)
Auxiliary Engine									
OGV Auxiliary Engines (g/kw-hr)	Residual Oil (2.7% S)	Medium speed diesel ≤ 1999	1.10	0.42	14.70	12.30	1.50	1.20	(1)
		Medium speed diesel 2000+	1.10	0.42	13.00	12.30	1.50	1.20	(2)
	MGO (0.2% S)	Medium speed diesel ≤ 1999	1.10	0.42	13.82	0.86	0.29	0.23	(2)
		Medium speed diesel 2000+	1.10	0.42	12.22	0.86	0.29	0.23	(2)
	MGO (0.1% S)	Medium speed diesel ≤ 1999	1.10	0.42	13.82	0.49	0.26	0.20	(2)
		Medium speed diesel 2000+	1.10	0.42	12.22	0.49	0.26	0.20	(2)
	Baseline	Medium speed diesel ≤ 1999	1.10	0.42	14.66	11.73	1.44	1.15	(5)
	(0.95 IFO, 0.5 0.2% MGO)	Medium speed diesel 2000+	1.10	0.42	12.96	11.73	1.44	1.15	(5)
Tugboat Auxiliary Engines (High Speed Diesel) (g/hp-hr)	Baseline Fleet		3.92	0.81	7.62	0.01	0.36	0.33	(6)
	CARB (15 ppm S)	2008	2.97	0.65	8.23	0.01	0.30	0.28	(3,4)
	CARB (15 ppm S)	2012	3.03	0.68	8.38	0.01	0.32	0.29	(3,4)
	CARB (15 ppm S)	2015	3.76	0.82	3.62	0.01	0.08	0.07	(3,4)
	CARB (15 ppm S)	2020	3.89	0.87	3.73	0.01	0.09	0.08	(3,4)
	CARB (15 ppm S)	2025	4.02	0.92	3.84	0.01	0.09	0.09	(3,4)
	CARB (15 ppm S)	2027	4.07	0.94	3.89	0.01	0.10	0.09	(3,4)
Auxiliary Boiler									
Auxiliary Boilers (g/kw-hr)	Residual Oil (2.7% S)	Current in-use average	0.20	0.11	2.10	16.50	0.80	0.60	(1)
	MDO (0.5% S)	Low sulfur fuel	0.20	0.11	1.97	10.00	0.20	0.15	(2)
	MGO (0.2% S)	Low sulfur fuel	0.20	0.11	1.97	1.16	0.15	0.11	(2)
	MGO (0.1% S)	Low sulfur fuel	0.20	0.11	1.97	0.66	0.14	0.10	(2)
		Baseline (0.95 IFO/0.5 0.2% MGO)	Composite Factor	0.20	0.11	2.09	15.73	0.77	0.58

Notes:

- (1) The 2.7% sulfur content represents the assumed fuel sulfur content from the 2009 POLA EI of residual oil used by containerships.
- (2) Source: POLA 2009 Emission Inventory Report.
- (3) Source: CARB, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B.
- Emission factors for model years pre 2007 are corrected to account for the use of low-sulfur diesel fuel.
- (4) Fuel sulfur content regulated by CCR Title 13, Division 3, Chapter 5, Article 2, Section 2281.
- (5) All Containership engines use 5% 0.2% sulfur MGO and 95% 2.7% sulfur IFO from July 2008 to June 2009.
- (6) Source: Starcrest, 2009 Inventory
- (7) All Containership main engines are assumed to use "Slow" emission factors.

Table 1.3-594. Emission Factors for AMP Electricity Consumption

Emission Source	CO	VOC	NOx	SOx	PM10	PM2.5
Electricity Consumption Emissions (lb/MW-hr)	0.20	0.010	1.15	0.12	0.04	0.04

Source: SCAQMD CEQA Air Quality Handbook, Tbl. A9-11-B.

Table 1.3-595. Fuel Correction Factors for Ship Main Engines, Auxiliary Engines, Boilers

Fuel Type	CO	VOC	NOx	SOx	PM10	PM2.5
HFO (1.5% S)	1.00	1.00	1.00	0.56	0.82	0.82
MDO (1.5% S)	1.00	1.00	0.90	0.56	0.47	0.47
MGO (0.5% S)	1.00	1.00	0.94	0.18	0.25	0.25
MGO (0.2% S)	1.00	1.00	0.94	0.07	0.19	0.19
MGO (0.1% S)	1.00	1.00	0.94	0.04	0.17	0.17

Source: 2009 EI Table 3.18.

Table 1.3-596. Fuel Correction Factors for Tugboat Main & Auxiliary Engines

Fuel Type	CO	VOC	NOx	SOx	PM10	PM2.5
CARB On-Road Diesel	1.00	0.72	0.93	n/a	0.75	0.75
ULSD	1.00	0.72	0.93	n/a	0.72	0.72

Source: 2009 EI Table 4.8.

Table 1.3-597. Low-Load EF Regression Factors for OGV Main Propulsion Engines

Variable	CO	HC	NOx	SOx	PM10	PM2.5
Exponent	1.00	1.50	1.50	-	1.50	1.50
Intercept (b)	0.15	0.39	10.45	-	0.26	0.26
Coefficient (a)	0.84	0.07	0.13	1.00	0.01	0.01
Ref. EF @ 20% Load	4.33	1.13	11.85	1.00	0.32	0.32

Source: 2009 EI Table 3.8. $y = a (\text{fractional load})^x + b$. Factors are normalized by dividing by the factor @ 20% load.

Table 1.3-598. Vessel Speed Reduction Program (VSRP)

Historical Compliance Rates for APL (Unmitigated)

Year	Compliance Rate
Year 2008+	95.0%

Source: POLA staff (1/28/10).

Note: (1) POLA recognizes the APL terminal for VSR compliance, which is defined as at least 95%. This rate is assumed to remain constant for all study years.

Table 1.3-599. IMO MARPOL Annex VI Compliance Rates (Unmitigated)

Year	% Ship Calls
Year 2008	100.0%
Year 2012	100.0%
Year 2015	100.0%
Year 2020	100.0%
Year 2025	100.0%
Year 2027	100.0%

Table 1.3-600. Annual Emissions from OGV Main Engine - Alternative 4
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.06	1.60	0.99	0.14	0.11
Containerships 5,000 TEU	9.97	4.50	128.88	74.76	10.68	8.54
Containerships 4,000 TEU	2.43	1.10	29.56	18.26	2.61	2.09
Containerships 3,000 TEU	0.20	0.09	2.18	1.31	0.20	0.16
Containerships 1,000 TEU	0.03	0.01	0.34	0.21	0.03	0.02
Subtotal	12.8	5.8	162.6	95.5	13.7	10.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.3	6.4	163.1	4.3	2.6	2.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.03	1.82	46.04	1.21	0.73	0.59
Containerships 6,000 TEU	6.85	3.09	78.24	2.06	1.25	1.00
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.9	6.7	170.0	4.5	2.7	2.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.03	1.82	46.04	1.21	0.73	0.59
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.3	8.3	209.1	5.5	3.3	2.7
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.03	1.82	46.04	1.21	0.73	0.59
Containerships 6,000 TEU	13.71	6.19	156.48	4.11	2.50	2.00
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.7	9.8	248.2	6.5	4.0	3.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.07	3.64	92.08	2.42	1.47	1.18
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	22.4	10.1	255.1	6.7	4.1	3.3

- Notes: (1) Main engines are 100 percent compliant with MARPOL ANNEX VI requirements.
 (2) Main engines use slide valves.
 (3) Baseline main engines: 5% use MGO and 95% use IFO from July 2008 to June 2009.
 (4) Study years 2012-2027: main engines switch to residual fuel with 0.1% sulfur content at 24nm
 (5) All shipping routes in the study area fall within 24nm of the coast.
 (6) For study year 2012, MARPOL ANNEX VI requires 1% sulfur fuel content to 200nm.
 For study year 2015, the requirement is 0.1% sulfur content.

Table 1.3-601. Annual Emissions from OGV Main Engine - Alternative 4
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	0.83	0.40	0.08	0.06
Containerships 5,000 TEU	8.82	4.56	69.01	30.84	6.29	5.03
Containerships 4,000 TEU	2.33	1.17	18.22	9.07	1.73	1.38
Containerships 3,000 TEU	0.20	0.10	1.67	0.87	0.15	0.12
Containerships 1,000 TEU	0.02	0.01	0.20	0.12	0.02	0.01
Subtotal	11.5	5.9	89.9	41.3	8.3	6.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.5	6.5	87.4	1.9	1.6	1.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	5.93	3.07	41.13	0.87	0.75	0.60
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.0	6.7	89.6	1.9	1.6	1.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.9	8.3	110.1	2.3	2.0	1.6
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	11.86	6.13	82.27	1.74	1.50	1.20
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.9	9.8	130.7	2.8	2.4	1.9
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	6.76	3.57	45.47	0.94	0.84	0.67
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	19.3	10.0	132.9	2.8	2.4	1.9

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-602. Annual Emissions from OGV Main Engine - Alternative 4

Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.34	0.14	0.04	0.03
Containerships 5,000 TEU	4.15	2.37	27.83	10.61	2.73	2.18
Containerships 4,000 TEU	1.10	0.60	7.32	3.18	0.74	0.59
Containerships 3,000 TEU	0.10	0.05	0.67	0.31	0.07	0.05
Containerships 1,000 TEU	0.01	0.00	0.07	0.04	0.01	0.01
Subtotal	5.4	3.1	36.2	14.3	3.6	2.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.9	3.3	34.9	0.6	0.7	0.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	2.77	1.58	16.43	0.30	0.32	0.26
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.1	3.5	35.8	0.6	0.7	0.6
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	7.4	4.2	44.0	0.8	0.9	0.7
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	5.54	3.15	32.86	0.59	0.65	0.52
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.8	5.0	52.3	0.9	1.0	0.8
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.16	1.85	18.22	0.32	0.36	0.29
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.0	5.2	53.1	1.0	1.0	0.8

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-603. Annual Emissions from OGV Main Engine - Alternative 4

Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.02	0.11	0.01	0.01	0.01
Containerships 5,000 TEU	1.40	1.46	8.85	0.93	1.13	0.90
Containerships 4,000 TEU	0.37	0.36	2.14	0.28	0.29	0.23
Containerships 3,000 TEU	0.03	0.03	0.18	0.03	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.8	1.9	11.3	1.3	1.5	1.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	2.0	11.0	0.1	0.3	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	0.94	0.97	5.23	0.03	0.13	0.11
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	2.1	11.5	0.1	0.3	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	2.6	14.1	0.1	0.4	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.87	1.94	10.45	0.05	0.27	0.21
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.0	3.1	16.7	0.1	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.07	1.15	6.07	0.03	0.16	0.12
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.0	3.2	17.1	0.1	0.4	0.3

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-604. Annual Emissions from OGV Main Engine - Alternative 4
 Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.09	0.02	0.01	0.01
Containerships 5,000 TEU	1.23	1.05	7.21	1.22	0.87	0.70
Containerships 4,000 TEU	0.33	0.26	1.78	0.37	0.22	0.18
Containerships 3,000 TEU	0.03	0.02	0.15	0.04	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.6	1.4	9.2	1.6	1.1	0.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	1.5	9.0	0.1	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	0.82	0.70	4.26	0.03	0.10	0.08
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	1.5	9.3	0.1	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.2	1.9	11.5	0.1	0.3	0.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.64	1.41	8.52	0.07	0.21	0.16
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	2.2	13.6	0.1	0.3	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.94	0.83	4.90	0.04	0.12	0.10
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.7	2.3	13.9	0.1	0.3	0.3

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-605. Annual Emissions from OGV Main Engine - Alternative 4

Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.01	0.05	0.01	0.01	0.01
Containerships 5,000 TEU	0.66	0.65	4.03	0.48	0.51	0.41
Containerships 4,000 TEU	0.17	0.17	1.00	0.13	0.13	0.11
Containerships 3,000 TEU	0.01	0.01	0.09	0.01	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	0.9	0.8	5.2	0.6	0.7	0.5
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.9	5.0	0.0	0.1	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.44	0.43	2.38	0.01	0.06	0.05
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.0	0.9	5.2	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.2	1.2	6.4	0.0	0.2	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.87	0.86	4.76	0.03	0.12	0.10
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.4	1.4	7.6	0.0	0.2	0.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.50	0.49	2.71	0.02	0.07	0.05
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.4	1.4	7.8	0.0	0.2	0.2

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

(2) Turning occurs during only one trip segment (arrival or departure).

Table 1.3-606. Annual Emissions from OGV Main Engine - Alternative 4

Docking

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

(2) Main engines are off during docking.

Table 1.3-607. Max Daily Emissions from OGV Main Engine - Alternative 4
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.76	59.46	1,599.9	988.19	141.17	112.94
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.8	59.5	1,599.9	988.2	141.2	112.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.8	59.5	1,504.6	39.5	24.0	19.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.8	59.5	1,504.6	39.5	24.0	19.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	155.1	70.0	1,770.8	46.5	28.3	22.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	155.1	70.0	1,770.8	46.5	28.3	22.6
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	155.1	70.0	1,770.8	46.5	28.3	22.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	155.1	70.0	1,770.8	46.5	28.3	22.6
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	155.1	70.0	1,770.8	46.5	28.3	22.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	155.1	70.0	1,770.8	46.5	28.3	22.6
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	155.1	70.0	1,770.8	46.5	28.3	22.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	155.1	70.0	1,770.8	46.5	28.3	22.6

Notes: (1) Max Daily emissions assume the main engines are equipped with slide valves.
 (2) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009 .
 (3) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and no VSR at 40nm.

Table 1.3-608. Max Daily Emissions from OGV Main Engine - Alternative 4
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	113.24	58.58	833.46	396.84	80.87	64.70
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	113.2	58.6	833.5	396.8	80.9	64.7
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	114.0	59.0	791.1	16.8	14.4	11.5
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	114.0	59.0	791.1	16.8	14.4	11.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.1	68.7	874.4	18.0	16.2	12.9
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.1	68.7	874.4	18.0	16.2	12.9
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.1	68.7	874.4	18.0	16.2	12.9
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.1	68.7	874.4	18.0	16.2	12.9
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.1	68.7	874.4	18.0	16.2	12.9
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.1	68.7	874.4	18.0	16.2	12.9
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.1	68.7	874.4	18.0	16.2	12.9
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.1	68.7	874.4	18.0	16.2	12.9

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-609. Max Daily Emissions from OGV Main Engine - Alternative 4

Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.3	30.3	335.2	136.1	35.0	28.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.3	30.3	335.2	136.1	35.0	28.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.3	30.3	316.0	5.7	6.2	5.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.3	30.3	316.0	5.7	6.2	5.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.7	35.5	350.5	6.1	7.0	5.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.7	35.5	350.5	6.1	7.0	5.6
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.7	35.5	350.5	6.1	7.0	5.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.7	35.5	350.5	6.1	7.0	5.6
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.7	35.5	350.5	6.1	7.0	5.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.7	35.5	350.5	6.1	7.0	5.6
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.7	35.5	350.5	6.1	7.0	5.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.7	35.5	350.5	6.1	7.0	5.6

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-610. Max Daily Emissions from OGV Main Engine - Alternative 4

Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.0	18.7	106.6	12.0	14.4	11.6
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	18.7	106.6	12.0	14.4	11.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.0	18.7	100.5	0.5	2.6	2.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	18.7	100.5	0.5	2.6	2.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.5	22.0	116.7	0.5	3.0	2.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.5	22.0	116.7	0.5	3.0	2.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.5	22.0	116.7	0.5	3.0	2.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.5	22.0	116.7	0.5	3.0	2.4
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.5	22.0	116.7	0.5	3.0	2.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.5	22.0	116.7	0.5	3.0	2.4
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.5	22.0	116.7	0.5	3.0	2.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.5	22.0	116.7	0.5	3.0	2.4

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-611. Max Daily Emissions from OGV Main Engine - Alternative 4

Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.8	13.5	86.9	15.6	11.2	8.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	13.5	86.9	15.6	11.2	8.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.8	13.5	81.9	0.7	2.0	1.6
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	13.5	81.9	0.7	2.0	1.6
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	18.0	15.9	94.1	0.7	2.3	1.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	15.9	94.1	0.7	2.3	1.8
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	18.0	15.9	94.1	0.7	2.3	1.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	15.9	94.1	0.7	2.3	1.8
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	18.0	15.9	94.1	0.7	2.3	1.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	15.9	94.1	0.7	2.3	1.8
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	18.0	15.9	94.1	0.7	2.3	1.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	15.9	94.1	0.7	2.3	1.8

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-612. Max Daily Emissions from OGV Main Engine - Alternative 4

Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.4	8.3	48.6	6.2	6.5	5.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	8.3	48.6	6.2	6.5	5.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.4	8.3	45.8	0.3	1.2	0.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	8.3	45.8	0.3	1.2	0.9
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.6	9.4	52.2	0.3	1.3	1.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.6	9.4	52.2	0.3	1.3	1.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.6	9.4	52.2	0.3	1.3	1.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.6	9.4	52.2	0.3	1.3	1.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.6	9.4	52.2	0.3	1.3	1.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.6	9.4	52.2	0.3	1.3	1.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.6	9.4	52.2	0.3	1.3	1.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.6	9.4	52.2	0.3	1.3	1.1

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) Assumes turning occurs during arrivals only.

Table 1.3-613. Max Daily Emissions from OGV Main Engine - Alternative 4

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Docking						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) Main engines are off during docking.

Table 1.3-614 Max 1-Hour Emissions from OGV Main Engine - Alternative 4
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.33	25.87	696.10	429.94	61.42	49.14
Containerships 5,000 TEU	48.27	21.79	624.12	362.06	51.72	41.38
Containerships 4,000 TEU	31.93	14.41	387.72	239.47	34.21	27.37
Containerships 3,000 TEU	18.83	8.56	206.99	124.71	18.59	14.88
Containerships 1,000 TEU	10.08	4.55	122.42	75.61	10.80	8.64
Maximum	57.33	25.87	696.10	429.94	61.42	49.14
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	57.35	25.88	654.62	17.21	10.45	8.36
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	71.05	32.06	811.01	21.32	12.94	10.35
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	71.05	32.06	811.01	21.32	12.94	10.35
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	71.05	32.06	811.01	21.32	12.94	10.35
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	71.05	32.06	811.01	21.32	12.94	10.35

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Main engines in study years 2012-2027 use 0.1% sulfur fuel and slide valves.

(3) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(4) Max 1-hour emissions assume the ship does not comply with the VSRP at 40nm.

Table 1.3-615 Max 1-Hour Emissions from OGV Main Engine - Alternative 4
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	246.90	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	18.66	9.04	146.79	3.39	2.55	2.04
Containerships 1,000 TEU	5.55	2.51	61.14	1.59	0.98	0.79
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hr emissions assume the ship is 95% compliant with VSRP for all study years.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

(4) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-616 Max 1-Hour Emissions from OGV Main Engine - Alternative 4
 Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.65	15.17	167.62	68.05	17.51	14.01
Containerships 5,000 TEU	23.47	13.37	157.22	59.95	15.42	12.34
Containerships 4,000 TEU	18.71	10.20	124.05	53.91	12.58	10.06
Containerships 3,000 TEU	13.61	7.12	96.02	44.44	9.45	7.56
Containerships 1,000 TEU	3.86	1.79	37.03	20.44	3.30	2.64
Maximum	26.65	15.17	167.62	68.05	17.51	14.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-617 Max 1-Hour Emissions from OGV Main Engine - Alternative 4

Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	106.61	11.96	14.45	11.56
Containerships 5,000 TEU	15.87	16.45	99.99	10.54	12.73	10.18
Containerships 4,000 TEU	12.64	12.36	72.70	9.48	9.71	7.77
Containerships 3,000 TEU	9.18	8.45	51.55	7.81	6.77	5.42
Containerships 1,000 TEU	2.58	1.89	14.12	3.59	1.70	1.36
Maximum	18.01	18.67	106.61	11.96	14.45	11.56
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-618 Max 1-Hour Emissions from OGV Main Engine - Alternative 4
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	86.88	15.62	11.15	8.92
Containerships 5,000 TEU	13.91	11.92	81.49	13.76	9.82	7.86
Containerships 4,000 TEU	11.08	8.97	60.41	12.38	7.59	6.08
Containerships 3,000 TEU	8.05	6.15	43.80	10.20	5.38	4.30
Containerships 1,000 TEU	2.27	1.40	13.28	4.69	1.46	1.17
Maximum	15.78	13.53	86.88	15.62	11.15	8.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-619 Max 1-Hour Emissions from OGV Main Engine - Alternative 4

Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	48.55	6.20	6.50	5.20
Containerships 5,000 TEU	7.41	7.30	45.54	5.46	5.73	4.58
Containerships 4,000 TEU	5.90	5.81	34.05	4.35	4.56	3.65
Containerships 3,000 TEU	4.28	4.22	24.72	3.16	3.31	2.65
Containerships 1,000 TEU	1.20	1.19	6.94	0.89	0.93	0.74
Maximum	8.41	8.29	48.55	6.20	6.50	5.20
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-620 Max 1-Hour Emissions from OGV Main Engine - Alternative 4

Docking

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.
 (4) Main engines are off during docking.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-621. Annual Emissions from OGV Auxiliary Engines - Alternative 4
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.11	0.11	0.01	0.01
Containerships 5,000 TEU	0.63	0.24	8.40	7.03	0.86	0.69
Containerships 4,000 TEU	0.30	0.11	3.52	3.33	0.41	0.32
Containerships 3,000 TEU	0.02	0.01	0.20	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Subtotal	1.0	0.4	12.3	10.7	1.3	1.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.1	0.4	11.7	0.5	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 6,000 TEU	0.49	0.19	5.45	0.22	0.11	0.09
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.0	0.4	11.3	0.5	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.3	0.5	14.1	0.6	0.3	0.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.6	16.8	0.7	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.43	0.16	4.74	0.19	0.10	0.08
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.6	16.4	0.7	0.3	0.3

Notes: (1) Auxiliary engines use 0.1% sulfur MGO at 24nm. All routes stay within 24nm of the coast.
(2) Baseline auxiliary engines: 5% use MGO and 95% use IFO from July 2008 to June 2009.
(3) No VSR

n

Table 1.3-622. Annual Emissions from OGV Auxiliary Boilers - Alternative 4
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.00	0.00	0.02	0.15	0.01	0.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Auxiliary boilers are assumed to operate when engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-623. Annual Emissions from OGV Auxiliary Engines - Alternative 4
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.15	0.13	0.02	0.01
Containerships 5,000 TEU	0.82	0.31	10.94	8.76	1.07	0.86
Containerships 4,000 TEU	0.35	0.13	4.15	3.76	0.46	0.37
Containerships 3,000 TEU	0.02	0.01	0.21	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.04	0.04	0.00	0.00
Subtotal	1.2	0.5	15.5	12.9	1.6	1.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.4	0.5	15.3	0.6	0.3	0.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.65	0.25	7.28	0.29	0.15	0.12
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.4	0.5	15.0	0.6	0.3	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.6	18.7	0.8	0.4	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	1.31	0.50	14.55	0.59	0.30	0.24
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.8	22.3	0.9	0.5	0.4
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.60	0.23	6.64	0.27	0.14	0.11
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.8	22.0	0.9	0.5	0.4

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.
(2) No VSR

Table 1.3-624. Annual Emissions from OGV Auxiliary Boilers - Alternative 4
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 5,000 TEU	0.05	0.02	0.49	3.71	0.18	0.14
Containerships 4,000 TEU	0.01	0.01	0.15	1.11	0.05	0.04
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Subtotal	0.06	0.03	0.67	5.00	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.02	0.01
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.57	0.19	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.67	0.23	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.44	0.15	0.03	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.03	0.02	0.29	0.10	0.02	0.02
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.82	0.27	0.06	0.04

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.
(2) No VSR

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-625. Annual Emissions from OGV Auxiliary Engines - Alternative 4
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.07	0.06	0.01	0.01
Containerships 5,000 TEU	0.40	0.15	5.27	4.21	0.52	0.41
Containerships 4,000 TEU	0.17	0.06	1.99	1.80	0.22	0.18
Containerships 3,000 TEU	0.01	0.00	0.10	0.09	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Subtotal	0.6	0.2	7.4	6.2	0.8	0.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.7	0.3	7.3	0.3	0.2	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.31	0.12	3.48	0.14	0.07	0.06
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.6	0.2	7.2	0.3	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.8	0.3	8.9	0.4	0.2	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.63	0.24	6.96	0.28	0.15	0.12
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.0	0.4	10.7	0.4	0.2	0.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.29	0.11	3.18	0.13	0.07	0.05
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.4	10.5	0.4	0.2	0.2

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-626. Annual Emissions from OGV Auxiliary Boilers - Alternative 4
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 5,000 TEU	0.02	0.01	0.25	1.85	0.09	0.07
Containerships 4,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 3,000 TEU	0.00	0.00	0.01	0.07	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.03	0.02	0.33	2.49	0.12	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.28	0.09	0.02	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.02	0.33	0.11	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.04	0.02	0.39	0.13	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.04	0.02	0.41	0.14	0.03	0.02

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-627. Annual Emissions from OGV Auxiliary Engines - Alternative 4
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.13	0.05	1.80	1.44	0.18	0.14
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	2.5	2.1	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.5	0.1	0.1	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.11	0.04	1.19	0.05	0.02	0.02
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.5	0.1	0.1	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.0	0.1	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.6	0.1	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.04	1.09	0.04	0.02	0.02
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.6	0.1	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-628. Annual Emissions from OGV Auxiliary Boilers - Alternative 4
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.08	0.63	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.03	0.19	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.01	0.11	0.85	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-629. Annual Emissions from OGV Auxiliary Engines - Alternative 4
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.12	0.05	1.57	1.26	0.15	0.12
Containerships 4,000 TEU	0.05	0.02	0.59	0.54	0.07	0.05
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	2.2	1.8	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.2	0.1	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.09	0.04	1.04	0.04	0.02	0.02
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.1	0.1	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.19	0.07	2.08	0.08	0.04	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.2	0.1	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.09	0.03	0.95	0.04	0.02	0.02
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.1	0.1	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-630. Annual Emissions from OGV Auxiliary Boilers - Alternative 4
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.10	0.74	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.12	0.04	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.12	0.04	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-631. Annual Emissions from OGV Auxiliary Engines - Alternative 4

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.03	0.02	0.00	0.00
Containerships 5,000 TEU	0.17	0.07	2.31	1.85	0.23	0.18
Containerships 4,000 TEU	0.05	0.02	0.57	0.51	0.06	0.05
Containerships 3,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	3.0	2.4	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.11	0.04	1.23	0.05	0.03	0.02
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.6	0.1	0.1	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.2	0.1	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.22	0.09	2.47	0.10	0.05	0.04
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.8	0.2	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.04	1.13	0.05	0.02	0.02
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.8	0.2	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.
(2) Turning occurs during only one trip segment (arrival or departure).

Table 1.3-632. Annual Emissions from OGV Auxiliary Boilers - Alternative 4

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.06	0.44	0.02	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.12	0.01	0.00
Containerships 3,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.08	0.58	0.03	0.02
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.07	0.02	0.01	0.00
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.
Turning occurs during only one trip segment (arrival or departure).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-633. Annual Emissions from OGV Auxiliary Engines - Alternative 4

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 5,000 TEU	0.37	0.14	4.94	3.96	0.49	0.39
Containerships 4,000 TEU	0.10	0.04	1.22	1.10	0.14	0.11
Containerships 3,000 TEU	0.01	0.00	0.11	0.10	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Subtotal	0.5	0.2	6.3	5.2	0.6	0.5
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.2	5.7	0.2	0.1	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.24	0.09	2.65	0.11	0.06	0.04
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.2	5.6	0.2	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.6	0.2	6.9	0.3	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.48	0.18	5.29	0.21	0.11	0.09
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.7	0.3	8.2	0.3	0.2	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.22	0.08	2.42	0.10	0.05	0.04
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.7	0.3	8.1	0.3	0.2	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-634. Annual Emissions from OGV Auxiliary Boilers - Alternative 4

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.01	0.12	0.93	0.05	0.03
Containerships 4,000 TEU	0.00	0.00	0.04	0.27	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.02	0.01	0.17	1.24	0.06	0.05
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.06	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.18	0.06	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-635. Annual Emissions from OGV Auxiliary Engines - Alternative 4

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.12	0.05	1.47	1.33	0.16	0.13
Containerships 5,000 TEU	10.03	3.84	133.62	106.93	13.12	10.50
Containerships 4,000 TEU	3.71	1.42	43.68	39.52	4.85	3.88
Containerships 3,000 TEU	0.29	0.11	3.44	3.11	0.38	0.31
Containerships 1,000 TEU	0.02	0.01	0.19	0.17	0.02	0.02
Subtotal	14.2	5.4	182.4	151.1	18.5	14.8
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.09	6.93	200.98	8.09	4.19	3.36
Containerships 5,000 TEU	3.91	1.50	43.45	1.75	0.91	0.73
Containerships 4,000 TEU	2.09	0.80	23.23	0.94	0.48	0.39
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.1	9.2	267.7	10.8	5.6	4.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.19	1.22	35.44	1.43	0.74	0.59
Containerships 6,000 TEU	5.43	2.08	60.29	2.43	1.26	1.01
Containerships 5,000 TEU	1.76	0.67	19.57	0.79	0.41	0.33
Containerships 4,000 TEU	0.94	0.36	10.48	0.42	0.22	0.17
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.3	4.3	125.8	5.1	2.6	2.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.16	0.44	12.84	0.52	0.27	0.21
Containerships 6,000 TEU	2.95	1.13	32.81	1.32	0.68	0.55
Containerships 5,000 TEU	0.64	0.24	7.11	0.29	0.15	0.12
Containerships 4,000 TEU	0.34	0.13	3.81	0.15	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.1	1.9	56.6	2.3	1.2	0.9
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.89	0.34	9.87	0.40	0.21	0.16
Containerships 6,000 TEU	3.04	1.17	33.82	1.36	0.71	0.56
Containerships 5,000 TEU	0.50	0.19	5.51	0.22	0.11	0.09
Containerships 4,000 TEU	0.27	0.10	2.97	0.12	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.7	1.8	52.2	2.1	1.1	0.9
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.71	0.65	19.00	0.76	0.40	0.32
Containerships 6,000 TEU	2.20	0.84	24.42	0.98	0.51	0.41
Containerships 5,000 TEU	0.48	0.18	5.31	0.21	0.11	0.09
Containerships 4,000 TEU	0.26	0.10	2.86	0.12	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	51.6	2.1	1.1	0.9

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-636. Annual Emissions from OGV Auxiliary Boilers - Alternative 4

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.09	0.66	0.03	0.02
Containerships 5,000 TEU	1.07	0.56	11.16	83.84	4.09	3.07
Containerships 4,000 TEU	0.26	0.14	2.69	20.22	0.99	0.74
Containerships 3,000 TEU	0.05	0.03	0.50	3.74	0.18	0.14
Containerships 1,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Subtotal	1.38	0.73	14.45	108.62	5.30	3.97
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.21	0.64	11.98	4.01	0.83	0.62
Containerships 5,000 TEU	0.42	0.22	4.10	1.37	0.28	0.21
Containerships 4,000 TEU	0.14	0.08	1.43	0.48	0.10	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.77	0.93	17.51	5.86	1.21	0.90
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.48	0.25	4.70	1.57	0.32	0.24
Containerships 6,000 TEU	0.73	0.38	7.19	2.40	0.50	0.37
Containerships 5,000 TEU	0.37	0.20	3.70	1.24	0.25	0.19
Containerships 4,000 TEU	0.13	0.07	1.29	0.43	0.09	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.71	0.90	16.87	5.64	1.16	0.87
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.43	0.23	4.25	1.42	0.29	0.22
Containerships 6,000 TEU	0.99	0.52	9.78	3.27	0.67	0.51
Containerships 5,000 TEU	0.34	0.18	3.35	1.12	0.23	0.17
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.99	18.56	6.21	1.28	0.96
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.17	3.27	1.09	0.23	0.17
Containerships 6,000 TEU	1.02	0.54	10.08	3.37	0.69	0.52
Containerships 5,000 TEU	0.26	0.14	2.60	0.87	0.18	0.13
Containerships 4,000 TEU	0.09	0.05	0.91	0.31	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.71	0.90	16.87	5.64	1.16	0.87
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.64	0.34	6.29	2.10	0.43	0.33
Containerships 6,000 TEU	0.74	0.39	7.28	2.43	0.50	0.38
Containerships 5,000 TEU	0.25	0.13	2.51	0.84	0.17	0.13
Containerships 4,000 TEU	0.09	0.05	0.88	0.29	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.72	0.90	16.96	5.67	1.17	0.88

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

(2) Boilers are assumed to operate during hotelling regardless of whether the ship uses AMP.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-637. Annual Emissions from OGV Auxiliary Engines - Alternative 4

Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.15	0.06	2.00	1.60	0.20	0.16
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.04	0.03	0.00	0.00
Subtotal	0.2	0.1	2.7	2.2	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.1	0.1	1.6	0.1	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.49	0.02	0.01	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	1.9	0.1	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.2	0.1	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.09	0.03	0.99	0.04	0.02	0.02
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.4	0.1	0.1	0.0
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.04	1.11	0.04	0.02	0.02
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-638. Annual Emissions from OGV Auxiliary Boilers - Alternative 4

Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.02	0.01	0.16	1.24	0.06	0.05
Containerships 4,000 TEU	0.00	0.00	0.04	0.31	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Subtotal	0.02	0.01	0.21	1.57	0.08	0.06
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.15	0.05	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.06	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-639. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.4	3.6	111.5	105.5	12.9	10.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.4	3.6	111.5	105.5	12.9	10.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.4	3.6	104.9	4.2	2.2	1.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.4	3.6	104.9	4.2	2.2	1.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.2	3.1	91.1	3.7	1.9	1.5
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.2	3.1	91.1	3.7	1.9	1.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.2	3.1	91.1	3.7	1.9	1.5
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.2	3.1	91.1	3.7	1.9	1.5
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.2	3.1	91.1	3.7	1.9	1.5
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.2	3.1	91.1	3.7	1.9	1.5
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.2	3.1	91.1	3.7	1.9	1.5
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.2	3.1	91.1	3.7	1.9	1.5

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and no VSR at 40nm.

Table 1.3-640. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-641. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.5	4.8	147.4	133.4	16.4	13.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.5	4.8	147.4	133.4	16.4	13.1
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.6	4.8	139.9	5.6	2.9	2.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.6	4.8	139.9	5.6	2.9	2.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.5	4.4	127.8	5.1	2.7	2.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.5	4.4	127.8	5.1	2.7	2.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.5	4.4	127.8	5.1	2.7	2.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.5	4.4	127.8	5.1	2.7	2.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.5	4.4	127.8	5.1	2.7	2.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.5	4.4	127.8	5.1	2.7	2.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.5	4.4	127.8	5.1	2.7	2.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.5	4.4	127.8	5.1	2.7	2.1

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-642. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.43	33.27	1.62	1.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.43	33.27	1.62	1.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.
(4) All study years are 95% compliant with VSR for the peak day.

Table 1.3-643. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.0	2.3	71.0	64.2	7.9	6.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.0	2.3	71.0	64.2	7.9	6.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.0	2.3	66.9	2.7	1.4	1.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.0	2.3	66.9	2.7	1.4	1.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.5	2.1	61.2	2.5	1.3	1.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.5	2.1	61.2	2.5	1.3	1.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.5	2.1	61.2	2.5	1.3	1.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.5	2.1	61.2	2.5	1.3	1.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.5	2.1	61.2	2.5	1.3	1.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.5	2.1	61.2	2.5	1.3	1.0
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.5	2.1	61.2	2.5	1.3	1.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.5	2.1	61.2	2.5	1.3	1.0

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-644. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.21	16.58	0.81	0.61
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.21	16.58	0.81	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-645. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	24.2	21.9	2.7	2.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	24.2	21.9	2.7	2.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	22.8	0.9	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	22.8	0.9	0.5	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.9	0.7	20.9	0.8	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.7	20.9	0.8	0.4	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.9	0.7	20.9	0.8	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.7	20.9	0.8	0.4	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.9	0.7	20.9	0.8	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.7	20.9	0.8	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.9	0.7	20.9	0.8	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.7	20.9	0.8	0.4	0.3

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-646. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.75	5.65	0.28	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-647. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.8	0.7	21.2	19.2	2.4	1.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.7	21.2	19.2	2.4	1.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.8	0.7	20.0	0.8	0.4	0.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.7	20.0	0.8	0.4	0.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.6	0.6	18.3	0.7	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.6	18.3	0.7	0.4	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.6	0.6	18.3	0.7	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.6	18.3	0.7	0.4	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.6	0.6	18.3	0.7	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.6	18.3	0.7	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.6	0.6	18.3	0.7	0.4	0.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.6	18.3	0.7	0.4	0.3

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-648. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.66	4.95	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-649. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	25.2	22.8	2.8	2.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	25.2	22.8	2.8	2.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	23.7	1.0	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	23.7	1.0	0.5	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.0	0.7	21.7	0.9	0.5	0.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.7	21.7	0.9	0.5	0.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.0	0.7	21.7	0.9	0.5	0.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.7	21.7	0.9	0.5	0.4
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.0	0.7	21.7	0.9	0.5	0.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.7	21.7	0.9	0.5	0.4
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.0	0.7	21.7	0.9	0.5	0.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.7	21.7	0.9	0.5	0.4

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-650. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.54	4.02	0.20	0.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-651. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.6	1.8	54.0	48.8	6.0	4.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	54.0	48.8	6.0	4.8
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.6	1.8	50.9	2.0	1.1	0.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	50.9	2.0	1.1	0.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.2	1.6	46.6	1.9	1.0	0.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.2	1.6	46.6	1.9	1.0	0.8
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.2	1.6	46.6	1.9	1.0	0.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.2	1.6	46.6	1.9	1.0	0.8
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.2	1.6	46.6	1.9	1.0	0.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.2	1.6	46.6	1.9	1.0	0.8
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.2	1.6	46.6	1.9	1.0	0.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.2	1.6	46.6	1.9	1.0	0.8

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-652. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.15	8.62	0.42	0.32
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.15	8.62	0.42	0.32
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-653. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.1	80.1	2,463.8	2,229.5	273.6	218.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.1	80.1	2,463.8	2,229.5	273.6	218.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.0	80.0	2,322.3	93.5	48.5	38.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.0	80.0	2,322.3	93.5	48.5	38.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	83.4	32.0	927.1	37.3	19.3	15.5
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	83.4	32.0	927.1	37.3	19.3	15.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	33.4	12.8	370.8	14.9	7.7	6.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	33.4	12.8	370.8	14.9	7.7	6.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	33.4	12.8	370.8	14.9	7.7	6.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	33.4	12.8	370.8	14.9	7.7	6.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	33.4	12.8	370.8	14.9	7.7	6.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	33.4	12.8	370.8	14.9	7.7	6.2

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (80%).

Table 1.3-654. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.03	7.39	146.85	1,103.49	53.84	40.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.03	7.39	146.85	1,103.49	53.84	40.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.02	7.38	138.42	46.28	9.54	7.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.02	7.38	138.42	46.28	9.54	7.15
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.45	6.55	122.87	41.08	8.46	6.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.45	6.55	122.87	41.08	8.46	6.35
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.45	6.55	122.87	41.08	8.46	6.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.45	6.55	122.87	41.08	8.46	6.35
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.45	6.55	122.87	41.08	8.46	6.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.45	6.55	122.87	41.08	8.46	6.35
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.45	6.55	122.87	41.08	8.46	6.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.45	6.55	122.87	41.08	8.46	6.35

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-655. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4

Anchoring

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Peak day ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

Table 1.3-656. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4

Anchoring

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Peak day ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-657 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.55	45.94	5.60	4.48
Containerships 5,000 TEU	3.05	1.17	40.70	34.06	4.15	3.32
Containerships 4,000 TEU	3.91	1.50	46.16	43.67	5.33	4.26
Containerships 3,000 TEU	1.62	0.62	19.13	18.10	2.21	1.77
Containerships 1,000 TEU	1.07	0.41	12.70	12.01	1.46	1.17
Maximum	4.11	1.57	48.55	45.94	5.60	4.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.91	1.50	43.39	1.75	0.91	0.72
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Study years 2012-2027 assume worst case container vessel auxiliary engines use 0.1% sulfur fuel.
(3) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-658 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.17	0.09	1.82	14.32	0.69	0.52
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.82	14.32	0.69	0.52
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(4) Auxiliary boilers are assumed to operate if the main engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-659 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.40	43.80	5.38	4.30
Containerships 5,000 TEU	3.05	1.17	40.58	32.47	3.98	3.19
Containerships 4,000 TEU	3.91	1.50	46.02	41.64	5.11	4.09
Containerships 3,000 TEU	1.62	0.62	19.07	17.26	2.12	1.69
Containerships 1,000 TEU	1.07	0.41	12.66	11.45	1.41	1.12
Maximum	4.11	1.57	48.40	43.80	5.38	4.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.
(3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

Table 1.3-660. Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.43	10.74	0.52	0.39
Containerships 5,000 TEU	0.17	0.09	1.80	13.54	0.66	0.50
Containerships 4,000 TEU	0.15	0.08	1.61	12.11	0.59	0.44
Containerships 3,000 TEU	0.17	0.09	1.82	13.65	0.67	0.50
Containerships 1,000 TEU	0.02	0.01	0.25	1.91	0.09	0.07
Maximum	0.17	0.09	1.82	13.65	0.67	0.50
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary boiler would use residual fuel with 0.1% sulfur.
(3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-661 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	35.48	32.11	3.94	3.15
Containerships 5,000 TEU	2.23	0.85	29.75	23.80	2.92	2.34
Containerships 4,000 TEU	2.86	1.10	33.74	30.53	3.75	3.00
Containerships 3,000 TEU	1.19	0.45	13.98	12.65	1.55	1.24
Containerships 1,000 TEU	0.79	0.30	9.28	8.40	1.03	0.82
Maximum	3.01	1.15	35.48	32.11	3.94	3.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-662. Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.10	8.29	0.40	0.30
Containerships 5,000 TEU	0.13	0.07	1.39	10.45	0.51	0.38
Containerships 4,000 TEU	0.12	0.06	1.24	9.34	0.46	0.34
Containerships 3,000 TEU	0.13	0.07	1.33	10.01	0.49	0.37
Containerships 1,000 TEU	0.02	0.01	0.20	1.47	0.07	0.05
Maximum	0.13	0.07	1.39	10.45	0.51	0.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-663 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	1.52	0.58	20.29	16.24	1.99	1.59
Containerships 4,000 TEU	1.95	0.75	23.01	20.82	2.56	2.04
Containerships 3,000 TEU	0.81	0.31	9.54	8.63	1.06	0.85
Containerships 1,000 TEU	0.54	0.21	6.33	5.73	0.70	0.56
Maximum	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-664. Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	0.09	0.05	0.95	7.13	0.35	0.26
Containerships 4,000 TEU	0.08	0.04	0.85	6.37	0.31	0.23
Containerships 3,000 TEU	0.09	0.05	0.91	6.83	0.33	0.25
Containerships 1,000 TEU	0.01	0.01	0.13	1.01	0.05	0.04
Maximum	0.09	0.05	0.95	7.13	0.35	0.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-665 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	1.33	0.51	17.75	14.21	1.74	1.39
Containerships 4,000 TEU	1.71	0.65	20.13	18.22	2.24	1.79
Containerships 3,000 TEU	0.71	0.27	8.34	7.55	0.93	0.74
Containerships 1,000 TEU	0.47	0.18	5.54	5.01	0.61	0.49
Maximum	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-666 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	0.08	0.04	0.83	6.24	0.30	0.23
Containerships 4,000 TEU	0.07	0.04	0.74	5.58	0.27	0.20
Containerships 3,000 TEU	0.08	0.04	0.79	5.97	0.29	0.22
Containerships 1,000 TEU	0.01	0.01	0.12	0.88	0.04	0.03
Maximum	0.08	0.04	0.83	6.24	0.30	0.23
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-667 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	1.96	0.75	26.06	20.86	2.56	2.05
Containerships 4,000 TEU	1.64	0.63	19.26	17.43	2.14	1.71
Containerships 3,000 TEU	1.29	0.50	15.25	13.80	1.69	1.36
Containerships 1,000 TEU	0.59	0.23	7.01	6.34	0.78	0.62
Maximum	2.14	0.82	26.06	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-668. Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	0.06	0.03	0.65	4.92	0.24	0.18
Containerships 4,000 TEU	0.05	0.03	0.56	4.24	0.21	0.15
Containerships 3,000 TEU	0.05	0.03	0.55	4.15	0.20	0.15
Containerships 1,000 TEU	0.02	0.01	0.25	1.88	0.09	0.07
Maximum	0.06	0.03	0.65	4.92	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-669 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	26.99	24.42	3.00	2.40
Containerships 5,000 TEU	2.10	0.80	27.93	22.35	2.74	2.19
Containerships 4,000 TEU	1.75	0.67	20.64	18.68	2.29	1.83
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.64	0.24	7.51	6.79	0.83	0.67
Maximum	2.29	0.88	27.93	24.42	3.00	2.40
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-670. Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.57	4.31	0.21	0.16
Containerships 5,000 TEU	0.07	0.04	0.70	5.27	0.26	0.19
Containerships 4,000 TEU	0.06	0.03	0.60	4.54	0.22	0.17
Containerships 3,000 TEU	0.06	0.03	0.59	4.45	0.22	0.16
Containerships 1,000 TEU	0.03	0.01	0.27	2.01	0.10	0.07
Maximum	0.07	0.04	0.70	5.27	0.26	0.19
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-671 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4

Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	38.49	34.83	4.27	3.42
Containerships 5,000 TEU	2.52	0.97	33.59	26.88	3.30	2.64
Containerships 4,000 TEU	3.33	1.27	39.20	35.47	4.35	3.48
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.82	0.31	9.69	8.77	1.08	0.86
Maximum	3.33	1.27	39.20	35.47	4.35	3.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-672. Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4

Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.29	17.24	0.84	0.63
Containerships 5,000 TEU	0.27	0.14	2.80	21.08	1.03	0.77
Containerships 4,000 TEU	0.23	0.12	2.42	18.15	0.89	0.66
Containerships 3,000 TEU	0.23	0.12	2.37	17.79	0.87	0.65
Containerships 1,000 TEU	0.10	0.05	1.07	8.05	0.39	0.29
Maximum	0.27	0.14	2.80	21.08	1.03	0.77
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

Table 1.3-673 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4

Anchoring

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-674. Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4

Anchoring

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-675. Annual Emissions from Tugboat Main Engine - Alternative 4

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Containerships 5,000 TEU	1.64	0.39	5.86	0.00	0.25	0.23
Containerships 4,000 TEU	0.55	0.13	1.95	0.00	0.08	0.08
Containerships 3,000 TEU	0.06	0.02	0.23	0.00	0.01	0.01
Containerships 1,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Subtotal	2.3	0.5	8.2	0.0	0.3	0.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.67	0.38	6.56	0.00	0.26	0.24
Containerships 5,000 TEU	0.56	0.13	2.19	0.00	0.09	0.08
Containerships 4,000 TEU	0.28	0.06	1.09	0.00	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	9.8	0.0	0.4	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 6,000 TEU	1.18	0.22	1.38	0.00	0.03	0.03
Containerships 5,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 4,000 TEU	0.30	0.05	0.34	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.7	0.5	3.1	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 6,000 TEU	1.88	0.36	2.17	0.00	0.05	0.04
Containerships 5,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 4,000 TEU	0.31	0.06	0.36	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.4	0.7	4.0	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 6,000 TEU	2.64	0.53	3.02	0.00	0.07	0.07
Containerships 5,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 4,000 TEU	0.33	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.3	0.9	4.9	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.35	0.27	1.53	0.00	0.04	0.04
Containerships 6,000 TEU	2.02	0.41	2.30	0.00	0.06	0.05
Containerships 5,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 4,000 TEU	0.34	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.4	0.9	5.0	0.0	0.1	0.1

(1) Assist tug main engines are assumed to be replaced by 1/1/2013

Table 1.3-676. Annual Emissions from Tugboat Auxiliary Engines - Alternative 4

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.22	0.05	0.43	0.00	0.02	0.02
Containerships 4,000 TEU	0.07	0.02	0.14	0.00	0.01	0.01
Containerships 3,000 TEU	0.01	0.00	0.02	0.00	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.3	0.1	0.6	0.0	0.0	0.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.15	0.03	0.42	0.00	0.02	0.01
Containerships 5,000 TEU	0.05	0.01	0.14	0.00	0.01	0.00
Containerships 4,000 TEU	0.03	0.01	0.07	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	0.6	0.0	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.12	0.03	0.12	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	0.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.19	0.04	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.3	0.0	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.27	0.06	0.25	0.00	0.01	0.01
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 6,000 TEU	0.20	0.05	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0

(1) Assist tug auxiliary engines are assumed to be replaced by 1/1/2014.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-677. Max Daily Emissions from Tugboat Main Engine - Alternative 4

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.53	4.38	66.25	0.03	2.83	2.60
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.53	4.38	66.25	0.03	2.83	2.60
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	21.42	4.89	84.13	0.03	3.31	3.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.42	4.89	84.13	0.03	3.31	3.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	22.75	4.22	26.52	0.03	0.54	0.50
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	22.7	4.2	26.5	0.0	0.5	0.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	24.07	4.64	27.76	0.03	0.62	0.57
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.1	4.6	27.8	0.0	0.6	0.6
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.39	5.07	28.99	0.03	0.70	0.65
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.4	5.1	29.0	0.0	0.7	0.6
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.92	5.24	29.49	0.03	0.73	0.68
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.9	5.2	29.5	0.0	0.7	0.7

(1) Assist tug main engines are assumed to be replaced after a useful life of 23 yrs (in 2018).

Table 1.3-678. Max Daily Emissions from Tugboat Auxiliary Engines - Alternative 4

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.49	0.52	4.85	0.00	0.23	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.5	4.8	0.0	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.93	0.43	5.33	0.00	0.20	0.19
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.4	5.3	0.0	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.39	0.52	2.31	0.00	0.05	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.4	0.5	2.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.47	0.55	2.38	0.00	0.05	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	2.4	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.56	0.58	2.45	0.00	0.06	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	0.6	2.4	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.59	0.60	2.47	0.00	0.06	0.06
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	0.6	2.5	0.0	0.1	0.1

(1) Assist tug auxiliary engines are assumed to be replaced after a useful life of 23yrs (in 2022).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-679. Max 1-Hour Emissions from Tugboat Main Engine - Alternative 4

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 5,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 4,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 3,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 1,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Maximum	8.22	1.94	29.40	0.01	1.25	1.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 5,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 4,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.50	2.17	37.34	0.01	1.47	1.35
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 6,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 5,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 4,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.10	1.87	11.77	0.01	0.24	0.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 6,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 5,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 4,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.68	2.06	12.32	0.01	0.28	0.25
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 6,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 5,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 4,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.27	2.25	12.87	0.01	0.31	0.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 6,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 5,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 4,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.50	2.32	13.09	0.01	0.33	0.30

Notes: (1) Emissions assume use of two tugboats for 1 hour.
(2) Assist tug main engines are assumed to be replaced after a useful life of 23 yrs (in 2018).

Table 1.3-680. Max 1-Hour Emissions from Tugboat Auxiliary Engines - Alternative 4

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 5,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 4,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 3,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 1,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Maximum	1.11	0.23	2.15	0.00	0.10	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 5,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 4,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.86	0.19	2.37	0.00	0.09	0.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 6,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 5,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 4,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.06	0.23	1.02	0.00	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 6,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 5,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 4,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.10	0.25	1.05	0.00	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 6,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 5,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 4,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.13	0.26	1.09	0.00	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 6,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 5,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 4,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.15	0.27	1.10	0.00	0.03	0.02

Notes: (1) Emissions assume use of two tugboats for 1 hour.
(2) Assist tug auxiliary engines are assumed to be replaced after a useful life of 23yrs (in 2022).

Table 1.3-681. Annual Emissions from AMP Electricity Consumption - Alternative 4 without Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.26	0.01	1.51	0.16	0.05	0.05
Containerships 6,000 TEU	0.45	0.02	2.57	0.27	0.09	0.09
Containerships 5,000 TEU	0.15	0.01	0.84	0.09	0.03	0.03
Containerships 4,000 TEU	0.08	0.00	0.45	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.0	5.4	0.6	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.38	0.02	2.19	0.23	0.08	0.08
Containerships 6,000 TEU	0.97	0.05	5.60	0.58	0.19	0.19
Containerships 5,000 TEU	0.21	0.01	1.21	0.13	0.04	0.04
Containerships 4,000 TEU	0.11	0.01	0.65	0.07	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.1	9.7	1.0	0.3	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.29	0.01	1.69	0.18	0.06	0.06
Containerships 6,000 TEU	1.00	0.05	5.77	0.60	0.20	0.20
Containerships 5,000 TEU	0.16	0.01	0.94	0.10	0.03	0.03
Containerships 4,000 TEU	0.09	0.00	0.51	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.1	8.9	0.9	0.3	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.56	0.03	3.24	0.34	0.11	0.11
Containerships 6,000 TEU	0.73	0.04	4.17	0.44	0.15	0.14
Containerships 5,000 TEU	0.16	0.01	0.91	0.09	0.03	0.03
Containerships 4,000 TEU	0.08	0.00	0.49	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.1	8.8	0.9	0.3	0.3

Table 1.3-682. Max Daily Emissions from AMP Electricity Consumption - Alternative 4

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	6.88	0.34	39.57	4.13	1.38	1.37
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.9	0.3	39.6	4.1	1.4	1.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.01	0.55	63.32	6.61	2.20	2.20
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.0	0.6	63.3	6.6	2.2	2.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.01	0.55	63.32	6.61	2.20	2.20
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.0	0.6	63.3	6.6	2.2	2.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.01	0.55	63.32	6.61	2.20	2.20
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.0	0.6	63.3	6.6	2.2	2.2

Table 1.3-683. Summary of Annual Marine Vessel Emissions without Mitigation
 Alternative 4

Project Scenario/Activity	Tons Per Year						Lead
	CO	VOC	NOx	SOx	PM10	PM2.5	
Baseline							
Ships - AQMD 40nm to 20nm	13.7	6.1	174.8	106.4	15.0	12.0	0.0077
Ships - 20nm to PA	12.8	6.4	106.1	59.2	10.1	8.1	0.0090
Ships - PA	6.0	3.3	44.0	23.0	4.5	3.6	0.0043
Ships - Harbor Transit	3.8	3.4	25.5	8.4	3.1	2.5	0.0028
Ships - Turning & Docking	1.6	1.1	14.7	10.1	1.7	1.3	0.0052
Ships - Anchoring	0.2	0.1	2.9	3.8	0.4	0.3	0.0015
Ships - Hotelling	15.5	6.2	196.8	259.7	23.8	18.8	0.1020
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	2.6	0.6	8.8	0.0	0.4	0.3	-
Total	56.3	27.2	573.7	470.5	58.9	46.9	0.1325
Project Year 2012							
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3	0.0015
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6	0.0018
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7	0.0009
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5	0.0006
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3	0.0010
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0	0.0002
Ships - Hotelling	25.9	10.2	285.2	16.6	6.8	5.4	0.0307
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	2.7	0.6	10.5	0.0	0.4	0.4	-
Total	70.5	33.2	656.4	26.0	13.8	11.0	0.0366
Project Year 2015							
Ships - AQMD 40nm to 20nm	15.9	7.1	181.3	4.9	2.9	2.4	0.0014
Ships - 20nm to PA	14.4	7.3	105.2	2.7	2.0	1.6	0.0018
Ships - PA	6.7	3.7	43.3	1.0	0.9	0.7	0.0009
Ships - Harbor Transit	4.3	3.8	25.6	0.4	0.6	0.5	0.0005
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3	0.0009
Ships - Anchoring	0.2	0.1	2.1	0.1	0.1	0.0	0.0002
Ships - Hotelling	13.0	5.2	142.7	10.7	3.8	3.0	0.0144
AMP - Hotelling	0.9	0.0	5.4	0.6	0.2	0.2	-
Tugboats	2.9	0.6	3.4	0.0	0.1	0.1	-
Total	60.1	29.1	522.4	20.8	10.8	8.7	0.0202
Project Year 2020							
Ships - AQMD 40nm to 20nm	19.6	8.8	223.2	6.1	3.6	2.9	0.0018
Ships - 20nm to PA	17.7	8.9	129.5	3.3	2.4	2.0	0.0022
Ships - PA	8.3	4.6	53.3	1.3	1.1	0.9	0.0011
Ships - Harbor Transit	5.3	4.7	31.4	0.5	0.8	0.6	0.0007
Ships - Turning & Docking	2.1	1.5	16.7	0.5	0.4	0.3	0.0012
Ships - Anchoring	0.2	0.1	2.3	0.1	0.1	0.0	0.0003
Ships - Hotelling	7.0	2.9	75.1	8.5	2.5	1.9	0.0065
AMP - Hotelling	1.7	0.1	9.7	1.0	0.3	0.3	-
Tugboats	3.8	0.7	4.3	0.0	0.1	0.1	-
Total	65.6	32.4	545.5	21.2	11.3	9.0	0.0136
Project Year 2025							
Ships - AQMD 40nm to 20nm	23.3	10.4	265.0	7.2	4.3	3.4	0.0021
Ships - 20nm to PA	21.0	10.6	153.8	3.9	2.9	2.3	0.0027
Ships - PA	9.8	5.4	63.3	1.5	1.3	1.0	0.0013
Ships - Harbor Transit	6.2	5.6	37.3	0.5	0.9	0.7	0.0008
Ships - Turning & Docking	2.5	1.8	19.9	0.6	0.5	0.4	0.0014
Ships - Anchoring	0.2	0.1	2.6	0.2	0.1	0.0	0.0003
Ships - Hotelling	6.4	2.7	69.0	7.7	2.3	1.7	0.0060
AMP - Hotelling	1.5	0.1	8.9	0.9	0.3	0.3	-
Tugboats	4.7	1.0	5.3	0.0	0.1	0.1	-
Total	75.7	37.6	625.2	22.6	12.6	10.1	0.0145
Project Year 2027							
Ships - AQMD 40nm to 20nm	23.8	10.7	271.6	7.4	4.4	3.5	0.0021
Ships - 20nm to PA	21.4	10.8	155.7	4.0	2.9	2.4	0.0026
Ships - PA	10.0	5.6	64.1	1.5	1.3	1.0	0.0013
Ships - Harbor Transit	6.4	5.7	38.0	0.6	0.9	0.7	0.0008
Ships - Turning & Docking	2.5	1.8	19.9	0.6	0.5	0.4	0.0014
Ships - Anchoring	0.3	0.1	2.9	0.2	0.1	0.1	0.0003
Ships - Hotelling	6.4	2.7	68.5	7.7	2.2	1.7	0.0059
AMP - Hotelling	1.5	0.1	8.8	0.9	0.3	0.3	-
Tugboats	4.8	1.0	5.4	0.0	0.1	0.1	-
Total	77.1	38.5	634.9	22.8	12.8	10.3	0.0143

Table 1.3-684. Summary of Maximum Daily Marine Vessel Emissions without Mitigation
 Alternative 4

Project Scenario/Activity	Pounds per Day						Lead
	CO	VOC	NOx	SOx	PM10	PM2.5	
Baseline							
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123	0.0767
Ships - 20nm to PA	126	64	985	564	99	79	0.0934
Ships - PA	60	33	408	217	44	35	0.0448
Ships - Harbor Transit	38	34	240	79	31	25	0.0288
Ships - Turning & Docking	15	11	129	90	16	13	0.0486
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259	1.5048
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3	-
Total	624	296	6,157	5,377	674	537	1.7972
Project Year 2012							
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21	0.0130
Ships - 20nm to PA	127	64	935	24	18	14	0.0167
Ships - PA	60	33	385	9	8	6	0.0079
Ships - Harbor Transit	38	34	227	3	6	4	0.0051
Ships - Turning & Docking	15	11	122	4	3	2	0.0086
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46	0.2665
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3	-
Total	627	297	5,828	224	121	97	0.3179
Project Year 2015							
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24	0.0116
Ships - 20nm to PA	142	73	1,008	25	19	15	0.0153
Ships - PA	66	38	414	9	8	7	0.0073
Ships - Harbor Transit	42	39	252	3	6	5	0.0047
Ships - Turning & Docking	16	12	122	4	3	2	0.0079
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	96	39	1,050	78	28	22	0.1064
AMP - Hotelling	7	0	40	4	1	1	-
Tugboats	25	5	29	0	1	1	-
Total	558	279	4,776	174	97	77	0.1533
Project Year 2020							
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24	0.0116
Ships - 20nm to PA	142	73	1,008	25	19	15	0.0153
Ships - PA	66	38	414	9	8	7	0.0073
Ships - Harbor Transit	42	39	252	3	6	5	0.0047
Ships - Turning & Docking	16	12	122	4	3	2	0.0079
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13	0.0426
AMP - Hotelling	11	1	63	7	2	2	-
Tugboats	27	5	30	0	1	1	-
Total	513	261	4,245	154	86	69	0.0895
Project Year 2025							
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24	0.0116
Ships - 20nm to PA	142	73	1,008	25	19	15	0.0153
Ships - PA	66	38	414	9	8	7	0.0073
Ships - Harbor Transit	42	39	252	3	6	5	0.0047
Ships - Turning & Docking	16	12	122	4	3	2	0.0079
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13	0.0426
AMP - Hotelling	11	1	63	7	2	2	-
Tugboats	28	6	31	0	1	1	-
Total	515	261	4,246	154	86	69	0.0895
Project Year 2027							
Ships - AQMD 40nm to 20nm	163	73	1,862	50	30	24	0.0116
Ships - 20nm to PA	142	73	1,008	25	19	15	0.0153
Ships - PA	66	38	414	9	8	7	0.0073
Ships - Harbor Transit	42	39	252	3	6	5	0.0047
Ships - Turning & Docking	16	12	122	4	3	2	0.0025
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	46	19	494	56	16	13	0.0426
AMP - Hotelling	11	1	63	7	2	2	-
Tugboats	29	6	32	0	1	1	-
Total	515	261	4,247	154	86	69	0.0841

Table 1.3-685. Summary of Average Daily Marine Vessel Emissions without Mitigation
 Alternative 4

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	75	34	958	583	82	66
Ships - 20nm to PA	70	35	581	324	55	44
Ships - PA	33	18	241	126	24	20
Ships - Harbor Transit	21	19	140	46	17	14
Ships - Turning & Docking	9	6	81	55	9	7
Ships - Anchoring	1	0	16	21	2	2
Ships - Hotelling	85	34	1,079	1,423	131	103
AMP - Hotelling	-	-	-	-	-	-
Tugboats	14	3	48	0	2	2
Total	308	149	3,144	2,578	323	257
Project Year 2012						
Ships - AQMD 40nm to 20nm	84	38	958	26	16	12
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	142	56	1,563	91	37	29
AMP - Hotelling	-	-	-	-	-	-
Tugboats	15	3	57	0	2	2
Total	386	182	3,597	142	76	60
Project Year 2015						
Ships - AQMD 40nm to 20nm	87	39	994	27	16	13
Ships - 20nm to PA	79	40	576	15	11	9
Ships - PA	37	20	237	6	5	4
Ships - Harbor Transit	23	21	140	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	11	1	0	0
Ships - Hotelling	71	29	782	59	21	16
AMP - Hotelling	5	0	29	3	1	1
Tugboats	16	3	18	0	0	0
Total	329	159	2,862	114	59	47
Project Year 2020						
Ships - AQMD 40nm to 20nm	107	48	1,223	33	20	16
Ships - 20nm to PA	97	49	709	18	13	11
Ships - PA	45	25	292	7	6	5
Ships - Harbor Transit	29	26	172	3	4	3
Ships - Turning & Docking	12	8	92	3	2	2
Ships - Anchoring	1	0	13	1	0	0
Ships - Hotelling	38	16	412	46	13	10
AMP - Hotelling	9	0	53	6	2	2
Tugboats	21	4	24	0	1	0
Total	359	177	2,989	116	62	49
Project Year 2025						
Ships - AQMD 40nm to 20nm	127	57	1,452	39	24	19
Ships - 20nm to PA	115	58	843	21	16	13
Ships - PA	54	30	347	8	7	6
Ships - Harbor Transit	34	31	205	3	5	4
Ships - Turning & Docking	14	10	109	3	3	2
Ships - Anchoring	1	1	14	1	0	0
Ships - Hotelling	35	15	378	42	12	10
AMP - Hotelling	8	0	49	5	2	2
Tugboats	26	5	29	0	1	1
Total	415	206	3,426	124	69	55
Project Year 2027						
Ships - AQMD 40nm to 20nm	131	58	1,488	40	24	19
Ships - 20nm to PA	117	59	853	22	16	13
Ships - PA	55	30	351	8	7	6
Ships - Harbor Transit	35	31	208	3	5	4
Ships - Turning & Docking	14	10	109	3	3	2
Ships - Anchoring	1	1	16	1	0	0
Ships - Hotelling	35	15	376	42	12	10
AMP - Hotelling	8	0	48	5	2	2
Tugboats	26	5	30	0	1	1
Total	422	211	3,479	125	70	56

Table 1.3-686. Summary of Maximum Hourly Marine Vessel Emissions without Mitigation
 Alternative 4

Project Scenario/Activity	Pounds per Hour						Lead
	CO	VOC	NOx	SOx	PM10	PM2.5	
Baseline							
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54	0.0334
Ships - 20nm to PA	42	21	315	63	11	9	0.0298
Ships - PA	30	16	204	111	22	18	0.0224
Ships - Harbor Transit	38	34	241	82	31	25	0.0288
Ships - Turning & Docking	13	10	104	64	13	10	0.0321
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4	0.0239
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1	-
Total	197	112	1,684	866	151	121	0.1704
Project Year 2012							
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9	0.0057
Ships - 20nm to PA	42	21	312	8	6	5	0.0054
Ships - PA	30	16	193	5	4	3	0.0040
Ships - Harbor Transit	38	34	227	3	6	4	0.0051
Ships - Turning & Docking	13	10	96	3	2	2	0.0057
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1	0.0042
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1	-
Total	198	112	1,607	40	31	25	0.0301
Project Year 2015							
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11	0.0058
Ships - 20nm to PA	47	24	342	9	6	5	0.0055
Ships - PA	34	19	210	5	4	3	0.0040
Ships - Harbor Transit	43	40	255	4	6	5	0.0051
Ships - Turning & Docking	14	11	103	3	2	2	0.0057
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1	0.0042
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0	-
Total	227	131	1,819	45	35	28	0.0303
Project Year 2020							
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11	0.0058
Ships - 20nm to PA	47	24	342	9	6	5	0.0055
Ships - PA	34	19	210	5	4	3	0.0040
Ships - Harbor Transit	43	40	255	4	6	5	0.0051
Ships - Turning & Docking	14	11	103	3	2	2	0.0057
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1	0.0042
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0	-
Total	228	131	1,820	45	35	28	0.0303
Project Year 2025							
Ships - AQMD 40nm to 20nm	75	34	854	23	14	11	0.0055
Ships - 20nm to PA	47	24	342	9	6	5	0.0055
Ships - PA	34	19	210	5	4	3	0.0040
Ships - Harbor Transit	43	40	255	4	6	5	0.0051
Ships - Turning & Docking	14	11	103	3	2	2	0.0057
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1	0.0042
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0	-
Total	228	131	1,818	45	35	28	0.0301
Project Year 2027							
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11	0.0058
Ships - 20nm to PA	47	24	342	9	6	5	0.0055
Ships - PA	34	19	210	5	4	3	0.0040
Ships - Harbor Transit	43	40	255	4	6	5	0.0051
Ships - Turning & Docking	14	11	103	3	2	2	0.0057
Ships - Anchoring	-	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1	0.0042
AMP - Hotelling	-	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0	-
Total	229	132	1,821	45	35	28	0.0303

Table 1.3-687. AMP Compliance Rates
 Alternative 4 with and without Mitigation

Project Year	Unmitigated Compliance Rate	Mitigated Compliance Rate
Project Year Baseline	0%	0%
Project Year 2012	0%	0%
Project Year 2014	50%	50%
Project Year 2015	50%	50%
Project Year 2016	50%	70%
Project Year 2020	80%	80%
Project Year 2025	80%	80%
Project Year 2027	80%	95%

Source: 17 CCR 93118.3, POLA

Table 1.3-688. Vessel Speed Reduction Program (VSRP) Compliance Rates
 Alternative 4 with Mitigation

Year	Compliance Rate	Compliance Boundary (nm)
Year 2008 - 2012	95%	20
Year 2014	95%	40

Notes: (1) POLA recognizes APL for VSR compliance, which is defined as a compliance rate of at least 95%.

(2) VSR mitigation measure starting in 2009 applies from 40 nm to the PA.

Table 1.3-689. Annual Emissions from OGV Main Engine - Alternative 4 with Mitigation
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.06	1.60	0.99	0.14	0.11
Containerships 5,000 TEU	9.97	4.50	128.88	74.76	10.68	8.54
Containerships 4,000 TEU	2.43	1.10	29.56	18.26	2.61	2.09
Containerships 3,000 TEU	0.20	0.09	2.18	1.31	0.20	0.16
Containerships 1,000 TEU	0.03	0.01	0.34	0.21	0.03	0.02
Subtotal	12.76	5.76	162.56	95.53	13.66	10.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.29	6.45	163.05	4.29	2.60	2.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.98	25.21	0.52	0.47	0.37
Containerships 6,000 TEU	6.57	3.40	45.61	0.97	0.83	0.67
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.36	7.45	99.30	2.10	1.81	1.45
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.98	25.21	0.52	0.47	0.37
Containerships 6,000 TEU	9.86	5.10	68.41	1.45	1.25	1.00
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.65	9.15	122.11	2.58	2.23	1.78
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.98	25.21	0.52	0.47	0.37
Containerships 6,000 TEU	13.15	6.80	91.22	1.93	1.66	1.33
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.93	10.85	144.91	3.06	2.65	2.12
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	7.50	3.96	50.41	1.04	0.93	0.75
Containerships 6,000 TEU	9.86	5.10	68.41	1.45	1.25	1.00
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.40	11.13	147.31	3.10	2.70	2.16

Notes: (1) Mitigation measures include VSR, slide valves, and low sulfur fuel.

Table 1.3-690. Annual Emissions from OGV Main Engine - Alternative 4 with Mitigation
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	0.83	0.40	0.08	0.06
Containerships 5,000 TEU	8.82	4.56	69.01	30.84	6.29	5.03
Containerships 4,000 TEU	2.33	1.17	18.22	9.07	1.73	1.38
Containerships 3,000 TEU	0.20	0.10	1.67	0.87	0.15	0.12
Containerships 1,000 TEU	0.02	0.01	0.20	0.12	0.02	0.01
Subtotal	11.48	5.89	89.93	41.29	8.27	6.62
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.53	6.47	87.40	1.86	1.59	1.27
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	5.93	3.07	41.13	0.87	0.75	0.60
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.95	6.72	89.56	1.89	1.64	1.31
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.92	8.25	110.13	2.33	2.01	1.61
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	11.86	6.13	82.27	1.74	1.50	1.20
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.88	9.79	130.70	2.76	2.39	1.91
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	6.76	3.57	45.47	0.94	0.84	0.67
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	19.30	10.04	132.86	2.79	2.43	1.95

Notes: (1) Mitigation measures include VSR, slide valves, and low sulfur fuel.

Table 1.3-691. Annual Emissions from OGV Main Engine - Alternative 4 with Mitigation

Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.34	0.14	0.04	0.03
Containerships 5,000 TEU	4.15	2.37	27.83	10.61	2.73	2.18
Containerships 4,000 TEU	1.10	0.60	7.32	3.18	0.74	0.59
Containerships 3,000 TEU	0.10	0.05	0.67	0.31	0.07	0.05
Containerships 1,000 TEU	0.01	0.00	0.07	0.04	0.01	0.01
Subtotal	5.42	3.05	36.23	14.28	3.58	2.86
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.86	3.33	34.92	0.63	0.68	0.55
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	2.77	1.58	16.43	0.30	0.32	0.26
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.06	3.46	35.82	0.64	0.70	0.56
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	7.44	4.25	44.04	0.79	0.87	0.69
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	5.54	3.15	32.86	0.59	0.65	0.52
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.83	5.04	52.25	0.94	1.03	0.82
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.16	1.85	18.22	0.32	0.36	0.29
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.02	5.17	53.15	0.95	1.05	0.84

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-692. Annual Emissions from OGV Main Engine - Alternative 4 with Mitigation

Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.02	0.11	0.01	0.01	0.01
Containerships 5,000 TEU	1.40	1.46	8.85	0.93	1.13	0.90
Containerships 4,000 TEU	0.37	0.36	2.14	0.28	0.29	0.23
Containerships 3,000 TEU	0.03	0.03	0.18	0.03	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.83	1.87	11.30	1.25	1.45	1.16
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.98	2.04	11.03	0.06	0.28	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	0.94	0.97	5.23	0.03	0.13	0.11
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	2.13	11.45	0.06	0.29	0.23
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.52	2.62	14.07	0.07	0.36	0.29
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.87	1.94	10.45	0.05	0.27	0.21
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.98	3.10	16.68	0.08	0.43	0.34
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.07	1.15	6.07	0.03	0.16	0.12
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.05	3.19	17.10	0.08	0.44	0.35

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-693. Annual Emissions from OGV Main Engine - Alternative 4 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.09	0.02	0.01	0.01
Containerships 5,000 TEU	1.23	1.05	7.21	1.22	0.87	0.70
Containerships 4,000 TEU	0.33	0.26	1.78	0.37	0.22	0.18
Containerships 3,000 TEU	0.03	0.02	0.15	0.04	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.60	1.36	9.25	1.64	1.12	0.90
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.74	1.48	9.01	0.07	0.22	0.17
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	0.82	0.70	4.26	0.03	0.10	0.08
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.79	1.54	9.32	0.07	0.23	0.18
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.20	1.90	11.45	0.09	0.28	0.22
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.64	1.41	8.52	0.07	0.21	0.16
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.61	2.25	13.58	0.11	0.33	0.26
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.94	0.83	4.90	0.04	0.12	0.10
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.67	2.31	13.90	0.11	0.34	0.27

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-694. Annual Emissions from OGV Main Engine - Alternative 4 with Mitigation
 Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.01	0.05	0.01	0.01	0.01
Containerships 5,000 TEU	0.66	0.65	4.03	0.48	0.51	0.41
Containerships 4,000 TEU	0.17	0.17	1.00	0.13	0.13	0.11
Containerships 3,000 TEU	0.01	0.01	0.09	0.01	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	0.85	0.84	5.18	0.63	0.66	0.53
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.93	0.91	5.04	0.03	0.13	0.10
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.44	0.43	2.38	0.01	0.06	0.05
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.96	0.94	5.20	0.03	0.13	0.10
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.17	1.16	6.39	0.04	0.16	0.13
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.87	0.86	4.76	0.03	0.12	0.10
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.39	1.37	7.58	0.04	0.19	0.15
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.50	0.49	2.71	0.02	0.07	0.05
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.42	1.40	7.75	0.04	0.19	0.16

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.
 Turning occurs during only one trip segment (arrival or departure).

Table 1.3-695. Annual Emissions from OGV Main Engine - Alternative 4 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Docking						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-696. Max Daily Emissions from OGV Main Engine - Alternative 4 with Mitigation
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.76	59.46	1,599.93	988.19	141.17	112.94
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.76	59.46	1,599.93	988.19	141.17	112.94
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.82	59.49	1,504.61	39.55	24.01	19.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.82	59.49	1,504.61	39.55	24.01	19.21
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	144.21	76.22	969.46	19.96	17.93	14.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	144.21	76.22	969.46	19.96	17.93	14.35
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	144.21	76.22	969.46	19.96	17.93	14.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	144.21	76.22	969.46	19.96	17.93	14.35
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	144.21	76.22	969.46	19.96	17.93	14.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	144.21	76.22	969.46	19.96	17.93	14.35
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	144.21	76.22	969.46	19.96	17.93	14.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	144.21	76.22	969.46	19.96	17.93	14.35

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009 .
 (2) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and VSR at 40nm.

Table 1.3-697. Max Daily Emissions from OGV Main Engine - Alternative 4 with Mitigation
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	113.24	58.58	833.46	396.84	80.87	64.70
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	113.24	58.58	833.46	396.84	80.87	64.70
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	114.00	58.98	791.06	16.76	14.42	11.54
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	114.00	58.98	791.06	16.76	14.42	11.54
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.07	68.74	874.36	18.01	16.17	12.94
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.07	68.74	874.36	18.01	16.17	12.94
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.07	68.74	874.36	18.01	16.17	12.94
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.07	68.74	874.36	18.01	16.17	12.94
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.07	68.74	874.36	18.01	16.17	12.94
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.07	68.74	874.36	18.01	16.17	12.94
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	130.07	68.74	874.36	18.01	16.17	12.94
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.07	68.74	874.36	18.01	16.17	12.94

(2) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

(4) All study years are 95% compliant with VSR for the peak day.

Table 1.3-698. Max Daily Emissions from OGV Main Engine - Alternative 4 with Mitigation
 Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.29	30.34	335.24	136.10	35.02	28.01
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.29	30.34	335.24	136.10	35.02	28.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.28	30.34	315.99	5.71	6.20	4.96
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.28	30.34	315.99	5.71	6.20	4.96
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.70	35.49	350.48	6.06	7.00	5.60
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.70	35.49	350.48	6.06	7.00	5.60
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.70	35.49	350.48	6.06	7.00	5.60
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.70	35.49	350.48	6.06	7.00	5.60
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.70	35.49	350.48	6.06	7.00	5.60
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.70	35.49	350.48	6.06	7.00	5.60
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	60.70	35.49	350.48	6.06	7.00	5.60
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	60.70	35.49	350.48	6.06	7.00	5.60

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-699. Max Daily Emissions from OGV Main Engine - Alternative 4 with Mitigation
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	106.61	11.96	14.45	11.56
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.01	18.67	106.61	11.96	14.45	11.56
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.53	22.03	116.73	0.53	2.99	2.40

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-700. Max Daily Emissions from OGV Main Engine - Alternative 4 with Mitigation
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	86.88	15.62	11.15	8.92
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.78	13.53	86.88	15.62	11.15	8.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.99	15.94	94.15	0.70	2.30	1.84

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-701. Max Daily Emissions from OGV Main Engine - Alternative 4 with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	48.55	6.20	6.50	5.20
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.41	8.29	48.55	6.20	6.50	5.20
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.59	9.45	52.19	0.30	1.31	1.05

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) Assumes turning occurs during arrivals only.

Table 1.3-702. Max Daily Emissions from OGV Main Engine - Alternative 4 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Docking						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (2) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

(3) Main engines are off during docking.

Table 1.3-703 Max 1-Hour Emissions from OGV Main Engine - Alternative 4 with Mitigation
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.33	25.87	696.10	429.94	61.42	49.14
Containerships 5,000 TEU	48.27	21.79	624.12	362.06	51.72	41.38
Containerships 4,000 TEU	31.93	14.41	387.72	239.47	34.21	27.37
Containerships 3,000 TEU	18.83	8.56	206.99	124.71	18.59	14.88
Containerships 1,000 TEU	10.08	4.55	122.42	75.61	10.80	8.64
Maximum	57.33	25.87	696.10	429.94	61.42	49.14
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	57.35	25.88	654.62	17.21	10.45	8.36
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	43.02	22.64	295.35	6.17	5.43	4.34
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	43.02	22.64	295.35	6.17	5.43	4.34
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	43.02	22.64	295.35	6.17	5.43	4.34
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	43.02	22.64	295.35	6.17	5.43	4.34
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	43.02	22.64	295.35	6.17	5.43	4.34
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	43.02	22.64	295.35	6.17	5.43	4.34
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	43.02	22.64	295.35	6.17	5.43	4.34
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	43.02	22.64	295.35	6.17	5.43	4.34

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Main engines in study years 2012-2027 use 0.1% sulfur fuel.
 (3) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (4) Max 1-hour emissions assume the ship does not comply with the VSRP at 40nm.

Table 1.3-704 Max 1-Hour Emissions from OGV Main Engine - Alternative 4 with Mitigation
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	246.90	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	18.66	9.04	146.79	3.39	2.55	2.04
Containerships 1,000 TEU	5.55	2.51	61.14	1.59	0.98	0.79
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.
 (4) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009 .

Table 1.3-705 Max 1-Hour Emissions from OGV Main Engine - Alternative 4 with Mitigation

Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.65	15.17	167.62	68.05	17.51	14.01
Containerships 5,000 TEU	23.47	13.37	157.22	59.95	15.42	12.34
Containerships 4,000 TEU	18.71	10.20	124.05	53.91	12.58	10.06
Containerships 3,000 TEU	13.61	7.12	96.02	44.44	9.45	7.56
Containerships 1,000 TEU	3.86	1.79	37.03	20.44	3.30	2.64
Maximum	26.65	15.17	167.62	68.05	17.51	14.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-706 Max 1-Hour Emissions from OGV Main Engine - Alternative 4 with Mitigation
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	106.61	11.96	14.45	11.56
Containerships 5,000 TEU	15.87	16.45	99.99	10.54	12.73	10.18
Containerships 4,000 TEU	12.64	12.36	72.70	9.48	9.71	7.77
Containerships 3,000 TEU	9.18	8.45	51.55	7.81	6.77	5.42
Containerships 1,000 TEU	2.58	1.89	14.12	3.59	1.70	1.36
Maximum	18.01	18.67	106.61	11.96	14.45	11.56
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-707 Max 1-Hour Emissions from OGV Main Engine - Alternative 4 with Mitigation
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	86.88	15.62	11.15	8.92
Containerships 5,000 TEU	13.91	11.92	81.49	13.76	9.82	7.86
Containerships 4,000 TEU	11.08	8.97	60.41	12.38	7.59	6.08
Containerships 3,000 TEU	8.05	6.15	43.80	10.20	5.38	4.30
Containerships 1,000 TEU	2.27	1.40	13.28	4.69	1.46	1.17
Maximum	15.78	13.53	86.88	15.62	11.15	8.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-708 Max 1-Hour Emissions from OGV Main Engine - Alternative 4 with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	48.55	6.20	6.50	5.20
Containerships 5,000 TEU	7.41	7.30	45.54	5.46	5.73	4.58
Containerships 4,000 TEU	5.90	5.81	34.05	4.35	4.56	3.65
Containerships 3,000 TEU	4.28	4.22	24.72	3.16	3.31	2.65
Containerships 1,000 TEU	1.20	1.19	6.94	0.89	0.93	0.74
Maximum	8.41	8.29	48.55	6.20	6.50	5.20
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-709 Max 1-Hour Emissions from OGV Main Engine - Alternative 4 with Mitigation

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Docking						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

(4) Main engines are off during docking.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-710. Annual Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	1.00	2.00
Containerships 6,000 TEU	0.01	0.00	0.11	0.11	0.01	0.01
Containerships 5,000 TEU	0.63	0.24	8.40	7.03	0.86	0.69
Containerships 4,000 TEU	0.30	0.11	3.52	3.33	0.41	0.32
Containerships 3,000 TEU	0.02	0.01	0.20	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Subtotal	0.96	0.37	12.27	10.69	2.30	3.04
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.05	0.40	11.69	0.47	0.24	0.20
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.13	3.68	0.15	0.08	0.06
Containerships 6,000 TEU	0.73	0.28	8.07	0.32	0.17	0.13
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.50	0.57	16.67	0.67	0.35	0.28
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.13	3.68	0.15	0.08	0.06
Containerships 6,000 TEU	1.09	0.42	12.10	0.49	0.25	0.20
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.86	0.71	20.70	0.83	0.43	0.35
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.13	3.68	0.15	0.08	0.06
Containerships 6,000 TEU	1.45	0.56	16.13	0.65	0.34	0.27
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.23	0.85	24.73	1.00	0.52	0.41
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.66	0.25	7.37	0.30	0.15	0.12
Containerships 6,000 TEU	1.09	0.42	12.10	0.49	0.25	0.20
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.19	0.84	24.38	0.98	0.51	0.41

Notes: (1) Mitigation measures include VSR and low sulfur fuel.

Table 1.3-711. Annual Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.00	0.00	0.02	0.15	0.01	0.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 6,000 TEU	0.02	0.01	0.24	0.08	0.02	0.01
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.63	0.21	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.36	0.12	0.03	0.02
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.75	0.25	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 6,000 TEU	0.05	0.03	0.48	0.16	0.03	0.03
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.87	0.29	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 6,000 TEU	0.04	0.02	0.36	0.12	0.03	0.02
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.91	0.30	0.06	0.05

Notes: (1) Auxiliary boilers are assumed to operate when engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-712. Annual Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.15	0.13	0.02	0.01
Containerships 5,000 TEU	0.82	0.31	10.94	8.76	1.07	0.86
Containerships 4,000 TEU	0.35	0.13	4.15	3.76	0.46	0.37
Containerships 3,000 TEU	0.02	0.01	0.21	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.04	0.04	0.00	0.00
Subtotal	1.21	0.46	15.49	12.87	1.58	1.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.38	0.53	15.35	0.62	0.32	0.26
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.65	0.25	7.28	0.29	0.15	0.12
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.35	0.52	15.03	0.61	0.31	0.25
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.68	0.64	18.67	0.75	0.39	0.31
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	1.31	0.50	14.55	0.59	0.30	0.24
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.01	0.77	22.31	0.90	0.47	0.37
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.60	0.23	6.64	0.27	0.14	0.11
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.98	0.76	21.99	0.89	0.46	0.37

Notes: (1) Mitigation measures include VSR and low sulfur fuel.

Table 1.3-713. Annual Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 5,000 TEU	0.05	0.02	0.49	3.71	0.18	0.14
Containerships 4,000 TEU	0.01	0.01	0.15	1.11	0.05	0.04
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Subtotal	0.06	0.03	0.67	5.00	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.02	0.01
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.57	0.19	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.67	0.23	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.44	0.15	0.03	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.03	0.02	0.29	0.10	0.02	0.02
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.82	0.27	0.06	0.04

Auxiliary boilers are assumed not to operate in the fairway.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-714. Annual Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.07	0.06	0.01	0.01
Containerships 5,000 TEU	0.40	0.15	5.27	4.21	0.52	0.41
Containerships 4,000 TEU	0.17	0.06	1.99	1.80	0.22	0.18
Containerships 3,000 TEU	0.01	0.00	0.10	0.09	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Subtotal	0.58	0.22	7.44	6.18	0.76	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.66	0.25	7.33	0.30	0.15	0.12
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.31	0.12	3.48	0.14	0.07	0.06
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.65	0.25	7.19	0.29	0.15	0.12
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.80	0.31	8.92	0.36	0.19	0.15
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.63	0.24	6.96	0.28	0.15	0.12
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.96	0.37	10.66	0.43	0.22	0.18
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.29	0.11	3.18	0.13	0.07	0.05
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.95	0.36	10.52	0.42	0.22	0.18

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-715. Annual Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 5,000 TEU	0.02	0.01	0.25	1.85	0.09	0.07
Containerships 4,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 3,000 TEU	0.00	0.00	0.01	0.07	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.03	0.02	0.33	2.49	0.12	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.28	0.09	0.02	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.02	0.33	0.11	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.04	0.02	0.39	0.13	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.04	0.02	0.41	0.14	0.03	0.02

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-716. Annual Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.13	0.05	1.80	1.44	0.18	0.14
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.20	0.08	2.54	2.11	0.26	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.23	0.09	2.50	0.10	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.11	0.04	1.19	0.05	0.02	0.02
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.22	0.08	2.45	0.10	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.27	0.10	3.04	0.12	0.06	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.33	0.13	3.64	0.15	0.08	0.06
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.04	1.09	0.04	0.02	0.02
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.32	0.12	3.59	0.14	0.07	0.06

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-717. Annual Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.08	0.63	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.03	0.19	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.01	0.11	0.85	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-718. Annual Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.12	0.05	1.57	1.26	0.15	0.12
Containerships 4,000 TEU	0.05	0.02	0.59	0.54	0.07	0.05
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.17	0.07	2.22	1.85	0.23	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.20	0.08	2.19	0.09	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.09	0.04	1.04	0.04	0.02	0.02
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.07	2.14	0.09	0.04	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.24	0.09	2.66	0.11	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.19	0.07	2.08	0.08	0.04	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.29	0.11	3.18	0.13	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.09	0.03	0.95	0.04	0.02	0.02
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.11	3.14	0.13	0.07	0.05

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-719. Annual Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.10	0.74	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.12	0.04	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.12	0.04	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-720. Annual Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.03	0.02	0.00	0.00
Containerships 5,000 TEU	0.17	0.07	2.31	1.85	0.23	0.18
Containerships 4,000 TEU	0.05	0.02	0.57	0.51	0.06	0.05
Containerships 3,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.23	0.09	2.96	2.44	0.30	0.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.24	0.09	2.65	0.11	0.06	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.11	0.04	1.23	0.05	0.03	0.02
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.23	0.09	2.60	0.10	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.29	0.11	3.22	0.13	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.22	0.09	2.47	0.10	0.05	0.04
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.35	0.13	3.84	0.15	0.08	0.06
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.04	1.13	0.05	0.02	0.02
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.34	0.13	3.78	0.15	0.08	0.06

Notes: (1) Mitigation measures include low sulfur fuel.
Turning occurs during only one trip segment (arrival or departure).

Table 1.3-721. Annual Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.06	0.44	0.02	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.12	0.01	0.00
Containerships 3,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.08	0.58	0.03	0.02
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.07	0.02	0.01	0.00
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00

Notes: (1) Mitigation measures include low sulfur fuel.
Turning occurs during only one trip segment (arrival or departure).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-722. Annual Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 5,000 TEU	0.37	0.14	4.94	3.96	0.49	0.39
Containerships 4,000 TEU	0.10	0.04	1.22	1.10	0.14	0.11
Containerships 3,000 TEU	0.01	0.00	0.11	0.10	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Subtotal	0.49	0.19	6.34	5.22	0.64	0.51
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.51	0.20	5.69	0.23	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.24	0.09	2.65	0.11	0.06	0.04
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.50	0.19	5.57	0.22	0.12	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.62	0.24	6.90	0.28	0.14	0.12
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.48	0.18	5.29	0.21	0.11	0.09
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.74	0.28	8.22	0.33	0.17	0.14
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.22	0.08	2.42	0.10	0.05	0.04
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.73	0.28	8.11	0.33	0.17	0.14

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-723. Annual Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.01	0.12	0.93	0.05	0.03
Containerships 4,000 TEU	0.00	0.00	0.04	0.27	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.02	0.01	0.17	1.24	0.06	0.05
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.06	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.18	0.06	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-724. Annual Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.12	0.05	1.47	1.33	0.16	0.13
Containerships 5,000 TEU	10.03	3.84	133.62	106.93	13.12	10.50
Containerships 4,000 TEU	3.71	1.42	43.68	39.52	4.85	3.88
Containerships 3,000 TEU	0.29	0.11	3.44	3.11	0.38	0.31
Containerships 1,000 TEU	0.02	0.01	0.19	0.17	0.02	0.02
Subtotal	14.17	5.43	182.39	151.06	18.54	14.83
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.09	6.93	200.98	8.09	4.19	3.36
Containerships 5,000 TEU	3.91	1.50	43.45	1.75	0.91	0.73
Containerships 4,000 TEU	2.09	0.80	23.23	0.94	0.48	0.39
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.09	9.23	267.65	10.78	5.59	4.47
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.19	1.22	35.44	1.43	0.74	0.59
Containerships 6,000 TEU	5.43	2.08	60.29	2.43	1.26	1.01
Containerships 5,000 TEU	1.76	0.67	19.57	0.79	0.41	0.33
Containerships 4,000 TEU	0.94	0.36	10.48	0.42	0.22	0.17
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.32	4.34	125.78	5.06	2.62	2.10
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.16	0.44	12.84	0.52	0.27	0.21
Containerships 6,000 TEU	2.95	1.13	32.81	1.32	0.68	0.55
Containerships 5,000 TEU	0.64	0.24	7.11	0.29	0.15	0.12
Containerships 4,000 TEU	0.34	0.13	3.81	0.15	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.09	1.95	56.56	2.28	1.18	0.94
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.89	0.34	9.87	0.40	0.21	0.16
Containerships 6,000 TEU	3.04	1.17	33.82	1.36	0.71	0.56
Containerships 5,000 TEU	0.50	0.19	5.51	0.22	0.11	0.09
Containerships 4,000 TEU	0.27	0.10	2.97	0.12	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.70	1.80	52.17	2.10	1.09	0.87
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.43	0.16	4.75	0.19	0.10	0.08
Containerships 6,000 TEU	0.55	0.21	6.11	0.25	0.13	0.10
Containerships 5,000 TEU	0.12	0.05	1.33	0.05	0.03	0.02
Containerships 4,000 TEU	0.06	0.02	0.71	0.03	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.16	0.44	12.90	0.52	0.27	0.22

Notes: (1) Mitigation measures include AMP and low sulfur fuel (for non-AMP ships).

Table 1.3-725. Annual Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.09	0.66	0.03	0.02
Containerships 5,000 TEU	1.07	0.56	11.16	83.84	4.09	3.07
Containerships 4,000 TEU	0.26	0.14	2.69	20.22	0.99	0.74
Containerships 3,000 TEU	0.05	0.03	0.50	3.74	0.18	0.14
Containerships 1,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Subtotal	1.38	0.73	14.45	108.62	5.30	3.97
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.21	0.64	11.98	4.01	0.83	0.62
Containerships 5,000 TEU	0.42	0.22	4.10	1.37	0.28	0.21
Containerships 4,000 TEU	0.14	0.08	1.43	0.48	0.10	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.77	0.93	17.51	5.86	1.21	0.90
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.48	0.25	4.70	1.57	0.32	0.24
Containerships 6,000 TEU	0.73	0.38	7.19	2.40	0.50	0.37
Containerships 5,000 TEU	0.37	0.20	3.70	1.24	0.25	0.19
Containerships 4,000 TEU	0.13	0.07	1.29	0.43	0.09	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.71	0.90	16.87	5.64	1.16	0.87
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.43	0.23	4.25	1.42	0.29	0.22
Containerships 6,000 TEU	0.99	0.52	9.78	3.27	0.67	0.51
Containerships 5,000 TEU	0.34	0.18	3.35	1.12	0.23	0.17
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.99	18.56	6.21	1.28	0.96
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.17	3.27	1.09	0.23	0.17
Containerships 6,000 TEU	1.02	0.54	10.08	3.37	0.69	0.52
Containerships 5,000 TEU	0.26	0.14	2.60	0.87	0.18	0.13
Containerships 4,000 TEU	0.09	0.05	0.91	0.31	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.71	0.90	16.87	5.64	1.16	0.87
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.64	0.34	6.29	2.10	0.43	0.33
Containerships 6,000 TEU	0.74	0.39	7.28	2.43	0.50	0.38
Containerships 5,000 TEU	0.25	0.13	2.51	0.84	0.17	0.13
Containerships 4,000 TEU	0.09	0.05	0.88	0.29	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.72	0.90	16.96	5.67	1.17	0.88

Notes: (1) Mitigation measures include low sulfur fuel.

(2) Boilers are assumed to operate during hotelling regardless of whether the ship uses AMP.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-726. Annual Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.15	0.06	2.00	1.60	0.20	0.16
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.04	0.03	0.00	0.00
Subtotal	0.21	0.08	2.71	2.24	0.27	0.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.15	0.06	1.63	0.07	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.49	0.02	0.01	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.07	1.94	0.08	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.20	0.08	2.19	0.09	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.09	0.03	0.99	0.04	0.02	0.02
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.22	0.08	2.44	0.10	0.05	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.04	1.11	0.04	0.02	0.02
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.25	0.09	2.74	0.11	0.06	0.05

Notes: (1) Mitigation measures include low sulfur fuel.
(2) AMP mitigation would not apply during anchoring.

Table 1.3-727. Annual Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.02	0.01	0.16	1.24	0.06	0.05
Containerships 4,000 TEU	0.00	0.00	0.04	0.31	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Subtotal	0.02	0.01	0.21	1.57	0.08	0.06
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.15	0.05	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.06	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.
(2) AMP mitigation would not apply during anchoring.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-728. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.44	3.61	111.54	105.53	12.87	10.30
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.44	3.61	111.54	105.53	12.87	10.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.44	3.62	104.89	4.22	2.19	1.75
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.44	3.62	104.89	4.22	2.19	1.75
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.75	4.88	141.66	5.70	2.96	2.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.75	4.88	141.66	5.70	2.96	2.36
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.75	4.88	141.66	5.70	2.96	2.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.75	4.88	141.66	5.70	2.96	2.36
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.75	4.88	141.66	5.70	2.96	2.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.75	4.88	141.66	5.70	2.96	2.36
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.75	4.88	141.66	5.70	2.96	2.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.75	4.88	141.66	5.70	2.96	2.36

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and VSR at 40nm.

Table 1.3-729. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.64	0.34	6.29	2.10	0.43	0.32
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.64	0.34	6.29	2.10	0.43	0.32
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.64	0.34	6.29	2.10	0.43	0.32
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.64	0.34	6.29	2.10	0.43	0.32
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.64	0.34	6.29	2.10	0.43	0.32
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.64	0.34	6.29	2.10	0.43	0.32
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.64	0.34	6.29	2.10	0.43	0.32
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.64	0.34	6.29	2.10	0.43	0.32

Notes: (1) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-730. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.51	4.79	147.42	133.39	16.37	13.10
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.51	4.79	147.42	133.39	16.37	13.10
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.59	4.82	139.92	5.63	2.92	2.34
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.59	4.82	139.92	5.63	2.92	2.34
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	4.40	127.76	5.14	2.67	2.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.50	4.40	127.76	5.14	2.67	2.13
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	4.40	127.76	5.14	2.67	2.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.50	4.40	127.76	5.14	2.67	2.13
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	4.40	127.76	5.14	2.67	2.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.50	4.40	127.76	5.14	2.67	2.13
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	4.40	127.76	5.14	2.67	2.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.50	4.40	127.76	5.14	2.67	2.13

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-731. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.43	33.27	1.62	1.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.43	33.27	1.62	1.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.67	1.90	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.67	1.90	0.39	0.29

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.
(4) All study years are 95% compliant with VSR for the peak day.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-732. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.02	2.31	70.97	64.22	7.88	6.30
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.02	2.31	70.97	64.22	7.88	6.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.02	2.31	66.89	2.69	1.40	1.12
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.02	2.31	66.89	2.69	1.40	1.12
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.51	2.11	61.19	2.46	1.28	1.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.51	2.11	61.19	2.46	1.28	1.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.51	2.11	61.19	2.46	1.28	1.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.51	2.11	61.19	2.46	1.28	1.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.51	2.11	61.19	2.46	1.28	1.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.51	2.11	61.19	2.46	1.28	1.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	5.51	2.11	61.19	2.46	1.28	1.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.51	2.11	61.19	2.46	1.28	1.02

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-733. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.21	16.58	0.81	0.61
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.21	16.58	0.81	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.28	0.15	2.81	0.94	0.19	0.15
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.15	2.81	0.94	0.19	0.15

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-734. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.72	20.87	0.84	0.44	0.35
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.72	20.87	0.84	0.44	0.35
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.72	20.87	0.84	0.44	0.35
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.72	20.87	0.84	0.44	0.35

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-735. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.75	5.65	0.28	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-736. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.64	0.63	18.26	0.74	0.38	0.30
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.64	0.63	18.26	0.74	0.38	0.30
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.64	0.63	18.26	0.74	0.38	0.30
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.64	0.63	18.26	0.74	0.38	0.30

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-737. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.66	4.95	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-738. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.14	0.82	25.19	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.96	0.75	21.73	0.87	0.45	0.36
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.96	0.75	21.73	0.87	0.45	0.36
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.96	0.75	21.73	0.87	0.45	0.36
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.96	0.75	21.73	0.87	0.45	0.36

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-739. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.54	4.02	0.20	0.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.45	0.15	0.03	0.02

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-740. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation Docking

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.58	1.75	53.98	48.84	5.99	4.80
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.58	1.75	53.98	48.84	5.99	4.80
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.58	1.75	50.89	2.05	1.06	0.85
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.58	1.75	50.89	2.05	1.06	0.85
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.19	1.60	46.56	1.87	0.97	0.78
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.19	1.60	46.56	1.87	0.97	0.78
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.19	1.60	46.56	1.87	0.97	0.78
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.19	1.60	46.56	1.87	0.97	0.78
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.19	1.60	46.56	1.87	0.97	0.78
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.19	1.60	46.56	1.87	0.97	0.78
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.19	1.60	46.56	1.87	0.97	0.78
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.19	1.60	46.56	1.87	0.97	0.78

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-741. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation Docking

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.15	8.62	0.42	0.32
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.15	8.62	0.42	0.32
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-742. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Hotelling

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.11	80.07	2,463.84	2,229.46	273.60	218.88
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.11	80.07	2,463.84	2,229.46	273.60	218.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.05	80.05	2,322.34	93.50	48.46	38.77
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.05	80.05	2,322.34	93.50	48.46	38.77
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	82.66	31.65	918.31	36.97	19.16	15.33
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	82.66	31.65	918.31	36.97	19.16	15.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	33.07	12.66	367.32	14.79	7.67	6.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	33.07	12.66	367.32	14.79	7.67	6.13
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	33.07	12.66	367.32	14.79	7.67	6.13
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	33.07	12.66	367.32	14.79	7.67	6.13
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.27	3.17	91.83	3.70	1.92	1.53
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.27	3.17	91.83	3.70	1.92	1.53

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (95%).

Table 1.3-743. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Hotelling

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.03	7.39	146.85	1,103.49	53.84	40.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.03	7.39	146.85	1,103.49	53.84	40.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.02	7.38	138.42	46.28	9.54	7.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.02	7.38	138.42	46.28	9.54	7.15
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.33	6.49	121.71	40.69	8.39	6.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.33	6.49	121.71	40.69	8.39	6.29
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.33	6.49	121.71	40.69	8.39	6.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.33	6.49	121.71	40.69	8.39	6.29
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.33	6.49	121.71	40.69	8.39	6.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.33	6.49	121.71	40.69	8.39	6.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	12.33	6.49	121.71	40.69	8.39	6.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.33	6.49	121.71	40.69	8.39	6.29

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-744. Max Daily Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation Anchoring

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Peak day ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

Table 1.3-745. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation Anchoring

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Peak day ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-746 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.55	45.94	5.60	4.48
Containerships 5,000 TEU	3.05	1.17	40.70	34.06	4.15	3.32
Containerships 4,000 TEU	3.91	1.50	46.16	43.67	5.33	4.26
Containerships 3,000 TEU	1.62	0.62	19.13	18.10	2.21	1.77
Containerships 1,000 TEU	1.07	0.41	12.70	12.01	1.46	1.17
Maximum	4.11	1.57	48.55	45.94	5.60	4.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Study years 2012-2027 assume worst case container vessel auxiliary engines use 0.1% sulfur fuel.
 (3) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-747 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.17	0.09	1.82	14.32	0.69	0.52
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.82	14.32	0.69	0.52
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
 (3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (4) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-748 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.40	43.80	5.38	4.30
Containerships 5,000 TEU	3.05	1.17	40.58	32.47	3.98	3.19
Containerships 4,000 TEU	3.91	1.50	46.02	41.64	5.11	4.09
Containerships 3,000 TEU	1.62	0.62	19.07	17.26	2.12	1.69
Containerships 1,000 TEU	1.07	0.41	12.66	11.45	1.41	1.12
Maximum	4.11	1.57	48.40	43.80	5.38	4.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.
 (3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

Table 1.3-749 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.43	10.74	0.52	0.39
Containerships 5,000 TEU	0.17	0.09	1.80	13.54	0.66	0.50
Containerships 4,000 TEU	0.15	0.08	1.61	12.11	0.59	0.44
Containerships 3,000 TEU	0.17	0.09	1.82	13.65	0.67	0.50
Containerships 1,000 TEU	0.02	0.01	0.25	1.91	0.09	0.07
Maximum	0.17	0.09	1.82	13.65	0.67	0.50
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Assumes worst case auxiliary boiler would use residual fuel with 0.1% sulfur.
 (3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-750 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	35.48	32.11	3.94	3.15
Containerships 5,000 TEU	2.23	0.85	29.75	23.80	2.92	2.34
Containerships 4,000 TEU	2.86	1.10	33.74	30.53	3.75	3.00
Containerships 3,000 TEU	1.19	0.45	13.98	12.65	1.55	1.24
Containerships 1,000 TEU	0.79	0.30	9.28	8.40	1.03	0.82
Maximum	3.01	1.15	35.48	32.11	3.94	3.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-751 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.10	8.29	0.40	0.30
Containerships 5,000 TEU	0.13	0.07	1.39	10.45	0.51	0.38
Containerships 4,000 TEU	0.12	0.06	1.24	9.34	0.46	0.34
Containerships 3,000 TEU	0.13	0.07	1.33	10.01	0.49	0.37
Containerships 1,000 TEU	0.02	0.01	0.20	1.47	0.07	0.05
Maximum	0.13	0.07	1.39	10.45	0.51	0.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-752 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	1.52	0.58	20.29	16.24	1.99	1.59
Containerships 4,000 TEU	1.95	0.75	23.01	20.82	2.56	2.04
Containerships 3,000 TEU	0.81	0.31	9.54	8.63	1.06	0.85
Containerships 1,000 TEU	0.54	0.21	6.33	5.73	0.70	0.56
Maximum	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-753 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	0.09	0.05	0.95	7.13	0.35	0.26
Containerships 4,000 TEU	0.08	0.04	0.85	6.37	0.31	0.23
Containerships 3,000 TEU	0.09	0.05	0.91	6.83	0.33	0.25
Containerships 1,000 TEU	0.01	0.01	0.13	1.01	0.05	0.04
Maximum	0.09	0.05	0.95	7.13	0.35	0.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-754 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	1.33	0.51	17.75	14.21	1.74	1.39
Containerships 4,000 TEU	1.71	0.65	20.13	18.22	2.24	1.79
Containerships 3,000 TEU	0.71	0.27	8.34	7.55	0.93	0.74
Containerships 1,000 TEU	0.47	0.18	5.54	5.01	0.61	0.49
Maximum	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33

Notes: (1) For the baseline, assume the ship does not comply with VSR, and auxiliary engines use 0.2% S MGO to April 2008, 2.7% S IFO for May/June 2008, and 5% MGO and 95% IFO July 2008 to March 2009.
(2) For 2012-2027, max daily emissions assume auxiliary engines use fuel with 0.1% sulfur.
use fuel with 0.1% sulfur.

Table 1.3-755 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	0.08	0.04	0.83	6.24	0.30	0.23
Containerships 4,000 TEU	0.07	0.04	0.74	5.58	0.27	0.20
Containerships 3,000 TEU	0.08	0.04	0.79	5.97	0.29	0.22
Containerships 1,000 TEU	0.01	0.01	0.12	0.88	0.04	0.03
Maximum	0.08	0.04	0.83	6.24	0.30	0.23
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-756 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	1.96	0.75	26.06	20.86	2.56	2.05
Containerships 4,000 TEU	1.64	0.63	19.26	17.43	2.14	1.71
Containerships 3,000 TEU	1.29	0.50	15.25	13.80	1.69	1.36
Containerships 1,000 TEU	0.59	0.23	7.01	6.34	0.78	0.62
Maximum	2.14	0.82	26.06	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-757 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	0.06	0.03	0.65	4.92	0.24	0.18
Containerships 4,000 TEU	0.05	0.03	0.56	4.24	0.21	0.15
Containerships 3,000 TEU	0.05	0.03	0.55	4.15	0.20	0.15
Containerships 1,000 TEU	0.02	0.01	0.25	1.88	0.09	0.07
Maximum	0.06	0.03	0.65	4.92	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-758 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation Docking

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	26.99	24.42	3.00	2.40
Containerships 5,000 TEU	2.10	0.80	27.93	22.35	2.74	2.19
Containerships 4,000 TEU	1.75	0.67	20.64	18.68	2.29	1.83
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.64	0.24	7.51	6.79	0.83	0.67
Maximum	2.29	0.88	27.93	24.42	3.00	2.40
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-759 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation Docking

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.57	4.31	0.21	0.16
Containerships 5,000 TEU	0.07	0.04	0.70	5.27	0.26	0.19
Containerships 4,000 TEU	0.06	0.03	0.60	4.54	0.22	0.17
Containerships 3,000 TEU	0.06	0.03	0.59	4.45	0.22	0.16
Containerships 1,000 TEU	0.03	0.01	0.27	2.01	0.10	0.07
Maximum	0.07	0.04	0.70	5.27	0.26	0.19
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-760 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	38.49	34.83	4.27	3.42
Containerships 5,000 TEU	2.52	0.97	33.59	26.88	3.30	2.64
Containerships 4,000 TEU	3.33	1.27	39.20	35.47	4.35	3.48
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.82	0.31	9.69	8.77	1.08	0.86
Maximum	3.33	1.27	39.20	35.47	4.35	3.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.
(3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (95%).

Table 1.3-761 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.29	17.24	0.84	0.63
Containerships 5,000 TEU	0.27	0.14	2.80	21.08	1.03	0.77
Containerships 4,000 TEU	0.23	0.12	2.42	18.15	0.89	0.66
Containerships 3,000 TEU	0.23	0.12	2.37	17.79	0.87	0.65
Containerships 1,000 TEU	0.10	0.05	1.07	8.05	0.39	0.29
Maximum	0.27	0.14	2.80	21.08	1.03	0.77
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-762 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 4 with Mitigation Anchoring

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-

Notes: (1) Peak hour ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

Table 1.3-763 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 4 with Mitigation Anchoring

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-

Notes: (1) Peak hour ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-764. Annual Emissions from Tugboat Main Engine - Alternative 4 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Containerships 5,000 TEU	1.64	0.39	5.86	0.00	0.25	0.23
Containerships 4,000 TEU	0.55	0.13	1.95	0.00	0.08	0.08
Containerships 3,000 TEU	0.06	0.02	0.23	0.00	0.01	0.01
Containerships 1,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Subtotal	2.3	0.5	8.2	0.0	0.3	0.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.67	0.38	6.56	0.00	0.26	0.24
Containerships 5,000 TEU	0.56	0.13	2.19	0.00	0.09	0.08
Containerships 4,000 TEU	0.28	0.06	1.09	0.00	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	9.8	0.0	0.4	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 6,000 TEU	1.18	0.22	1.38	0.00	0.03	0.03
Containerships 5,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 4,000 TEU	0.30	0.05	0.34	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.7	0.5	3.1	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 6,000 TEU	1.88	0.36	2.17	0.00	0.05	0.04
Containerships 5,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 4,000 TEU	0.31	0.06	0.36	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.4	0.7	4.0	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 6,000 TEU	2.64	0.53	3.02	0.00	0.07	0.07
Containerships 5,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 4,000 TEU	0.33	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.3	0.9	4.9	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.35	0.27	1.53	0.00	0.04	0.04
Containerships 6,000 TEU	2.02	0.41	2.30	0.00	0.06	0.05
Containerships 5,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 4,000 TEU	0.34	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.4	0.9	5.0	0.0	0.1	0.1

Table 1.3-765. Annual Emissions from Tugboat Aux. Engines - Alternative 4 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.22	0.05	0.43	0.00	0.02	0.02
Containerships 4,000 TEU	0.07	0.02	0.14	0.00	0.01	0.01
Containerships 3,000 TEU	0.01	0.00	0.02	0.00	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.3	0.1	0.6	0.0	0.0	0.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.15	0.03	0.42	0.00	0.02	0.01
Containerships 5,000 TEU	0.05	0.01	0.14	0.00	0.01	0.00
Containerships 4,000 TEU	0.03	0.01	0.07	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	0.6	0.0	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.12	0.03	0.12	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	0.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.19	0.04	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.3	0.0	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.27	0.06	0.25	0.00	0.01	0.01
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 6,000 TEU	0.20	0.05	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-766. Max Daily Emissions from Tugboat Main Engine - Alternative 4

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.53	4.38	66.25	0.03	2.83	2.60
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.5	4.4	66.2	0.0	2.8	2.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	21.42	4.89	84.13	0.03	3.31	3.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.4	4.9	84.1	0.0	3.3	3.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	22.75	4.22	26.52	0.03	0.54	0.50
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	22.7	4.2	26.5	0.0	0.5	0.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	24.07	4.64	27.76	0.03	0.62	0.57
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.1	4.6	27.8	0.0	0.6	0.6
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.39	5.07	28.99	0.03	0.70	0.65
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.4	5.1	29.0	0.0	0.7	0.6
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.92	5.24	29.49	0.03	0.73	0.68
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.9	5.2	29.5	0.0	0.7	0.7

Table 1.3-767. Max Daily Emissions from Tugboat Auxiliary Engines - Alternative 4

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.49	0.52	4.85	0.00	0.23	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.5	4.8	0.0	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.93	0.43	5.33	0.00	0.20	0.19
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.4	5.3	0.0	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.39	0.52	2.31	0.00	0.05	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.4	0.5	2.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.47	0.55	2.38	0.00	0.05	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	2.4	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.56	0.58	2.45	0.00	0.06	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	0.6	2.4	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.59	0.60	2.47	0.00	0.06	0.06
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.6	0.6	2.5	0.0	0.1	0.1

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-768 Max 1-Hr Emissions from Tugboat Main Engine - Alternative 4 with Mitigation

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 5,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 4,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 3,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 1,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Maximum	8.22	1.94	29.40	0.01	1.25	1.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 5,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 4,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.50	2.17	37.34	0.01	1.47	1.35
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 6,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 5,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 4,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.10	1.87	11.77	0.01	0.24	0.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 6,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 5,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 4,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.68	2.06	12.32	0.01	0.28	0.25
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 6,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 5,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 4,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.27	2.25	12.87	0.01	0.31	0.29
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 6,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 5,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 4,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.50	2.32	13.09	0.01	0.33	0.30

Notes: (1) Emissions assume use of two tugboats for 1 hour.

Table 1.3-769 Max 1-Hour Emissions from Tugboat Aux. Engines - Alternative 4 with Mitigation

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 5,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 4,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 3,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 1,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Maximum	1.11	0.23	2.15	0.00	0.10	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 5,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 4,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.86	0.19	2.37	0.00	0.09	0.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 6,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 5,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 4,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.06	0.23	1.02	0.00	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 6,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 5,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 4,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.10	0.25	1.05	0.00	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 6,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 5,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 4,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.13	0.26	1.09	0.00	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 6,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 5,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 4,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.15	0.27	1.10	0.00	0.03	0.02

Notes: (1) Emissions assume use of two tugboats for 1 hour.

Table 1.3-770. Annual Emissions from AMP Electricity Consumption - Alternative 4 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.26	0.01	1.51	0.16	0.05	0.05
Containerships 6,000 TEU	0.45	0.02	2.57	0.27	0.09	0.09
Containerships 5,000 TEU	0.15	0.01	0.84	0.09	0.03	0.03
Containerships 4,000 TEU	0.08	0.00	0.45	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.0	5.4	0.6	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.38	0.02	2.19	0.23	0.08	0.08
Containerships 6,000 TEU	0.97	0.05	5.60	0.58	0.19	0.19
Containerships 5,000 TEU	0.21	0.01	1.21	0.13	0.04	0.04
Containerships 4,000 TEU	0.11	0.01	0.65	0.07	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.1	9.7	1.0	0.3	0.3
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.29	0.01	1.69	0.18	0.06	0.06
Containerships 6,000 TEU	1.00	0.05	5.77	0.60	0.20	0.20
Containerships 5,000 TEU	0.16	0.01	0.94	0.10	0.03	0.03
Containerships 4,000 TEU	0.09	0.00	0.51	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.1	8.9	0.9	0.3	0.3
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.67	0.03	3.85	0.40	0.13	0.13
Containerships 6,000 TEU	0.86	0.04	4.95	0.52	0.17	0.17
Containerships 5,000 TEU	0.19	0.01	1.08	0.11	0.04	0.04
Containerships 4,000 TEU	0.10	0.01	0.58	0.06	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.1	10.5	1.1	0.4	0.4

Note: These emissions represent regional power plant emissions associated with AMP generation.

Table 1.3-771. Max Daily Emissions from AMP Electricity Consumption - Alternative 4 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	6.8	0.3	39.2	4.1	1.4	1.4
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.8	0.3	39.2	4.1	1.4	1.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.9	0.5	62.7	6.5	2.2	2.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.9	0.5	62.7	6.5	2.2	2.2
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.9	0.5	62.7	6.5	2.2	2.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.9	0.5	62.7	6.5	2.2	2.2
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	13.0	0.6	74.5	7.8	2.6	2.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.0	0.6	74.5	7.8	2.6	2.6

Notes: (1) These emissions represent regional power plant emissions associated with AMP generation.

(2) Peak Day AMP usage is assumed to be equivalent to annual AMP usage.

Table 1.3-772. Summary of Annual Marine Vessel Emissions with Mitigation

Alternative 4 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	13.7	6.1	174.8	106.4	16.0	14.0
Ships - 20nm to PA	12.8	6.4	106.1	59.2	10.1	8.1
Ships - PA	6.0	3.3	44.0	23.0	4.5	3.6
Ships - Harbor Transit	3.8	3.4	25.5	8.4	3.1	2.5
Ships - Turning & Docking	1.6	1.1	14.7	10.1	1.7	1.3
Ships - Anchoring	0.2	0.1	2.9	3.8	0.4	0.3
Ships - Hotelling	15.5	6.2	196.8	259.7	23.8	18.8
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.6	0.6	8.8	0.0	0.4	0.3
Total	56.3	27.2	573.7	470.5	59.9	48.9
Project Year 2012						
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	25.9	10.2	285.2	16.6	6.8	5.4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.7	0.6	10.5	0.0	0.4	0.4
Total	70.5	33.2	656.4	26.0	13.8	11.0
Project Year 2015						
Ships - AQMD 40nm to 20nm	15.9	8.1	116.6	3.0	2.2	1.8
Ships - 20nm to PA	14.4	7.3	105.2	2.7	2.0	1.6
Ships - PA	6.7	3.7	43.3	1.0	0.9	0.7
Ships - Harbor Transit	4.3	3.8	25.6	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	2.1	0.1	0.1	0.0
Ships - Hotelling	13.0	5.2	142.7	10.7	3.8	3.0
AMP - Hotelling	0.9	0.0	5.4	0.6	0.2	0.2
Tugboats	2.9	0.6	3.4	0.0	0.1	0.1
Total	60.1	30.0	457.6	18.9	10.1	8.1
Project Year 2020						
Ships - AQMD 40nm to 20nm	19.6	9.9	143.6	3.7	2.7	2.2
Ships - 20nm to PA	17.7	8.9	129.5	3.3	2.4	2.0
Ships - PA	8.3	4.6	53.3	1.3	1.1	0.9
Ships - Harbor Transit	5.3	4.7	31.4	0.5	0.8	0.6
Ships - Turning & Docking	2.1	1.5	16.7	0.5	0.4	0.3
Ships - Anchoring	0.2	0.1	2.3	0.1	0.1	0.0
Ships - Hotelling	7.0	2.9	75.1	8.5	2.5	1.9
AMP - Hotelling	1.7	0.1	9.7	1.0	0.3	0.3
Tugboats	3.8	0.7	4.3	0.0	0.1	0.1
Total	65.6	33.5	465.9	18.8	10.3	8.3
Project Year 2025						
Ships - AQMD 40nm to 20nm	23.2	11.8	170.5	4.3	3.2	2.6
Ships - 20nm to PA	21.0	10.6	153.8	3.9	2.9	2.3
Ships - PA	9.8	5.4	63.3	1.5	1.3	1.0
Ships - Harbor Transit	6.2	5.6	37.3	0.5	0.9	0.7
Ships - Turning & Docking	2.5	1.8	19.9	0.6	0.5	0.4
Ships - Anchoring	0.2	0.1	2.6	0.2	0.1	0.0
Ships - Hotelling	6.4	2.7	69.0	7.7	2.3	1.7
AMP - Hotelling	1.5	0.1	8.9	0.9	0.3	0.3
Tugboats	4.7	1.0	5.3	0.0	0.1	0.1
Total	75.7	39.0	530.7	19.8	11.5	9.2
Project Year 2027						
Ships - AQMD 40nm to 20nm	23.7	12.0	172.6	4.4	3.3	2.6
Ships - 20nm to PA	21.4	10.8	155.7	4.0	2.9	2.4
Ships - PA	10.0	5.6	64.1	1.5	1.3	1.0
Ships - Harbor Transit	6.4	5.7	38.0	0.6	0.9	0.7
Ships - Turning & Docking	2.5	1.8	19.9	0.6	0.5	0.4
Ships - Anchoring	0.3	0.1	2.9	0.2	0.1	0.1
Ships - Hotelling	2.9	1.3	29.9	6.2	1.4	1.1
AMP - Hotelling	1.8	0.1	10.5	1.1	0.4	0.4
Tugboats	4.8	1.0	5.4	0.0	0.1	0.1
Total	73.7	38.5	498.9	18.5	10.9	8.7

AMP Hotelling emissions include the emissions generated by regional power plants to generate the electricity consumed by the ships while hotelling.

Table 1.3-773. Summary of Maximum Daily Marine Vessel Emissions with Mitigation
 Alternative 4 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	95	38	1,040	78	28	22
AMP - Hotelling	7	0	39	4	1	1
Tugboats	25	5	29	0	1	1
Total	551	287	4,021	151	88	70
Project Year 2020						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	45	19	489	55	16	12
AMP - Hotelling	11	1	63	7	2	2
Tugboats	27	5	30	0	1	1
Total	507	269	3,495	131	77	62
Project Year 2025						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	45	19	489	55	16	12
AMP - Hotelling	11	1	63	7	2	2
Tugboats	28	6	31	0	1	1
Total	509	269	3,497	131	77	62
Project Year 2027						
Ships - AQMD 40nm to 20nm	158	81	1,117	28	21	17
Ships - 20nm to PA	142	73	1,008	25	19	15
Ships - PA	66	38	414	9	8	7
Ships - Harbor Transit	42	39	252	3	6	5
Ships - Turning & Docking	16	12	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	21	10	214	44	10	8
AMP - Hotelling	13	1	74	8	3	3
Tugboats	29	6	32	0	1	1
Total	486	260	3,233	121	72	58

Table 1.3-774. Summary of Average Daily Marine Vessel Emissions with Mitigation
 Alternative 4 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	75	34	958	583	87	77
Ships - 20nm to PA	70	35	581	324	55	44
Ships - PA	33	18	241	126	24	20
Ships - Harbor Transit	21	19	140	46	17	14
Ships - Turning & Docking	9	6	81	55	9	7
Ships - Anchoring	1	0	16	21	2	2
Ships - Hotelling	85	34	1,079	1,423	131	103
AMP - Hotelling	-	-	-	-	-	-
Tugboats	14	3	48	0	2	2
Total	308	149	3,144	2,578	328	268
Project Year 2012						
Ships - AQMD 40nm to 20nm	84	38	958	26	16	12
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	142	56	1,563	91	37	29
AMP - Hotelling	-	-	-	-	-	-
Tugboats	15	3	57	0	2	2
Total	386	182	3,597	142	76	60
Project Year 2015						
Ships - AQMD 40nm to 20nm	87	44	639	16	12	10
Ships - 20nm to PA	79	40	576	15	11	9
Ships - PA	37	20	237	6	5	4
Ships - Harbor Transit	23	21	140	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	11	1	0	0
Ships - Hotelling	71	29	782	59	21	16
AMP - Hotelling	5	0	29	3	1	1
Tugboats	16	3	18	0	0	0
Total	329	165	2,508	103	55	44
Project Year 2020						
Ships - AQMD 40nm to 20nm	107	54	787	20	15	12
Ships - 20nm to PA	97	49	709	18	13	11
Ships - PA	45	25	292	7	6	5
Ships - Harbor Transit	29	26	172	3	4	3
Ships - Turning & Docking	12	8	92	3	2	2
Ships - Anchoring	1	0	13	1	0	0
Ships - Hotelling	38	16	412	46	13	10
AMP - Hotelling	9	0	53	6	2	2
Tugboats	21	4	24	0	1	0
Total	359	184	2,553	103	57	45
Project Year 2025						
Ships - AQMD 40nm to 20nm	127	64	934	24	18	14
Ships - 20nm to PA	115	58	843	21	16	13
Ships - PA	54	30	347	8	7	6
Ships - Harbor Transit	34	31	205	3	5	4
Ships - Turning & Docking	14	10	109	3	3	2
Ships - Anchoring	1	1	14	1	0	0
Ships - Hotelling	35	15	378	42	12	10
AMP - Hotelling	8	0	49	5	2	2
Tugboats	26	5	29	0	1	1
Total	415	214	2,908	108	63	51
Project Year 2027						
Ships - AQMD 40nm to 20nm	130	66	946	24	18	14
Ships - 20nm to PA	117	59	853	22	16	13
Ships - PA	55	30	351	8	7	6
Ships - Harbor Transit	35	31	208	3	5	4
Ships - Turning & Docking	14	10	109	3	3	2
Ships - Anchoring	1	1	16	1	0	0
Ships - Hotelling	16	7	164	34	8	6
AMP - Hotelling	10	0	57	6	2	2
Tugboats	26	5	30	0	1	1
Total	404	211	2,734	101	60	48

Table 1.3-775. Summary of Maximum Hourly Marine Vessel Emissions with Mitigation
 Alternative 4

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	200	122	1,306	31	27	22
Project Year 2020						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	200	122	1,306	31	27	22
Project Year 2025						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	201	122	1,307	31	27	22
Project Year 2027						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	201	122	1,307	31	27	22

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-775. Annual Ship Visit Data - Alternative 5/6

Project Scenario/Ship Type	Annual Ship Calls	Annual Anchorage Calls (1)	Engine Year (2)	Avg Hotelling per Ship (hr)
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	2	-	2008	38.2
Containerships 5,000 TEU	177	11	1998	44.9
Containerships 4,000 TEU	59	8	2002	37.8
Containerships 3,000 TEU	7	-	2004	60.1
Containerships 1,000 TEU	2	1	2002	19.3
Total	247	20		n/a
Project Year 2012				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	-	-	2007	-
Containerships 6,000 TEU	156	16	2003	71.0
Containerships 5,000 TEU	52	5	2002	59.7
Containerships 4,000 TEU	26	3	2000	48.3
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	234	23		n/a
Project Year 2015				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	-	-	2007	-
Containerships 6,000 TEU	156	16	2003	79.3
Containerships 5,000 TEU	52	5	2002	66.6
Containerships 4,000 TEU	78	8	2000	53.9
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	286	29		n/a
Project Year 2020				
Containerships 10,000 TEU	-	-	2007	-
Containerships 9,000 TEU	52	5	2007	97.1
Containerships 6,000 TEU	156	16	2003	65.8
Containerships 5,000 TEU	52	5	2002	55.3
Containerships 4,000 TEU	78	8	2000	44.8
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	338	34		n/a
Project Year 2025				
Containerships 10,000 TEU	52	5	2007	68.9
Containerships 9,000 TEU	104	10	2007	62.3
Containerships 6,000 TEU	104	10	2003	42.5
Containerships 5,000 TEU	52	5	2002	35.9
Containerships 4,000 TEU	52	5	2000	29.3
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	364	36		n/a
Project Year 2027				
Containerships 10,000 TEU	52	5	2007	65.5
Containerships 9,000 TEU	104	10	2007	59.3
Containerships 6,000 TEU	156	16	2003	40.5
Containerships 5,000 TEU	52	5	2002	34.3
Containerships 4,000 TEU	26	3	2000	28.0
Containerships 3,000 TEU	-	-	1994	-
Containerships 1,000 TEU	-	-	1999	-
Total	390	39		n/a

(1) Anchor calls in 2015-2027 are assumed to be 10 percent of total calls at berth for each study year.

(2) Source POLA 2008 EI, Table 3.25

Table 1.3-776. Peak Day Ship Visit Data - Alternative 5/6

Project Scenario/Ship Type	Peak Day Arrivals	Peak Day Departures	Peak Day At Berth	Peak Day Hotelling (hr)	
				Unmitigated	Mitigated (2)
Baseline					
Containerships 10,000 TEU	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-
Containerships 6,000 TEU	1	1	1	64.0	64.0
Containerships 5,000 TEU	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-
Total	1	1	1	64.0	64.0
Project Year 2012					
Containerships 10,000 TEU	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-
Containerships 6,000 TEU	1	1	1	64.0	64.0
Containerships 5,000 TEU	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-
Total	1	1	1	64.0	64.0
Project Year 2015					
Containerships 10,000 TEU	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-
Containerships 6,000 TEU	2	2	-	80.0	78.9
Containerships 5,000 TEU	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-
Total	2	2	-	80.0	78.9
Project Year 2020					
Containerships 10,000 TEU	-	-	-	-	-
Containerships 9,000 TEU	2	2	-	80.3	79.1
Containerships 6,000 TEU	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-
Total	2	2	-	80.3	79.1
Project Year 2025					
Containerships 10,000 TEU	2	2	-	80.3	79.1
Containerships 9,000 TEU	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-
Total	2	2	-	80.3	79.1
Project Year 2027					
Containerships 10,000 TEU	2	2	-	80.3	79.1
Containerships 9,000 TEU	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-
Total	2	2	-	80.3	79.1

Notes: (1) Hotelling time equals 24 hours minus vessel transit time within the SCAB. Because the Vessel Speed Reduction (VSR) program increases transit time, the hotelling times are shorter when VSR is implemented as mitigation.

(2) For the Mitigated Project, 95% VSR is assumed out to 40nm. 95% VSR is assumed out to 20nm for the unmitigated project.

(3) Peak daily arrivals and departures provided by APL.

Table 1.3-777. OGV Main Engine Usage per One-Way Transit: Baseline

Vessel Type	Propulsion Max kW	Speed (Kts)	Load Factor	Distance (nm/trip)	Duration (hr/trip)	Energy Consumed (kW-hr/trip)
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (1)						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	18.1	0.31	20.73	1.15	21,345
Containerships 5,000 TEU	53,032	17.8	0.30	20.73	1.17	18,247
Containerships 4,000 TEU	42,216	16.1	0.25	20.73	1.29	13,370
Containerships 3,000 TEU	30,647	13.8	0.18	20.73	1.51	8,115
Containerships 1,000 TEU	8,610	15.1	0.38	20.73	1.37	4,487
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR						
Doesn't apply to the baseline						
Fairway: 20nm to Precautionary Area, Without VSR						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	18.1	0.31	18.58	1.03	19,131
Containerships 5,000 TEU	53,032	17.8	0.30	18.58	1.05	16,355
Containerships 4,000 TEU	42,216	16.1	0.25	18.58	1.16	11,984
Containerships 3,000 TEU	30,647	13.8	0.18	18.58	1.35	7,273
Containerships 1,000 TEU	8,610	15.1	0.38	18.58	1.23	4,022
Fairway: 20nm to Precautionary Area, With VSR						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	12.0	0.09	18.58	1.55	8,456
Containerships 5,000 TEU	53,032	12.0	0.09	18.58	1.55	7,449
Containerships 4,000 TEU	42,216	12.0	0.10	18.58	1.55	6,699
Containerships 3,000 TEU	30,647	12.0	0.12	18.58	1.55	5,522
Containerships 1,000 TEU	8,610	12.0	0.19	18.58	1.55	2,540
Precautionary Area						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	11.0	0.07	8.06	0.73	3,083
Containerships 5,000 TEU	53,032	11.0	0.07	8.06	0.73	2,716
Containerships 4,000 TEU	42,216	11.0	0.08	8.06	0.73	2,442
Containerships 3,000 TEU	30,647	11.0	0.09	8.06	0.73	2,014
Containerships 1,000 TEU	8,610	11.0	0.15	8.06	0.73	926
Harbor Transit Inbound						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	7.0	0.02	3.50	0.50	542
Containerships 5,000 TEU	53,032	7.0	0.02	3.50	0.50	477
Containerships 4,000 TEU	42,216	7.0	0.02	3.50	0.50	429
Containerships 3,000 TEU	30,647	7.0	0.02	3.50	0.50	354
Containerships 1,000 TEU	8,610	7.0	0.04	3.50	0.50	163
Harbor Transit Outbound						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	8.0	0.03	3.50	0.44	708
Containerships 5,000 TEU	53,032	8.0	0.03	3.50	0.44	624
Containerships 4,000 TEU	42,216	8.0	0.03	3.50	0.44	561
Containerships 3,000 TEU	30,647	8.0	0.03	3.50	0.44	462
Containerships 1,000 TEU	8,610	8.0	0.06	3.50	0.44	213
Turning						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.23	281
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.23	247
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.23	197
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.23	143
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.23	40
Docking						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.25	301
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.25	265
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.25	211
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.25	153
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.25	43

Source: POLA 2009 Emission Inventory Report.

- (1) VSR = vessel speed reduction (speed reduced to 12 knots).
- (2) Turning time and turning and docking load factors from 2008 POLA EI, Section 3.5.6.
- (3) Harbor transit distance and turning time assumed from China Shipping EIR.

Table 1.3-778. OGV Auxiliary Engine Usage per One-Way Transit: Baseline

Vessel Type	Auxiliary kW per Vessel (1)	Hours/Transit	kW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.15	1,946
Containerships 5,000 TEU	1,256	1.17	1,464
Containerships 4,000 TEU	1,611	1.29	2,081
Containerships 3,000 TEU	667	1.51	1,005
Containerships 1,000 TEU	443	1.37	608
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR			
Doesn't apply to the baseline			
Fairway: 20nm to Precautionary Area, Without VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.03	1,744
Containerships 5,000 TEU	1,256	1.05	1,313
Containerships 4,000 TEU	1,611	1.16	1,865
Containerships 3,000 TEU	667	1.35	901
Containerships 1,000 TEU	443	1.23	545
Fairway: 20nm to Precautionary Area, With VSR			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	1.55	2,623
Containerships 5,000 TEU	1,256	1.55	1,945
Containerships 4,000 TEU	1,611	1.55	2,494
Containerships 3,000 TEU	667	1.55	1,034
Containerships 1,000 TEU	443	1.55	686
Precautionary Area			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.73	1,242
Containerships 5,000 TEU	1,256	0.73	921
Containerships 4,000 TEU	1,611	0.73	1,181
Containerships 3,000 TEU	667	0.73	489
Containerships 1,000 TEU	443	0.73	325
Harbor Transit Inbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.50	847
Containerships 5,000 TEU	1,256	0.50	628
Containerships 4,000 TEU	1,611	0.50	805
Containerships 3,000 TEU	667	0.50	334
Containerships 1,000 TEU	443	0.50	222
Harbor Transit Outbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	1,694	0.44	741
Containerships 5,000 TEU	1,256	0.44	549
Containerships 4,000 TEU	1,611	0.44	705
Containerships 3,000 TEU	667	0.44	292
Containerships 1,000 TEU	443	0.44	194
Turning			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	3,778	0.23	882
Containerships 5,000 TEU	3,457	0.23	807
Containerships 4,000 TEU	2,889	0.23	674
Containerships 3,000 TEU	2,288	0.23	534
Containerships 1,000 TEU	1,051	0.23	245
Docking			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	3,778	0.25	945
Containerships 5,000 TEU	3,457	0.25	864
Containerships 4,000 TEU	2,889	0.25	722
Containerships 3,000 TEU	2,288	0.25	572
Containerships 1,000 TEU	1,051	0.25	263

(1) Auxiliary engine data provided by Starcrest.

Table 1.3-779. OGV Auxiliary Boiler Usage per One-Way Transit: Baseline

Vessel Type	Boiler kW	Hours/ Transit	kW-Hrs/ Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.15	-
Containerships 5,000 TEU	411	1.17	-
Containerships 4,000 TEU	367	1.29	-
Containerships 3,000 TEU	394	1.51	593
Containerships 1,000 TEU	58	1.37	-
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR (2)			
Doesn't apply to the baseline			
Fairway: 20nm to Precautionary Area, Without VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.03	-
Containerships 5,000 TEU	411	1.05	-
Containerships 4,000 TEU	367	1.16	-
Containerships 3,000 TEU	394	1.35	531
Containerships 1,000 TEU	58	1.23	-
Fairway: 20nm to Precautionary Area, With VSR (2)			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	1.55	505
Containerships 5,000 TEU	411	1.55	636
Containerships 4,000 TEU	367	1.55	569
Containerships 3,000 TEU	394	1.55	610
Containerships 1,000 TEU	58	1.55	90
Precautionary Area			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.73	239
Containerships 5,000 TEU	411	0.73	301
Containerships 4,000 TEU	367	0.73	269
Containerships 3,000 TEU	394	0.73	289
Containerships 1,000 TEU	58	0.73	43
Harbor Transit Inbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.50	163
Containerships 5,000 TEU	411	0.50	205
Containerships 4,000 TEU	367	0.50	184
Containerships 3,000 TEU	394	0.50	197
Containerships 1,000 TEU	58	0.50	29
Harbor Transit Outbound			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	326	0.44	143
Containerships 5,000 TEU	411	0.44	180
Containerships 4,000 TEU	367	0.44	161
Containerships 3,000 TEU	394	0.44	172
Containerships 1,000 TEU	58	0.44	25
Turning			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	0.23	116
Containerships 5,000 TEU	608	0.23	142
Containerships 4,000 TEU	523	0.23	122
Containerships 3,000 TEU	513	0.23	120
Containerships 1,000 TEU	232	0.23	54
Docking			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	0.25	124
Containerships 5,000 TEU	608	0.25	152
Containerships 4,000 TEU	523	0.25	131
Containerships 3,000 TEU	513	0.25	128
Containerships 1,000 TEU	232	0.25	58

(1) The boiler is assumed to be operated under engine loads less than 20% (Starcrest, 2009).

(2) Boilers are assumed to not have an applied load factor.

Table 1.3-780. OGV Main Engine Usage per One-Way Transit: 2012-2027

Vessel Type	Propulsion Max kW	Speed (Kts)	Load Factor	Distance (nm/trip)	Duration (hr/trip)	Energy Consumed (kW-hr/trip)
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (1)						
Containerships 10,000 TEU	84,280	19.0	0.34	20.74	1.09	30,860
Containerships 9,000 TEU	68,639	19.0	0.34	20.74	1.09	25,133
Containerships 6,000 TEU	60,199	18.1	0.31	20.74	1.15	21,354
Containerships 5,000 TEU	53,032	17.8	0.30	20.74	1.17	18,255
Containerships 4,000 TEU	42,216	16.1	0.25	20.74	1.29	13,376
Containerships 3,000 TEU	30,647	13.8	0.18	20.74	1.51	8,118
Containerships 1,000 TEU	8,610	15.1	0.38	20.74	1.37	4,489
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR						
Containerships 10,000 TEU	84,280	12.0	0.08	20.74	1.73	12,310
Containerships 9,000 TEU	68,639	12.0	0.08	20.74	1.73	10,025
Containerships 6,000 TEU	60,199	12.0	0.09	20.74	1.73	9,438
Containerships 5,000 TEU	53,032	12.0	0.09	20.74	1.73	8,315
Containerships 4,000 TEU	42,216	12.0	0.10	20.74	1.73	7,477
Containerships 3,000 TEU	30,647	12.0	0.12	20.74	1.73	6,164
Containerships 1,000 TEU	8,610	12.0	0.19	20.74	1.73	2,835
Fairway: 20nm to Precautionary Area, Without VSR						
Containerships 10,000 TEU	84,280	19.0	0.34	18.71	0.98	27,832
Containerships 9,000 TEU	68,639	19.0	0.34	18.71	0.98	22,667
Containerships 6,000 TEU	60,199	18.1	0.31	18.71	1.04	19,259
Containerships 5,000 TEU	53,032	17.8	0.30	18.71	1.05	16,464
Containerships 4,000 TEU	42,216	16.1	0.25	18.71	1.17	12,064
Containerships 3,000 TEU	30,647	13.8	0.18	18.71	1.36	7,322
Containerships 1,000 TEU	8,610	15.1	0.38	18.71	1.24	4,049
Fairway: 20nm to Precautionary Area, With VSR						
Containerships 10,000 TEU	84,280	12.0	0.08	18.71	1.56	11,102
Containerships 9,000 TEU	68,639	12.0	0.08	18.71	1.56	9,042
Containerships 6,000 TEU	60,199	12.0	0.09	18.71	1.56	8,512
Containerships 5,000 TEU	53,032	12.0	0.09	18.71	1.56	7,499
Containerships 4,000 TEU	42,216	12.0	0.10	18.71	1.56	6,744
Containerships 3,000 TEU	30,647	12.0	0.12	18.71	1.56	5,559
Containerships 1,000 TEU	8,610	12.0	0.19	18.71	1.56	2,557
Precautionary Area						
Containerships 10,000 TEU	84,280	11.0	0.07	8.06	0.73	4,020
Containerships 9,000 TEU	68,639	11.0	0.07	8.06	0.73	3,274
Containerships 6,000 TEU	60,199	11.0	0.07	8.06	0.73	3,082
Containerships 5,000 TEU	53,032	11.0	0.07	8.06	0.73	2,715
Containerships 4,000 TEU	42,216	11.0	0.08	8.06	0.73	2,442
Containerships 3,000 TEU	30,647	11.0	0.09	8.06	0.73	2,013
Containerships 1,000 TEU	8,610	11.0	0.15	8.06	0.73	926
Harbor Transit Inbound						
Containerships 10,000 TEU	84,280	7.0	0.02	3.50	0.50	707
Containerships 9,000 TEU	68,639	7.0	0.02	3.50	0.50	576
Containerships 6,000 TEU	60,199	7.0	0.02	3.50	0.50	542
Containerships 5,000 TEU	53,032	7.0	0.02	3.50	0.50	477
Containerships 4,000 TEU	42,216	7.0	0.02	3.50	0.50	429
Containerships 3,000 TEU	30,647	7.0	0.02	3.50	0.50	354
Containerships 1,000 TEU	8,610	7.0	0.04	3.50	0.50	163
Harbor Transit Outbound						
Containerships 10,000 TEU	84,280	8.0	0.03	3.50	0.44	923
Containerships 9,000 TEU	68,639	8.0	0.03	3.50	0.44	752
Containerships 6,000 TEU	60,199	8.0	0.03	3.50	0.44	708
Containerships 5,000 TEU	53,032	8.0	0.03	3.50	0.44	624
Containerships 4,000 TEU	42,216	8.0	0.03	3.50	0.44	561
Containerships 3,000 TEU	30,647	8.0	0.03	3.50	0.44	462
Containerships 1,000 TEU	8,610	8.0	0.06	3.50	0.44	213
Turning						
Containerships 10,000 TEU	84,280	n/a	0.02	n/a	0.23	393
Containerships 9,000 TEU	68,639	n/a	0.02	n/a	0.23	320
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.23	281
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.23	247
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.23	197
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.23	143
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.23	40
Docking						
Containerships 10,000 TEU	84,280	n/a	0.02	n/a	0.25	421
Containerships 9,000 TEU	68,639	n/a	0.02	n/a	0.25	343
Containerships 6,000 TEU	60,199	n/a	0.02	n/a	0.25	301
Containerships 5,000 TEU	53,032	n/a	0.02	n/a	0.25	265
Containerships 4,000 TEU	42,216	n/a	0.02	n/a	0.25	211
Containerships 3,000 TEU	30,647	n/a	0.02	n/a	0.25	153
Containerships 1,000 TEU	8,610	n/a	0.02	n/a	0.25	43

Source: POLA 2009 Emission Inventory Report.

(1) VSR = vessel speed reduction (speed reduced to 12 knots).

(2) Turning time and turning and docking load factors from 2008 POLA EI, Section 3.5.6.

(3) Harbor transit distance and turning time assumed from China Shipping EIR.

Table 1.3-781. OGV Auxiliary Engine Usage per One-Way Transit: 2012-2027

Vessel Type	Auxiliary kW per Vessel (1)	Load Factor (2)	Hours/Transit	KW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR				
Containerships 10,000 TEU	14,000	0.13	1.09	2,030
Containerships 9,000 TEU	11,665	0.13	1.09	1,692
Containerships 6,000 TEU	1,694	NA	1.15	1,947
Containerships 5,000 TEU	1,256	NA	1.17	1,465
Containerships 4,000 TEU	1,611	NA	1.29	2,081
Containerships 3,000 TEU	667	NA	1.51	1,005
Containerships 1,000 TEU	443	NA	1.37	609
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR				
Containerships 10,000 TEU	14,000	0.13	1.73	3,215
Containerships 9,000 TEU	11,665	0.13	1.73	2,678
Containerships 6,000 TEU	1,694	NA	1.73	2,928
Containerships 5,000 TEU	1,256	NA	1.73	2,171
Containerships 4,000 TEU	1,611	NA	1.73	2,784
Containerships 3,000 TEU	667	NA	1.73	1,154
Containerships 1,000 TEU	443	NA	1.73	766
Fairway: 20nm to Precautionary Area, Without VSR				
Containerships 10,000 TEU	14,000	0.13	0.98	1,831
Containerships 9,000 TEU	11,665	0.13	0.98	1,526
Containerships 6,000 TEU	1,694	NA	1.04	1,756
Containerships 5,000 TEU	1,256	NA	1.05	1,321
Containerships 4,000 TEU	1,611	NA	1.17	1,877
Containerships 3,000 TEU	667	NA	1.36	907
Containerships 1,000 TEU	443	NA	1.24	549
Fairway: 20nm to Precautionary Area, With VSR				
Containerships 10,000 TEU	14,000	0.13	1.56	2,899
Containerships 9,000 TEU	11,665	0.13	1.56	2,416
Containerships 6,000 TEU	1,694	NA	1.56	2,641
Containerships 5,000 TEU	1,256	NA	1.56	1,958
Containerships 4,000 TEU	1,611	NA	1.56	2,511
Containerships 3,000 TEU	667	NA	1.56	1,041
Containerships 1,000 TEU	443	NA	1.56	691
Precautionary Area				
Containerships 10,000 TEU	14,000	0.13	0.73	1,363
Containerships 9,000 TEU	11,665	0.13	0.73	1,136
Containerships 6,000 TEU	1,694	NA	0.73	1,241
Containerships 5,000 TEU	1,256	NA	0.73	920
Containerships 4,000 TEU	1,611	NA	0.73	1,180
Containerships 3,000 TEU	667	NA	0.73	489
Containerships 1,000 TEU	443	NA	0.73	325
Harbor Transit Inbound				
Containerships 10,000 TEU	14,000	0.13	0.50	930
Containerships 9,000 TEU	11,665	0.13	0.50	775
Containerships 6,000 TEU	1,694	NA	0.50	847
Containerships 5,000 TEU	1,256	NA	0.50	628
Containerships 4,000 TEU	1,611	NA	0.50	805
Containerships 3,000 TEU	667	NA	0.50	334
Containerships 1,000 TEU	443	NA	0.50	222
Harbor Transit Outbound				
Containerships 10,000 TEU	14,000	0.13	0.44	814
Containerships 9,000 TEU	11,665	0.13	0.44	678
Containerships 6,000 TEU	1,694	NA	0.44	741
Containerships 5,000 TEU	1,256	NA	0.44	549
Containerships 4,000 TEU	1,611	NA	0.44	705
Containerships 3,000 TEU	667	NA	0.44	292
Containerships 1,000 TEU	443	NA	0.44	194
Turning				
Containerships 10,000 TEU	14,000	0.30	0.23	968
Containerships 9,000 TEU	11,665	0.30	0.23	806
Containerships 6,000 TEU	3,778	NA	0.23	882
Containerships 5,000 TEU	3,457	NA	0.23	807
Containerships 4,000 TEU	2,889	NA	0.23	674
Containerships 3,000 TEU	2,288	NA	0.23	534
Containerships 1,000 TEU	1,051	NA	0.23	245
Docking				
Containerships 10,000 TEU	14,000	0.30	0.25	1,037
Containerships 9,000 TEU	11,665	0.30	0.25	864
Containerships 6,000 TEU	3,778	NA	0.25	945
Containerships 5,000 TEU	3,457	NA	0.25	864
Containerships 4,000 TEU	2,889	NA	0.25	722
Containerships 3,000 TEU	2,288	NA	0.25	572
Containerships 1,000 TEU	1,051	NA	0.25	263

(1) Containership 10,000 kW provided by APL. Containership 9,000 data from the POLA 2009 Emission Inventory Report. Containership 1,000 to 6,000 data provided by Starcrest.

(2) Derived from POLA 2009 EI Table 3.13 and Table 3.26

Table 1.3-782. OGV Auxiliary Boiler Usage per One-Way Transit:2012-2027

Vessel Type	Boiler kW	Hours/Transit	KW-Hrs/Transit
Fairway: AQMD Overwater Boundary 40nm to 20nm, Without VSR (2)			
Containerships 10,000 TEU	440	1.09	-
Containerships 9,000 TEU	440	1.09	-
Containerships 6,000 TEU	326	1.15	-
Containerships 5,000 TEU	411	1.17	-
Containerships 4,000 TEU	367	1.29	-
Containerships 3,000 TEU	394	1.51	593
Containerships 1,000 TEU	58	1.37	-
Fairway: AQMD Overwater Boundary 40nm to 20nm, With VSR (2)			
Containerships 10,000 TEU	440	1.73	761
Containerships 9,000 TEU	440	1.73	761
Containerships 6,000 TEU	326	1.73	564
Containerships 5,000 TEU	411	1.73	710
Containerships 4,000 TEU	367	1.73	635
Containerships 3,000 TEU	394	1.73	680
Containerships 1,000 TEU	58	1.73	100
Fairway: 20nm to Precautionary Area, Without VSR (2)			
Containerships 10,000 TEU	440	0.98	-
Containerships 9,000 TEU	440	0.98	-
Containerships 6,000 TEU	326	1.04	-
Containerships 5,000 TEU	411	1.05	-
Containerships 4,000 TEU	367	1.17	-
Containerships 3,000 TEU	394	1.36	535
Containerships 1,000 TEU	58	1.24	-
Fairway: 20nm to Precautionary Area, With VSR (2)			
Containerships 10,000 TEU	440	1.56	686
Containerships 9,000 TEU	440	1.56	686
Containerships 6,000 TEU	326	1.56	508
Containerships 5,000 TEU	411	1.56	641
Containerships 4,000 TEU	367	1.56	573
Containerships 3,000 TEU	394	1.56	614
Containerships 1,000 TEU	58	1.56	90
Precautionary Area			
Containerships 10,000 TEU	440	0.73	322
Containerships 9,000 TEU	440	0.73	322
Containerships 6,000 TEU	326	0.73	239
Containerships 5,000 TEU	411	0.73	301
Containerships 4,000 TEU	367	0.73	269
Containerships 3,000 TEU	394	0.73	288
Containerships 1,000 TEU	58	0.73	43
Harbor Transit Inbound			
Containerships 10,000 TEU	440	0.50	220
Containerships 9,000 TEU	440	0.50	220
Containerships 6,000 TEU	326	0.50	163
Containerships 5,000 TEU	411	0.50	205
Containerships 4,000 TEU	367	0.50	184
Containerships 3,000 TEU	394	0.50	197
Containerships 1,000 TEU	58	0.50	29
Harbor Transit Outbound			
Containerships 10,000 TEU	440	0.44	193
Containerships 9,000 TEU	440	0.44	193
Containerships 6,000 TEU	326	0.44	143
Containerships 5,000 TEU	411	0.44	180
Containerships 4,000 TEU	367	0.44	161
Containerships 3,000 TEU	394	0.44	172
Containerships 1,000 TEU	58	0.44	25
Turning			
Containerships 10,000 TEU	440	0.23	103
Containerships 9,000 TEU	440	0.23	103
Containerships 6,000 TEU	497	0.23	116
Containerships 5,000 TEU	608	0.23	142
Containerships 4,000 TEU	523	0.23	122
Containerships 3,000 TEU	513	0.23	120
Containerships 1,000 TEU	232	0.23	54
Docking			
Containerships 10,000 TEU	440	0.25	110
Containerships 9,000 TEU	440	0.25	110
Containerships 6,000 TEU	497	0.25	124
Containerships 5,000 TEU	608	0.25	152
Containerships 4,000 TEU	523	0.25	131
Containerships 3,000 TEU	513	0.25	128
Containerships 1,000 TEU	232	0.25	58

(1) Boilers for Containerships 9,000 to 10,000 data from the POLA 2009 Emission Inventory Report. Boiler data for Containerships 1,000 to 6,000 provided by Starcrest.

(2) Boilers assumed to operate under engine loads less than 20% (Starcrest, 2009).

(3) Boilers are assumed to not have an applied load factor.

Table 1.3-783. OGV Hotelling Aux. Gen. Usage per Ship Visit (Assuming No AMP)
CEQA Baseline & Alternative 5/6

Vessel Type	Auxiliary kW per Vessel	Load Factor (1)	Hours/ Visit	kW-Hrs/ Visit
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	1,347	NA	38.2	51,455
Containerships 5,000 TEU	1,040	NA	44.9	46,729
Containerships 4,000 TEU	1,372	NA	37.8	51,814
Containerships 3,000 TEU	572	NA	60.1	34,377
Containerships 1,000 TEU	339	NA	19.3	6,543
Project Year 2012				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	-	-
Containerships 6,000 TEU	1,347	NA	71.0	95,642
Containerships 5,000 TEU	1,040	NA	59.7	62,031
Containerships 4,000 TEU	1,372	NA	48.3	66,315
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2015				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	-	-
Containerships 6,000 TEU	1,347	NA	79.3	106,835
Containerships 5,000 TEU	1,040	NA	66.6	69,230
Containerships 4,000 TEU	1,372	NA	53.9	73,916
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2020				
Containerships 10,000 TEU	14,000	0.09	-	-
Containerships 9,000 TEU	11,665	0.09	97.1	104,199
Containerships 6,000 TEU	1,347	NA	65.8	88,586
Containerships 5,000 TEU	1,040	NA	55.3	57,493
Containerships 4,000 TEU	1,372	NA	44.8	61,524
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2025				
Containerships 10,000 TEU	14,000	0.09	68.9	88,640
Containerships 9,000 TEU	11,665	0.09	62.3	66,792
Containerships 6,000 TEU	1,347	NA	42.5	57,268
Containerships 5,000 TEU	1,040	NA	35.9	37,351
Containerships 4,000 TEU	1,372	NA	29.3	40,258
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-
Project Year 2027				
Containerships 10,000 TEU	14,000	0.09	65.5	84,350
Containerships 9,000 TEU	11,665	0.09	59.3	63,575
Containerships 6,000 TEU	1,347	NA	40.5	54,575
Containerships 5,000 TEU	1,040	NA	34.3	35,619
Containerships 4,000 TEU	1,372	NA	28.0	38,429
Containerships 3,000 TEU	572	NA	-	-
Containerships 1,000 TEU	339	NA	-	-

(1) Derived from POLA 2009 EI Table 3.13 and Table 3.26

Table 1.3-784. OGV Hotelling Auxiliary Boiler Usage per Ship Visit
CEQA Baseline & Alternative 5/6

Vessel Type	Boiler kW	Hours/ Visit	kW-Hrs/ Visit
Baseline			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	38.2	18,985
Containerships 5,000 TEU	608	44.9	27,313
Containerships 4,000 TEU	523	37.8	19,763
Containerships 3,000 TEU	513	60.1	30,830
Containerships 1,000 TEU	232	19.3	4,478
Project Year 2012			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	-	-
Containerships 6,000 TEU	497	71.0	35,289
Containerships 5,000 TEU	608	59.7	36,257
Containerships 4,000 TEU	523	48.3	25,293
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2015			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	-	-
Containerships 6,000 TEU	497	79.3	39,419
Containerships 5,000 TEU	608	66.6	40,465
Containerships 4,000 TEU	523	53.9	28,192
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2020			
Containerships 10,000 TEU	440	-	-
Containerships 9,000 TEU	440	97.1	42,745
Containerships 6,000 TEU	497	65.8	32,686
Containerships 5,000 TEU	608	55.3	33,605
Containerships 4,000 TEU	523	44.8	23,466
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2025			
Containerships 10,000 TEU	440	68.9	30,298
Containerships 9,000 TEU	440	62.3	27,400
Containerships 6,000 TEU	497	42.5	21,130
Containerships 5,000 TEU	608	35.9	21,832
Containerships 4,000 TEU	523	29.3	15,355
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-
Project Year 2027			
Containerships 10,000 TEU	440	65.5	28,832
Containerships 9,000 TEU	440	59.3	26,080
Containerships 6,000 TEU	497	40.5	20,136
Containerships 5,000 TEU	608	34.3	20,819
Containerships 4,000 TEU	523	28.0	14,658
Containerships 3,000 TEU	513	-	-
Containerships 1,000 TEU	232	-	-

**Table 1.3-785. OGV Anchoring Auxiliary Engine Usage per Ship Visit
CEQA Baseline & Alternative 5/6**

Vessel Type	Auxiliary kW per Vessel (1)	Load Factor (2)	Hours/ Visit	kW-Hrs/ Visit
Baseline				
Containerships 10,000 TEU	-	-	-	-
Containerships 9,000 TEU	-	-	-	-
Containerships 6,000 TEU	1,694	NA	2.1	3,557
Containerships 5,000 TEU	1,053	NA	10.7	11,229
Containerships 4,000 TEU	1,378	NA	4.3	5,913
Containerships 3,000 TEU	NA	NA	NA	-
Containerships 1,000 TEU	443	NA	5.6	2,481
Project Year 2012				
Containerships 10,000 TEU	-	-	7.4	-
Containerships 9,000 TEU	-	-	7.4	-
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2015				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	-	0.09	7.4	-
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2020				
Containerships 10,000 TEU	-	0.09	7.4	-
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2025				
Containerships 10,000 TEU	14,000	0.09	7.4	9,515
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-
Project Year 2027				
Containerships 10,000 TEU	14,000	0.09	7.4	9,515
Containerships 9,000 TEU	11,665	0.09	7.4	7,928
Containerships 6,000 TEU	1,694	NA	2.1	3,529
Containerships 5,000 TEU	1,053	NA	9.9	10,427
Containerships 4,000 TEU	1,378	NA	3.3	4,612
Containerships 3,000 TEU	-	NA	3.6	-
Containerships 1,000 TEU	-	NA	5.6	-

Note: (1) Average anchoring time was derived from actual anchoring data for APL ship visits for 2008 and 2009, provided by Starcrest.

- (2) Anchoring times assumed for the baseline are carried through 2027.
- (3) Anchoring times for OGVs larger than 6,000 TEU are assumed to be equal to the average for all sizes.

**Table 1.3-786. OGV Anchoring Auxiliary Boiler Usage per Ship Visit
CEQA Baseline & Alternative 5/6**

Vessel Type	Boiler kW	Hours/ Visit	kW-Hrs/ Visit
Baseline			
Containerships 10,000 TEU	-	-	-
Containerships 9,000 TEU	-	-	-
Containerships 6,000 TEU	497	2.1	1,044
Containerships 5,000 TEU	608	10.7	6,482
Containerships 4,000 TEU	523	4.3	2,246
Containerships 3,000 TEU	NA	NA	-
Containerships 1,000 TEU	232	5.6	1,299
Project Year 2012			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	-	7.4	-
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2015			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	-	7.4	-
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2020			
Containerships 10,000 TEU	-	7.4	-
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2025			
Containerships 10,000 TEU	440	7.4	3,252
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-
Project Year 2027			
Containerships 10,000 TEU	440	7.4	3,252
Containerships 9,000 TEU	440	7.4	3,252
Containerships 6,000 TEU	497	2.1	1,035
Containerships 5,000 TEU	608	9.9	6,018
Containerships 4,000 TEU	523	3.3	1,752
Containerships 3,000 TEU	-	3.6	-
Containerships 1,000 TEU	-	5.6	-

Table 1.3-787. Tugboat Main Engine Usage during Assists

Vessel Type	Tugboat Avg Hp (1)	Load Factor (1)	Hours/ Assist (2)	Tugboats per Assist	hp-Hrs/ Assist
Containerships 10,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 9,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 6,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 5,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 4,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 3,000 TEU	1,934	0.31	1.13	2	1,351
Containerships 1,000 TEU	1,934	0.31	1.13	2	1,351

(1) Source: POLA 2009 Emission Inventory Report.

(2) Time spent operating per vessel trip. Equal to vessel "Harbor" transit times 1.3 to account for tug movement and assist time. Vessel turning time is divided by a factor of 2 because tugboats are assumed to assist containerships while turning to dock but not while turning to leave the berth.

Table 1.3-788. Tugboat Auxiliary Engine Usage during Assists

Vessel Type	Aux Engine Avg Hp (1)	Load Factor (1)	Hours/ Assist	Tugboats per Assist	hp-Hrs/ Assist
Containerships 10,000 TEU	149	0.43	1.13	2	144
Containerships 9,000 TEU	149	0.43	1.13	2	144
Containerships 6,000 TEU	149	0.43	1.13	2	144
Containerships 5,000 TEU	149	0.43	1.13	2	144
Containerships 4,000 TEU	149	0.43	1.13	2	144
Containerships 3,000 TEU	149	0.43	1.13	2	144
Containerships 1,000 TEU	149	0.43	1.13	2	144

(1) Source: POLA 2009 Emission Inventory Report.

Table 1.3-789. Emission Factors for Commercial Marine Vessels

Engine Type	Fuel Type	Description	CO	VOC	NOx	SOx	PM10	PM2.5	Notes
Main Propulsion Engine									
OGV Main Engines (g/kw-hr)	Residual Oil (2.7% S)	Slow speed diesel ≤ 1999	1.40	0.63	18.10	10.50	1.50	1.20	(1)
		Slow speed diesel 2000+	1.40	0.63	17.00	10.50	1.50	1.20	(1)
	MGO (0.2% S)	Slow speed diesel ≤ 1999	1.40	0.63	17.01	0.74	0.29	0.23	(2)
		Slow speed diesel 2000+	1.40	0.63	15.98	0.74	0.29	0.23	(2)
	MGO (0.1% S)	Slow speed diesel ≤ 1999	1.40	0.63	17.01	0.42	0.26	0.20	(2)
		Slow speed diesel 2000+	1.40	0.63	15.98	0.42	0.26	0.20	(2)
	Baseline	Slow speed diesel ≤ 1999	1.40	0.63	18.05	10.01	1.44	1.15	(5)
	(0.95 IFO, 0.5 0.2% MGO)	Slow speed diesel 2000+	1.40	0.63	16.95	10.01	1.44	1.15	(5)
Tugboat Main Engines (Medium Speed Diesel) (g/hp-hr)	Baseline Fleet		3.11	0.74	11.12	0.01	0.47	0.44	(6)
	CARB (15 ppm S)	2008	3.45	0.77	13.64	0.01	0.51	0.47	(3,4)
	CARB (15 ppm S)	2012	3.60	0.82	14.12	0.01	0.56	0.51	(3,4)
	CARB (15 ppm S)	2015	3.82	0.71	4.45	0.01	0.09	0.08	(3,4)
	CARB (15 ppm S)	2020	4.04	0.78	4.66	0.01	0.10	0.10	(3,4)
	CARB (15 ppm S)	2025	4.26	0.85	4.87	0.01	0.12	0.11	(3,4)
	CARB (15 ppm S)	2027	4.35	0.88	4.95	0.01	0.12	0.11	(3,4)
Auxiliary Engine									
OGV Auxiliary Engines (g/kw-hr)	Residual Oil (2.7% S)	Medium speed diesel ≤ 1999	1.10	0.42	14.70	12.30	1.50	1.20	(1)
		Medium speed diesel 2000+	1.10	0.42	13.00	12.30	1.50	1.20	(2)
	MGO (0.2% S)	Medium speed diesel ≤ 1999	1.10	0.42	13.82	0.86	0.29	0.23	(2)
		Medium speed diesel 2000+	1.10	0.42	12.22	0.86	0.29	0.23	(2)
	MGO (0.1% S)	Medium speed diesel ≤ 1999	1.10	0.42	13.82	0.49	0.26	0.20	(2)
		Medium speed diesel 2000+	1.10	0.42	12.22	0.49	0.26	0.20	(2)
	Baseline	Medium speed diesel ≤ 1999	1.10	0.42	14.66	11.73	1.44	1.15	(5)
	(0.95 IFO, 0.5 0.2% MGO)	Medium speed diesel 2000+	1.10	0.42	12.96	11.73	1.44	1.15	(5)
Tugboat Auxiliary Engines (High Speed Diesel) (g/hp-hr)	Baseline Fleet		3.92	0.81	7.62	0.01	0.36	0.33	(6)
	CARB (15 ppm S)	2008	2.97	0.65	8.23	0.01	0.30	0.28	(3,4)
	CARB (15 ppm S)	2012	3.03	0.68	8.38	0.01	0.32	0.29	(3,4)
	CARB (15 ppm S)	2015	3.76	0.82	3.62	0.01	0.08	0.07	(3,4)
	CARB (15 ppm S)	2020	3.89	0.87	3.73	0.01	0.09	0.08	(3,4)
	CARB (15 ppm S)	2025	4.02	0.92	3.84	0.01	0.09	0.09	(3,4)
	CARB (15 ppm S)	2027	4.07	0.94	3.89	0.01	0.10	0.09	(3,4)
Auxiliary Boiler									
Auxiliary Boilers (g/kw-hr)	Residual Oil (2.7% S)	Current in-use average	0.20	0.11	2.10	16.50	0.80	0.60	(1)
	MDO (0.5% S)	Low sulfur fuel	0.20	0.11	1.97	10.00	0.20	0.15	(2)
	MGO (0.2% S)	Low sulfur fuel	0.20	0.11	1.97	1.16	0.15	0.11	(2)
	MGO (0.1% S)	Low sulfur fuel	0.20	0.11	1.97	0.66	0.14	0.10	(2)
		Baseline (0.95 IFO/0.5 0.2% MGO)	Composite Factor	0.20	0.11	2.09	15.73	0.77	0.58

Notes:

- (1) The 2.7% sulfur content represents the assumed fuel sulfur content from the 2009 POLA EI of residual oil used by containerships.
- (2) Source: POLA 2009 Emission Inventory Report.
- (3) Source: CARB, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B. Emission factors for model years pre 2007 are corrected to account for the use of low-sulfur diesel fuel.
- (4) Fuel sulfur content regulated by CCR Title 13, Division 3, Chapter 5, Article 2, Section 2281.
- (5) All Containership engines use 5% 0.2% sulfur MGO and 95% 2.7% sulfur IFO from July 2008 to June 2009.
- (6) Source: Starcrest, 2009 Inventory
- (7) All Containership main engines are assumed to use "Slow" emission factors.

Table 1.3-790. Emission Factors for AMP Electricity Consumption

Emission Source	CO	VOC	NOx	SOx	PM10	PM2.5
Electricity Consumption Emissions (lb/MW-hr)	0.20	0.010	1.15	0.12	0.04	0.04

Source: SCAQMD CEQA Air Quality Handbook, Tbl. A9-11-B.

Table 1.3-791. Fuel Correction Factors for Ship Main Engines, Auxiliary Engines, Boilers

Fuel Type	CO	VOC	NOx	SOx	PM10	PM2.5
HFO (1.5% S)	1.00	1.00	1.00	0.56	0.82	0.82
MDO (1.5% S)	1.00	1.00	0.90	0.56	0.47	0.47
MGO (0.5% S)	1.00	1.00	0.94	0.18	0.25	0.25
MGO (0.2% S)	1.00	1.00	0.94	0.07	0.19	0.19
MGO (0.1% S)	1.00	1.00	0.94	0.04	0.17	0.17

Source: 2009 EI Table 3.18.

Table 1.3-792. Fuel Correction Factors for Tugboat Main & Auxiliary Engines

Fuel Type	CO	VOC	NOx	SOx	PM10	PM2.5
CARB On-Road Diesel	1.00	0.72	0.93	n/a	0.75	0.75
ULSD	1.00	0.72	0.93	n/a	0.72	0.72

Source: 2009 EI Table 4.8.

Table 1.3-793. Low-Load EF Regression Factors for OGV Main Propulsion Engines

Variable	CO	HC	NOx	SOx	PM10	PM2.5
Exponent	1.00	1.50	1.50	-	1.50	1.50
Intercept (b)	0.15	0.39	10.45	-	0.26	0.26
Coefficient (a)	0.84	0.07	0.13	1.00	0.01	0.01
Ref. EF @ 20% Load	4.33	1.13	11.85	1.00	0.32	0.32

Source: 2009 EI Table 3.8. $y = a (\text{fractional load})^x + b$. Factors are normalized by dividing by the factor @ 20% load.

Table 1.3-794. Vessel Speed Reduction Program (VSRP)

Historical Compliance Rates for APL (Unmitigated)

Year	Compliance Rate
Year 2008+	95.0%

Source: POLA staff (1/28/10).

Note: (1) POLA recognizes the APL terminal for VSR compliance, which is defined as at least 95%. This rate is assumed to remain constant for all study years.

Table 1.3-795. IMO MARPOL Annex VI Compliance Rates (Unmitigated)

Year	% Ship Calls
Year 2008	100.0%
Year 2012	100.0%
Year 2015	100.0%
Year 2020	100.0%
Year 2025	100.0%
Year 2027	100.0%

Table 1.3-796. Annual Emissions from OGV Main Engine - Alternative 5/6
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.06	1.60	0.99	0.14	0.11
Containerships 5,000 TEU	9.97	4.50	128.88	74.76	10.68	8.54
Containerships 4,000 TEU	2.43	1.10	29.56	18.26	2.61	2.09
Containerships 3,000 TEU	0.20	0.09	2.18	1.31	0.20	0.16
Containerships 1,000 TEU	0.03	0.01	0.34	0.21	0.03	0.02
Subtotal	12.8	5.8	162.6	95.5	13.7	10.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.3	6.4	163.1	4.3	2.6	2.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	3.22	1.45	36.76	0.97	0.59	0.47
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.4	7.4	187.6	4.9	3.0	2.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.03	1.82	46.04	1.21	0.73	0.59
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	3.22	1.45	36.76	0.97	0.59	0.47
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	20.5	9.2	233.6	6.1	3.7	3.0
Project Year 2025						
Containerships 10,000 TEU	4.95	2.24	56.53	1.49	0.90	0.72
Containerships 9,000 TEU	8.07	3.64	92.08	2.42	1.47	1.18
Containerships 6,000 TEU	6.85	3.09	78.24	2.06	1.25	1.00
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	2.15	0.97	24.50	0.64	0.39	0.31
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.0	11.3	284.8	7.5	4.5	3.6
Project Year 2027						
Containerships 10,000 TEU	4.95	2.24	56.53	1.49	0.90	0.72
Containerships 9,000 TEU	8.07	3.64	92.08	2.42	1.47	1.18
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	27.3	12.3	311.7	8.2	5.0	4.0

- Notes: (1) Main engines are 100 percent compliant with MARPOL ANNEX VI requirements.
 (2) Main engines use slide valves.
 (3) Baseline main engines: 5% use MGO and 95% use IFO from July 2008 to June 2009.
 (4) Study years 2012-2027: main engines switch to residual fuel with 0.1% sulfur content at 24nm
 (5) All shipping routes in the study area fall within 24nm of the coast.
 (6) For study year 2012, MARPOL ANNEX VI requires 1% sulfur fuel content to 200nm.
 For study year 2015, the requirement is 0.1% sulfur content.

Table 1.3-797. Annual Emissions from OGV Main Engine - Alternative 5/6
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	0.83	0.40	0.08	0.06
Containerships 5,000 TEU	8.82	4.56	69.01	30.84	6.29	5.03
Containerships 4,000 TEU	2.33	1.17	18.22	9.07	1.73	1.38
Containerships 3,000 TEU	0.20	0.10	1.67	0.87	0.15	0.12
Containerships 1,000 TEU	0.02	0.01	0.20	0.12	0.02	0.01
Subtotal	11.5	5.9	89.9	41.3	8.3	6.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.5	6.5	87.4	1.9	1.6	1.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	3.11	1.55	22.86	0.51	0.41	0.33
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.6	7.5	102.6	2.2	1.9	1.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	3.11	1.55	22.86	0.51	0.41	0.33
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	9.3	125.4	2.7	2.3	1.8
Project Year 2025						
Containerships 10,000 TEU	4.15	2.19	27.91	0.57	0.52	0.41
Containerships 9,000 TEU	6.76	3.57	45.47	0.94	0.84	0.67
Containerships 6,000 TEU	5.93	3.07	41.13	0.87	0.75	0.60
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	2.07	1.04	15.24	0.34	0.27	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.5	11.2	147.8	3.1	2.7	2.2
Project Year 2027						
Containerships 10,000 TEU	4.15	2.19	27.91	0.57	0.52	0.41
Containerships 9,000 TEU	6.76	3.57	45.47	0.94	0.84	0.67
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.5	12.2	160.8	3.4	2.9	2.4

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-798. Annual Emissions from OGV Main Engine - Alternative 5/6

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Precautionary Area						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.34	0.14	0.04	0.03
Containerships 5,000 TEU	4.15	2.37	27.83	10.61	2.73	2.18
Containerships 4,000 TEU	1.10	0.60	7.32	3.18	0.74	0.59
Containerships 3,000 TEU	0.10	0.05	0.67	0.31	0.07	0.05
Containerships 1,000 TEU	0.01	0.00	0.07	0.04	0.01	0.01
Subtotal	5.4	3.1	36.2	14.3	3.6	2.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.9	3.3	34.9	0.6	0.7	0.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	1.46	0.80	9.12	0.18	0.17	0.14
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.8	3.9	41.0	0.8	0.8	0.6
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	1.46	0.80	9.12	0.18	0.17	0.14
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	4.8	50.1	0.9	1.0	0.8
Project Year 2025						
Containerships 10,000 TEU	1.94	1.13	11.19	0.19	0.22	0.18
Containerships 9,000 TEU	3.16	1.85	18.22	0.32	0.36	0.29
Containerships 6,000 TEU	2.77	1.58	16.43	0.30	0.32	0.26
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.97	0.53	6.08	0.12	0.12	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.1	5.8	59.2	1.1	1.2	0.9
Project Year 2027						
Containerships 10,000 TEU	1.94	1.13	11.19	0.19	0.22	0.18
Containerships 9,000 TEU	3.16	1.85	18.22	0.32	0.36	0.29
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.0	6.3	64.3	1.1	1.3	1.0

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-799. Annual Emissions from OGV Main Engine - Alternative 5/6

Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.02	0.11	0.01	0.01	0.01
Containerships 5,000 TEU	1.40	1.46	8.85	0.93	1.13	0.90
Containerships 4,000 TEU	0.37	0.36	2.14	0.28	0.29	0.23
Containerships 3,000 TEU	0.03	0.03	0.18	0.03	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.8	1.9	11.3	1.3	1.5	1.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	2.0	11.0	0.1	0.3	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.49	0.48	2.67	0.02	0.07	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.3	2.4	12.8	0.1	0.3	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.49	0.48	2.67	0.02	0.07	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.8	2.9	15.9	0.1	0.4	0.3
Project Year 2025						
Containerships 10,000 TEU	0.66	0.70	3.73	0.02	0.10	0.08
Containerships 9,000 TEU	1.07	1.15	6.07	0.03	0.16	0.12
Containerships 6,000 TEU	0.94	0.97	5.23	0.03	0.13	0.11
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.33	0.32	1.78	0.01	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.4	3.6	19.1	0.1	0.5	0.4
Project Year 2027						
Containerships 10,000 TEU	0.66	0.70	3.73	0.02	0.10	0.08
Containerships 9,000 TEU	1.07	1.15	6.07	0.03	0.16	0.12
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.7	3.9	20.8	0.1	0.5	0.4

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-800. Annual Emissions from OGV Main Engine - Alternative 5/6

Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.09	0.02	0.01	0.01
Containerships 5,000 TEU	1.23	1.05	7.21	1.22	0.87	0.70
Containerships 4,000 TEU	0.33	0.26	1.78	0.37	0.22	0.18
Containerships 3,000 TEU	0.03	0.02	0.15	0.04	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.6	1.4	9.2	1.6	1.1	0.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	1.5	9.0	0.1	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.43	0.35	2.22	0.02	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	1.7	10.5	0.1	0.3	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.43	0.35	2.22	0.02	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	2.1	12.9	0.1	0.3	0.2
Project Year 2025						
Containerships 10,000 TEU	0.57	0.51	3.01	0.02	0.07	0.06
Containerships 9,000 TEU	0.94	0.83	4.90	0.04	0.12	0.10
Containerships 6,000 TEU	0.82	0.70	4.26	0.03	0.10	0.08
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.29	0.23	1.48	0.01	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.0	2.6	15.5	0.1	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	0.57	0.51	3.01	0.02	0.07	0.06
Containerships 9,000 TEU	0.94	0.83	4.90	0.04	0.12	0.10
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.2	2.8	16.9	0.1	0.4	0.3

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

Table 1.3-801. Annual Emissions from OGV Main Engine - Alternative 5/6

Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.01	0.05	0.01	0.01	0.01
Containerships 5,000 TEU	0.66	0.65	4.03	0.48	0.51	0.41
Containerships 4,000 TEU	0.17	0.17	1.00	0.13	0.13	0.11
Containerships 3,000 TEU	0.01	0.01	0.09	0.01	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	0.9	0.8	5.2	0.6	0.7	0.5
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.9	5.0	0.0	0.1	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.23	0.23	1.25	0.01	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.1	1.1	5.9	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.23	0.23	1.25	0.01	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.3	1.3	7.2	0.0	0.2	0.1
Project Year 2025						
Containerships 10,000 TEU	0.31	0.30	1.67	0.01	0.04	0.03
Containerships 9,000 TEU	0.50	0.49	2.71	0.02	0.07	0.05
Containerships 6,000 TEU	0.44	0.43	2.38	0.01	0.06	0.05
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.15	0.15	0.83	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	1.6	8.6	0.0	0.2	0.2
Project Year 2027						
Containerships 10,000 TEU	0.31	0.30	1.67	0.01	0.04	0.03
Containerships 9,000 TEU	0.50	0.49	2.71	0.02	0.07	0.05
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	1.7	9.4	0.1	0.2	0.2

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

(2) Turning occurs during only one trip segment (arrival or departure).

Table 1.3-802. Annual Emissions from OGV Main Engine - Alternative 5/6

Docking

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Assumes main engines use residual fuel with 0.1% sulfur content and are 100% compliant with MARPOL ANNEX VI requirements

(2) Main engines are off during docking.

Table 1.3-803. Max Daily Emissions from OGV Main Engine - Alternative 5/6
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.76	59.46	1,599.9	988.19	141.17	112.94
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.8	59.5	1,599.9	988.2	141.2	112.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.8	59.5	1,504.6	39.5	24.0	19.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.8	59.5	1,504.6	39.5	24.0	19.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	263.6	119.0	3,009.2	79.1	48.0	38.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	263.6	119.0	3,009.2	79.1	48.0	38.4
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	310.3	140.0	3,541.7	93.1	56.5	45.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	310.3	140.0	3,541.7	93.1	56.5	45.2
Project Year 2025						
Containerships 10,000 TEU	381.0	171.9	4,348.7	114.3	69.4	55.5
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	381.0	171.9	4,348.7	114.3	69.4	55.5
Project Year 2027						
Containerships 10,000 TEU	381.0	171.9	4,348.7	114.3	69.4	55.5
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	381.0	171.9	4,348.7	114.3	69.4	55.5

Notes: (1) Max Daily emissions assume the main engines are equipped with slide valves.
 (2) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009 .
 (3) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and no VSR at 40nm.

Table 1.3-804. Max Daily Emissions from OGV Main Engine - Alternative 5/6
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	113.24	58.58	833.46	396.84	80.87	64.70
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	113.2	58.6	833.5	396.8	80.9	64.7
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	114.0	59.0	791.1	16.8	14.4	11.5
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	114.0	59.0	791.1	16.8	14.4	11.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	228.0	118.0	1,582.1	33.5	28.8	23.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	228.0	118.0	1,582.1	33.5	28.8	23.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	260.1	137.5	1,748.7	36.0	32.3	25.9
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	260.1	137.5	1,748.7	36.0	32.3	25.9
Project Year 2025						
Containerships 10,000 TEU	319.4	168.8	2,147.2	44.2	39.7	31.8
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	319.4	168.8	2,147.2	44.2	39.7	31.8
Project Year 2027						
Containerships 10,000 TEU	319.4	168.8	2,147.2	44.2	39.7	31.8
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	319.4	168.8	2,147.2	44.2	39.7	31.8

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-805. Max Daily Emissions from OGV Main Engine - Alternative 5/6
 Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.3	30.3	335.2	136.1	35.0	28.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.3	30.3	335.2	136.1	35.0	28.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.3	30.3	316.0	5.7	6.2	5.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.3	30.3	316.0	5.7	6.2	5.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	106.6	60.7	632.0	11.4	12.4	9.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	106.6	60.7	632.0	11.4	12.4	9.9
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	121.4	71.0	701.0	12.1	14.0	11.2
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	121.4	71.0	701.0	12.1	14.0	11.2
Project Year 2025						
Containerships 10,000 TEU	149.1	87.1	860.7	14.9	17.2	13.8
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	149.1	87.1	860.7	14.9	17.2	13.8
Project Year 2027						
Containerships 10,000 TEU	149.1	87.1	860.7	14.9	17.2	13.8
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	149.1	87.1	860.7	14.9	17.2	13.8

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-806. Max Daily Emissions from OGV Main Engine - Alternative 5/6

Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.0	18.7	106.6	12.0	14.4	11.6
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	18.7	106.6	12.0	14.4	11.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.0	18.7	100.5	0.5	2.6	2.0
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.0	18.7	100.5	0.5	2.6	2.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	36.0	37.3	201.0	1.0	5.1	4.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	36.0	37.3	201.0	1.0	5.1	4.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	41.1	44.1	233.5	1.1	6.0	4.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	41.1	44.1	233.5	1.1	6.0	4.8
Project Year 2025						
Containerships 10,000 TEU	50.4	54.1	286.7	1.3	7.4	5.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.4	54.1	286.7	1.3	7.4	5.9
Project Year 2027						
Containerships 10,000 TEU	50.4	54.1	286.7	1.3	7.4	5.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.4	54.1	286.7	1.3	7.4	5.9

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-807. Max Daily Emissions from OGV Main Engine - Alternative 5/6
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.8	13.5	86.9	15.6	11.2	8.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	13.5	86.9	15.6	11.2	8.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.8	13.5	81.9	0.7	2.0	1.6
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	13.5	81.9	0.7	2.0	1.6
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	31.6	27.1	163.8	1.3	4.0	3.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	31.6	27.1	163.8	1.3	4.0	3.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	36.0	31.9	188.3	1.4	4.6	3.7
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	36.0	31.9	188.3	1.4	4.6	3.7
Project Year 2025						
Containerships 10,000 TEU	44.2	39.1	231.2	1.7	5.6	4.5
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	44.2	39.1	231.2	1.7	5.6	4.5
Project Year 2027						
Containerships 10,000 TEU	44.2	39.1	231.2	1.7	5.6	4.5
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	44.2	39.1	231.2	1.7	5.6	4.5

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-808. Max Daily Emissions from OGV Main Engine - Alternative 5/6

Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.4	8.3	48.6	6.2	6.5	5.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	8.3	48.6	6.2	6.5	5.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.4	8.3	45.8	0.3	1.2	0.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	8.3	45.8	0.3	1.2	0.9
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	16.8	16.6	91.6	0.5	2.3	1.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.8	16.6	91.6	0.5	2.3	1.8
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	19.2	18.9	104.4	0.6	2.6	2.1
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	19.2	18.9	104.4	0.6	2.6	2.1
Project Year 2025						
Containerships 10,000 TEU	23.5	23.2	128.2	0.7	3.2	2.6
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.5	23.2	128.2	0.7	3.2	2.6
Project Year 2027						
Containerships 10,000 TEU	23.5	23.2	128.2	0.7	3.2	2.6
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.5	23.2	128.2	0.7	3.2	2.6

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

(3) Assumes turning occurs during arrivals only.

Table 1.3-809. Max Daily Emissions from OGV Main Engine - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Docking						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) Main engines are off during docking.

Table 1.3-810 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.33	25.87	696.10	429.94	61.42	49.14
Containerships 5,000 TEU	48.27	21.79	624.12	362.06	51.72	41.38
Containerships 4,000 TEU	31.93	14.41	387.72	239.47	34.21	27.37
Containerships 3,000 TEU	18.83	8.56	206.99	124.71	18.59	14.88
Containerships 1,000 TEU	10.08	4.55	122.42	75.61	10.80	8.64
Maximum	57.33	25.87	696.10	429.94	61.42	49.14
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	57.35	25.88	654.62	17.21	10.45	8.36
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	57.35	25.88	654.62	17.21	10.45	8.36
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	71.05	32.06	811.01	21.32	12.94	10.35
Project Year 2025						
Containerships 10,000 TEU	87.24	39.37	995.81	26.17	15.89	12.71
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	87.24	39.37	995.81	26.17	15.89	12.71
Project Year 2027						
Containerships 10,000 TEU	87.24	39.37	995.81	26.17	15.89	12.71
Containerships 9,000 TEU	71.05	32.06	811.01	21.32	12.94	10.35
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	87.24	39.37	995.81	26.17	15.89	12.71

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Main engines in study years 2012-2027 use 0.1% sulfur fuel and slide valves.

(3) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(4) Max 1-hour emissions assume the ship does not comply with the VSRP at 40nm.

Table 1.3-811 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	246.90	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	18.66	9.04	146.79	3.39	2.55	2.04
Containerships 1,000 TEU	5.55	2.51	61.14	1.59	0.98	0.79
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2025						
Containerships 10,000 TEU	52.76	27.77	361.89	7.55	6.65	5.32
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	52.76	27.77	361.89	7.55	6.65	5.32
Project Year 2027						
Containerships 10,000 TEU	52.76	27.77	361.89	7.55	6.65	5.32
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	52.76	27.77	361.89	7.55	6.65	5.32

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hr emissions assume the ship is 95% compliant with VSRP for all study years.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

(4) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-812 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6
 Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.65	15.17	167.62	68.05	17.51	14.01
Containerships 5,000 TEU	23.47	13.37	157.22	59.95	15.42	12.34
Containerships 4,000 TEU	18.71	10.20	124.05	53.91	12.58	10.06
Containerships 3,000 TEU	13.61	7.12	96.02	44.44	9.45	7.56
Containerships 1,000 TEU	3.86	1.79	37.03	20.44	3.30	2.64
Maximum	26.65	15.17	167.62	68.05	17.51	14.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2025						
Containerships 10,000 TEU	37.26	21.79	215.17	3.72	4.30	3.44
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.26	21.79	215.17	3.72	4.30	3.44
Project Year 2027						
Containerships 10,000 TEU	37.26	21.79	215.17	3.72	4.30	3.44
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.26	21.79	215.17	3.72	4.30	3.44

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-813 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	106.61	11.96	14.45	11.56
Containerships 5,000 TEU	15.87	16.45	99.99	10.54	12.73	10.18
Containerships 4,000 TEU	12.64	12.36	72.70	9.48	9.71	7.77
Containerships 3,000 TEU	9.18	8.45	51.55	7.81	6.77	5.42
Containerships 1,000 TEU	2.58	1.89	14.12	3.59	1.70	1.36
Maximum	18.01	18.67	106.61	11.96	14.45	11.56
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2025						
Containerships 10,000 TEU	25.21	27.05	143.33	0.65	3.68	2.94
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	25.21	27.05	143.33	0.65	3.68	2.94
Project Year 2027						
Containerships 10,000 TEU	25.21	27.05	143.33	0.65	3.68	2.94
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	25.21	27.05	143.33	0.65	3.68	2.94

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-814 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6

Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	86.88	15.62	11.15	8.92
Containerships 5,000 TEU	13.91	11.92	81.49	13.76	9.82	7.86
Containerships 4,000 TEU	11.08	8.97	60.41	12.38	7.59	6.08
Containerships 3,000 TEU	8.05	6.15	43.80	10.20	5.38	4.30
Containerships 1,000 TEU	2.27	1.40	13.28	4.69	1.46	1.17
Maximum	15.78	13.53	86.88	15.62	11.15	8.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2025						
Containerships 10,000 TEU	22.09	19.57	115.60	0.85	2.82	2.26
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	22.09	19.57	115.60	0.85	2.82	2.26
Project Year 2027						
Containerships 10,000 TEU	22.09	19.57	115.60	0.85	2.82	2.26
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	22.09	19.57	115.60	0.85	2.82	2.26

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-815 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6

Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	48.55	6.20	6.50	5.20
Containerships 5,000 TEU	7.41	7.30	45.54	5.46	5.73	4.58
Containerships 4,000 TEU	5.90	5.81	34.05	4.35	4.56	3.65
Containerships 3,000 TEU	4.28	4.22	24.72	3.16	3.31	2.65
Containerships 1,000 TEU	1.20	1.19	6.94	0.89	0.93	0.74
Maximum	8.41	8.29	48.55	6.20	6.50	5.20
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2025						
Containerships 10,000 TEU	11.77	11.60	64.09	0.36	1.61	1.29
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.77	11.60	64.09	0.36	1.61	1.29
Project Year 2027						
Containerships 10,000 TEU	11.77	11.60	64.09	0.36	1.61	1.29
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.77	11.60	64.09	0.36	1.61	1.29

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-816 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Docking						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-

- Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.
 (4) Main engines are off during docking.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-817. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.11	0.11	0.01	0.01
Containerships 5,000 TEU	0.63	0.24	8.40	7.03	0.86	0.69
Containerships 4,000 TEU	0.30	0.11	3.52	3.33	0.41	0.32
Containerships 3,000 TEU	0.02	0.01	0.20	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Subtotal	1.0	0.4	12.3	10.7	1.3	1.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.1	0.4	11.7	0.5	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.39	0.15	4.37	0.18	0.09	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.3	0.5	14.6	0.6	0.3	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.21	0.08	2.37	0.10	0.05	0.04
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.39	0.15	4.37	0.18	0.09	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.5	0.6	17.0	0.7	0.4	0.3
Project Year 2025						
Containerships 10,000 TEU	0.26	0.10	2.84	0.11	0.06	0.05
Containerships 9,000 TEU	0.43	0.16	4.74	0.19	0.10	0.08
Containerships 6,000 TEU	0.49	0.19	5.45	0.22	0.11	0.09
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.26	0.10	2.92	0.12	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.6	0.6	18.0	0.7	0.4	0.3
Project Year 2027						
Containerships 10,000 TEU	0.26	0.10	2.84	0.11	0.06	0.05
Containerships 9,000 TEU	0.43	0.16	4.74	0.19	0.10	0.08
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.7	19.3	0.8	0.4	0.3

Notes: (1) Auxiliary engines use 0.1% sulfur MGO at 24nm. All routes stay within 24nm of the coast.
(2) Baseline auxiliary engines: 5% use MGO and 95% use IFO from July 2008 to June 2009.
(3) No VSR

n

Table 1.3-818. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.00	0.00	0.02	0.15	0.01	0.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Auxiliary boilers are assumed to operate when engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-819. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.15	0.13	0.02	0.01
Containerships 5,000 TEU	0.82	0.31	10.94	8.76	1.07	0.86
Containerships 4,000 TEU	0.35	0.13	4.15	3.76	0.46	0.37
Containerships 3,000 TEU	0.02	0.01	0.21	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.04	0.04	0.00	0.00
Subtotal	1.2	0.5	15.5	12.9	1.6	1.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.4	0.5	15.3	0.6	0.3	0.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.47	0.18	5.21	0.21	0.11	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.6	18.8	0.8	0.4	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.47	0.18	5.21	0.21	0.11	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.0	0.8	22.1	0.9	0.5	0.4
Project Year 2025						
Containerships 10,000 TEU	0.36	0.14	3.99	0.16	0.08	0.07
Containerships 9,000 TEU	0.60	0.23	6.64	0.27	0.14	0.11
Containerships 6,000 TEU	0.65	0.25	7.28	0.29	0.15	0.12
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.31	0.12	3.47	0.14	0.07	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.2	0.8	24.1	1.0	0.5	0.4
Project Year 2027						
Containerships 10,000 TEU	0.36	0.14	3.99	0.16	0.08	0.07
Containerships 9,000 TEU	0.60	0.23	6.64	0.27	0.14	0.11
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.3	0.9	26.0	1.0	0.5	0.4

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.
(2) No VSR

Table 1.3-820. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 5,000 TEU	0.05	0.02	0.49	3.71	0.18	0.14
Containerships 4,000 TEU	0.01	0.01	0.15	1.11	0.05	0.04
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Subtotal	0.06	0.03	0.67	5.00	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.18	0.06	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.03	0.65	0.22	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.18	0.06	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.80	0.27	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 9,000 TEU	0.03	0.02	0.29	0.10	0.02	0.02
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.02	0.01
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.01	0.12	0.04	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.92	0.31	0.06	0.05
Project Year 2027						
Containerships 10,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 9,000 TEU	0.03	0.02	0.29	0.10	0.02	0.02
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.97	0.32	0.07	0.05

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.
(2) No VSR

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-821. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.07	0.06	0.01	0.01
Containerships 5,000 TEU	0.40	0.15	5.27	4.21	0.52	0.41
Containerships 4,000 TEU	0.17	0.06	1.99	1.80	0.22	0.18
Containerships 3,000 TEU	0.01	0.00	0.10	0.09	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Subtotal	0.6	0.2	7.4	6.2	0.8	0.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.7	0.3	7.3	0.3	0.2	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.22	0.09	2.48	0.10	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.8	0.3	9.0	0.4	0.2	0.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.22	0.09	2.48	0.10	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.0	0.4	10.6	0.4	0.2	0.2
Project Year 2025						
Containerships 10,000 TEU	0.17	0.07	1.91	0.08	0.04	0.03
Containerships 9,000 TEU	0.29	0.11	3.18	0.13	0.07	0.05
Containerships 6,000 TEU	0.31	0.12	3.48	0.14	0.07	0.06
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.15	0.06	1.65	0.07	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.0	0.4	11.5	0.5	0.2	0.2
Project Year 2027						
Containerships 10,000 TEU	0.17	0.07	1.91	0.08	0.04	0.03
Containerships 9,000 TEU	0.29	0.11	3.18	0.13	0.07	0.05
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.1	0.4	12.4	0.5	0.3	0.2

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-822. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 5,000 TEU	0.02	0.01	0.25	1.85	0.09	0.07
Containerships 4,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 3,000 TEU	0.00	0.00	0.01	0.07	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.03	0.02	0.33	2.49	0.12	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.01	0.00	0.09	0.03	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.02	0.32	0.11	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.01	0.00	0.09	0.03	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.04	0.02	0.39	0.13	0.03	0.02
Project Year 2025						
Containerships 10,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.46	0.15	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.48	0.16	0.03	0.02

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-823. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.13	0.05	1.80	1.44	0.18	0.14
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	2.5	2.1	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.5	0.1	0.1	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.08	0.03	0.85	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.1	0.1	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.08	0.03	0.85	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.6	0.1	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	0.06	0.02	0.65	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.09	0.04	0.02	0.02
Containerships 6,000 TEU	0.11	0.04	1.19	0.05	0.02	0.02
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	3.9	0.2	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	0.06	0.02	0.65	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.09	0.04	0.02	0.02
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	4.2	0.2	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-824. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.08	0.63	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.03	0.19	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.01	0.11	0.85	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.05	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-825. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.12	0.05	1.57	1.26	0.15	0.12
Containerships 4,000 TEU	0.05	0.02	0.59	0.54	0.07	0.05
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	2.2	1.8	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.2	0.1	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.2	0.1	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 9,000 TEU	0.09	0.03	0.95	0.04	0.02	0.02
Containerships 6,000 TEU	0.09	0.04	1.04	0.04	0.02	0.02
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.04	0.02	0.49	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.4	0.1	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 9,000 TEU	0.09	0.03	0.95	0.04	0.02	0.02
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.7	0.1	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-826. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.10	0.74	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.12	0.04	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-827. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.03	0.02	0.00	0.00
Containerships 5,000 TEU	0.17	0.07	2.31	1.85	0.23	0.18
Containerships 4,000 TEU	0.05	0.02	0.57	0.51	0.06	0.05
Containerships 3,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.2	0.1	3.0	2.4	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.7	0.1	0.1	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.06	0.02	0.71	0.03	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.1	0.1	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.06	0.02	0.71	0.03	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.7	0.1	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	0.06	0.02	0.68	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.13	0.05	0.02	0.02
Containerships 6,000 TEU	0.11	0.04	1.23	0.05	0.03	0.02
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	4.1	0.2	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	0.06	0.02	0.68	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.13	0.05	0.02	0.02
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.2	4.5	0.2	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.
(2) Turning occurs during only one trip segment (arrival or departure).

Table 1.3-828. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.06	0.44	0.02	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.12	0.01	0.00
Containerships 3,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.08	0.58	0.03	0.02
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.
Turning occurs during only one trip segment (arrival or departure).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-829. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 5,000 TEU	0.37	0.14	4.94	3.96	0.49	0.39
Containerships 4,000 TEU	0.10	0.04	1.22	1.10	0.14	0.11
Containerships 3,000 TEU	0.01	0.00	0.11	0.10	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Subtotal	0.5	0.2	6.3	5.2	0.6	0.5
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.2	5.7	0.2	0.1	0.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.14	0.05	1.52	0.06	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.6	0.2	6.7	0.3	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.14	0.05	1.52	0.06	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.7	0.3	7.9	0.3	0.2	0.1
Project Year 2025						
Containerships 10,000 TEU	0.13	0.05	1.45	0.06	0.03	0.02
Containerships 9,000 TEU	0.22	0.08	2.42	0.10	0.05	0.04
Containerships 6,000 TEU	0.24	0.09	2.65	0.11	0.06	0.04
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.09	0.03	1.01	0.04	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.8	0.3	8.7	0.4	0.2	0.1
Project Year 2027						
Containerships 10,000 TEU	0.13	0.05	1.45	0.06	0.03	0.02
Containerships 9,000 TEU	0.22	0.08	2.42	0.10	0.05	0.04
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.9	0.3	9.6	0.4	0.2	0.2

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-830. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.01	0.12	0.93	0.05	0.03
Containerships 4,000 TEU	0.00	0.00	0.04	0.27	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.02	0.01	0.17	1.24	0.06	0.05
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.06	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.07	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.21	0.07	0.01	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-831. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.12	0.05	1.47	1.33	0.16	0.13
Containerships 5,000 TEU	10.03	3.84	133.62	106.93	13.12	10.50
Containerships 4,000 TEU	3.71	1.42	43.68	39.52	4.85	3.88
Containerships 3,000 TEU	0.29	0.11	3.44	3.11	0.38	0.31
Containerships 1,000 TEU	0.02	0.01	0.19	0.17	0.02	0.02
Subtotal	14.2	5.4	182.4	151.1	18.5	14.8
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.09	6.93	200.98	8.09	4.19	3.36
Containerships 5,000 TEU	3.91	1.50	43.45	1.75	0.91	0.73
Containerships 4,000 TEU	2.09	0.80	23.23	0.94	0.48	0.39
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.1	9.2	267.7	10.8	5.6	4.5
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.10	3.87	112.25	4.52	2.34	1.87
Containerships 5,000 TEU	2.18	0.84	24.25	0.98	0.51	0.40
Containerships 4,000 TEU	3.50	1.34	38.83	1.56	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.8	6.0	175.3	7.1	3.7	2.9
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.31	0.50	14.60	0.59	0.30	0.24
Containerships 6,000 TEU	3.35	1.28	37.23	1.50	0.78	0.62
Containerships 5,000 TEU	0.73	0.28	8.05	0.32	0.17	0.13
Containerships 4,000 TEU	1.16	0.45	12.93	0.52	0.27	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.6	2.5	72.8	2.9	1.5	1.2
Project Year 2025						
Containerships 10,000 TEU	1.12	0.43	12.42	0.50	0.26	0.21
Containerships 9,000 TEU	1.68	0.65	18.71	0.75	0.39	0.31
Containerships 6,000 TEU	1.44	0.55	16.05	0.65	0.33	0.27
Containerships 5,000 TEU	0.47	0.18	5.23	0.21	0.11	0.09
Containerships 4,000 TEU	0.51	0.19	5.64	0.23	0.12	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.2	2.0	58.0	2.3	1.2	1.0
Project Year 2027						
Containerships 10,000 TEU	1.06	0.41	11.82	0.48	0.25	0.20
Containerships 9,000 TEU	1.60	0.61	17.81	0.72	0.37	0.30
Containerships 6,000 TEU	2.06	0.79	22.94	0.92	0.48	0.38
Containerships 5,000 TEU	0.45	0.17	4.99	0.20	0.10	0.08
Containerships 4,000 TEU	0.24	0.09	2.69	0.11	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.4	2.1	60.2	2.4	1.3	1.0

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-832. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.09	0.66	0.03	0.02
Containerships 5,000 TEU	1.07	0.56	11.16	83.84	4.09	3.07
Containerships 4,000 TEU	0.26	0.14	2.69	20.22	0.99	0.74
Containerships 3,000 TEU	0.05	0.03	0.50	3.74	0.18	0.14
Containerships 1,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Subtotal	1.38	0.73	14.45	108.62	5.30	3.97
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.21	0.64	11.98	4.01	0.83	0.62
Containerships 5,000 TEU	0.42	0.22	4.10	1.37	0.28	0.21
Containerships 4,000 TEU	0.14	0.08	1.43	0.48	0.10	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.77	0.93	17.51	5.86	1.21	0.90
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.36	0.71	13.38	4.47	0.92	0.69
Containerships 5,000 TEU	0.46	0.24	4.58	1.53	0.32	0.24
Containerships 4,000 TEU	0.48	0.26	4.78	1.60	0.33	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.30	1.21	22.74	7.60	1.57	1.18
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.49	0.26	4.84	1.62	0.33	0.25
Containerships 6,000 TEU	1.12	0.59	11.10	3.71	0.76	0.57
Containerships 5,000 TEU	0.39	0.20	3.80	1.27	0.26	0.20
Containerships 4,000 TEU	0.40	0.21	3.98	1.33	0.27	0.21
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.40	1.27	23.72	7.93	1.63	1.23
Project Year 2025						
Containerships 10,000 TEU	0.35	0.18	3.43	1.15	0.24	0.18
Containerships 9,000 TEU	0.63	0.33	6.20	2.07	0.43	0.32
Containerships 6,000 TEU	0.48	0.26	4.78	1.60	0.33	0.25
Containerships 5,000 TEU	0.25	0.13	2.47	0.83	0.17	0.13
Containerships 4,000 TEU	0.18	0.09	1.74	0.58	0.12	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.89	0.99	18.62	6.22	1.28	0.96
Project Year 2027						
Containerships 10,000 TEU	0.33	0.17	3.26	1.09	0.22	0.17
Containerships 9,000 TEU	0.60	0.31	5.90	1.97	0.41	0.30
Containerships 6,000 TEU	0.69	0.36	6.84	2.29	0.47	0.35
Containerships 5,000 TEU	0.24	0.13	2.36	0.79	0.16	0.12
Containerships 4,000 TEU	0.08	0.04	0.83	0.28	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.94	1.02	19.18	6.41	1.32	0.99

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

(2) Boilers are assumed to operate during hotelling regardless of whether the ship uses AMP.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-833. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6

Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.15	0.06	2.00	1.60	0.20	0.16
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.04	0.03	0.00	0.00
Subtotal	0.2	0.1	2.7	2.2	0.3	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.1	0.1	1.6	0.1	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.04	0.02	0.48	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.0	0.1	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.04	0.02	0.48	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	2.5	0.1	0.1	0.0
Project Year 2025						
Containerships 10,000 TEU	0.06	0.02	0.67	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.11	0.04	0.02	0.02
Containerships 6,000 TEU	0.04	0.02	0.49	0.02	0.01	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.03	0.01	0.32	0.01	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.3	0.1	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	0.06	0.02	0.67	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.11	0.04	0.02	0.02
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	3.4	0.1	0.1	0.1

Notes: (1) Assumes aux engines use residual fuel with 0.1% sulfur content.

Table 1.3-834. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6

Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.02	0.01	0.16	1.24	0.06	0.05
Containerships 4,000 TEU	0.00	0.00	0.04	0.31	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Subtotal	0.02	0.01	0.21	1.57	0.08	0.06
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.17	0.06	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.22	0.07	0.02	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.22	0.07	0.02	0.01

Notes: (1) Assumes boilers use residual fuel with 0.1% sulfur content.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-835. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.4	3.6	111.5	105.5	12.9	10.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.4	3.6	111.5	105.5	12.9	10.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.4	3.6	104.9	4.2	2.2	1.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.4	3.6	104.9	4.2	2.2	1.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.9	7.2	209.8	8.4	4.4	3.5
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.9	7.2	209.8	8.4	4.4	3.5
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	16.4	6.3	182.3	7.3	3.8	3.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.4	6.3	182.3	7.3	3.8	3.0
Project Year 2025						
Containerships 10,000 TEU	19.7	7.5	218.8	8.8	4.6	3.7
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	19.7	7.5	218.8	8.8	4.6	3.7
Project Year 2027						
Containerships 10,000 TEU	19.7	7.5	218.8	8.8	4.6	3.7
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	19.7	7.5	218.8	8.8	4.6	3.7

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and no VSR at 40nm.

Table 1.3-836. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-837. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.5	4.8	147.4	133.4	16.4	13.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.5	4.8	147.4	133.4	16.4	13.1
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.6	4.8	139.9	5.6	2.9	2.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.6	4.8	139.9	5.6	2.9	2.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	25.2	9.6	279.8	11.3	5.8	4.7
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.2	9.6	279.8	11.3	5.8	4.7
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	23.0	8.8	255.5	10.3	5.3	4.3
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.0	8.8	255.5	10.3	5.3	4.3
Project Year 2025						
Containerships 10,000 TEU	27.6	10.6	306.7	12.3	6.4	5.1
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	27.6	10.6	306.7	12.3	6.4	5.1
Project Year 2027						
Containerships 10,000 TEU	27.6	10.6	306.7	12.3	6.4	5.1
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	27.6	10.6	306.7	12.3	6.4	5.1

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-838. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.43	33.27	1.62	1.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.43	33.27	1.62	1.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.85	0.45	8.41	2.81	0.58	0.43
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.85	0.45	8.41	2.81	0.58	0.43
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.15	0.61	11.34	3.79	0.78	0.59
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.15	0.61	11.34	3.79	0.78	0.59
Project Year 2025						
Containerships 10,000 TEU	1.15	0.61	11.34	3.79	0.78	0.59
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.15	0.61	11.34	3.79	0.78	0.59
Project Year 2027						
Containerships 10,000 TEU	1.15	0.61	11.34	3.79	0.78	0.59
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.15	0.61	11.34	3.79	0.78	0.59

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.
(4) All study years are 95% compliant with VSR for the peak day.

Table 1.3-839. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Precautionary Area						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.0	2.3	71.0	64.2	7.9	6.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.0	2.3	71.0	64.2	7.9	6.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.0	2.3	66.9	2.7	1.4	1.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.0	2.3	66.9	2.7	1.4	1.1
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.0	4.6	133.8	5.4	2.8	2.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.0	4.6	133.8	5.4	2.8	2.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.0	4.2	122.4	4.9	2.6	2.0
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.0	4.2	122.4	4.9	2.6	2.0
Project Year 2025						
Containerships 10,000 TEU	13.2	5.1	146.9	5.9	3.1	2.5
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.2	5.1	146.9	5.9	3.1	2.5
Project Year 2027						
Containerships 10,000 TEU	13.2	5.1	146.9	5.9	3.1	2.5
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.2	5.1	146.9	5.9	3.1	2.5

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-840. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Precautionary Area						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.21	16.58	0.81	0.61
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.21	16.58	0.81	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.16	1.39	0.29	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.16	1.39	0.29	0.21
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.61	1.88	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.61	1.88	0.39	0.29
Project Year 2025						
Containerships 10,000 TEU	0.57	0.30	5.61	1.88	0.39	0.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.61	1.88	0.39	0.29
Project Year 2027						
Containerships 10,000 TEU	0.57	0.30	5.61	1.88	0.39	0.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.61	1.88	0.39	0.29

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-841. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	24.2	21.9	2.7	2.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	24.2	21.9	2.7	2.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	22.8	0.9	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	22.8	0.9	0.5	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.1	1.6	45.6	1.8	1.0	0.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.1	1.6	45.6	1.8	1.0	0.8
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.8	1.4	41.7	1.7	0.9	0.7
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.8	1.4	41.7	1.7	0.9	0.7
Project Year 2025						
Containerships 10,000 TEU	4.5	1.7	50.1	2.0	1.0	0.8
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.5	1.7	50.1	2.0	1.0	0.8
Project Year 2027						
Containerships 10,000 TEU	4.5	1.7	50.1	2.0	1.0	0.8
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.5	1.7	50.1	2.0	1.0	0.8

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-842. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.75	5.65	0.28	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.08	1.42	0.47	0.10	0.07
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.14	0.08	1.42	0.47	0.10	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2025						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2027						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-843. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.8	0.7	21.2	19.2	2.4	1.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.7	21.2	19.2	2.4	1.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.8	0.7	20.0	0.8	0.4	0.3
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.7	20.0	0.8	0.4	0.3
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.6	1.4	39.9	1.6	0.8	0.7
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.6	1.4	39.9	1.6	0.8	0.7
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.3	1.3	36.5	1.5	0.8	0.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.3	1.3	36.5	1.5	0.8	0.6
Project Year 2025						
Containerships 10,000 TEU	3.9	1.5	43.8	1.8	0.9	0.7
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.9	1.5	43.8	1.8	0.9	0.7
Project Year 2027						
Containerships 10,000 TEU	3.9	1.5	43.8	1.8	0.9	0.7
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.9	1.5	43.8	1.8	0.9	0.7

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-844. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.66	4.95	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.07	1.24	0.42	0.09	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.13	0.07	1.24	0.42	0.09	0.06
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.17	0.09	1.68	0.56	0.12	0.09
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.09	1.68	0.56	0.12	0.09
Project Year 2025						
Containerships 10,000 TEU	0.17	0.09	1.68	0.56	0.12	0.09
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.09	1.68	0.56	0.12	0.09
Project Year 2027						
Containerships 10,000 TEU	0.17	0.09	1.68	0.56	0.12	0.09
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.09	1.68	0.56	0.12	0.09

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-845. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	25.2	22.8	2.8	2.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	25.2	22.8	2.8	2.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.1	0.8	23.7	1.0	0.5	0.4
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.8	23.7	1.0	0.5	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.3	1.6	47.5	1.9	1.0	0.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.3	1.6	47.5	1.9	1.0	0.8
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.9	1.5	43.5	1.7	0.9	0.7
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.9	1.5	43.5	1.7	0.9	0.7
Project Year 2025						
Containerships 10,000 TEU	4.7	1.8	52.2	2.1	1.1	0.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.7	1.8	52.2	2.1	1.1	0.9
Project Year 2027						
Containerships 10,000 TEU	4.7	1.8	52.2	2.1	1.1	0.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.7	1.8	52.2	2.1	1.1	0.9

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-846. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Turning						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.54	4.02	0.20	0.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.10	0.05	1.01	0.34	0.07	0.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	1.01	0.34	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2025						
Containerships 10,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2027						
Containerships 10,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.89	0.30	0.06	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-847. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.6	1.8	54.0	48.8	6.0	4.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	54.0	48.8	6.0	4.8
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.6	1.8	50.9	2.0	1.1	0.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	1.8	50.9	2.0	1.1	0.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.2	3.5	101.8	4.1	2.1	1.7
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.2	3.5	101.8	4.1	2.1	1.7
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.4	3.2	93.1	3.7	1.9	1.6
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.4	3.2	93.1	3.7	1.9	1.6
Project Year 2025						
Containerships 10,000 TEU	10.1	3.9	111.8	4.5	2.3	1.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.1	3.9	111.8	4.5	2.3	1.9
Project Year 2027						
Containerships 10,000 TEU	10.1	3.9	111.8	4.5	2.3	1.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.1	3.9	111.8	4.5	2.3	1.9

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-848. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.15	8.62	0.42	0.32
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.15	8.62	0.42	0.32
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.22	0.12	2.16	0.72	0.15	0.11
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2025						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2027						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-849. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.1	80.1	2,463.8	2,229.5	273.6	218.9
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.1	80.1	2,463.8	2,229.5	273.6	218.9
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.0	80.0	2,322.3	93.5	48.5	38.8
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.0	80.0	2,322.3	93.5	48.5	38.8
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	130.6	50.0	1,451.4	58.4	30.3	24.2
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	130.6	50.0	1,451.4	58.4	30.3	24.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	41.8	16.0	464.2	18.7	9.7	7.8
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	41.8	16.0	464.2	18.7	9.7	7.8
Project Year 2025						
Containerships 10,000 TEU	50.2	19.2	557.2	22.4	11.6	9.3
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.2	19.2	557.2	22.4	11.6	9.3
Project Year 2027						
Containerships 10,000 TEU	50.2	19.2	557.2	22.4	11.6	9.3
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.2	19.2	557.2	22.4	11.6	9.3

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (80%).

No

Table 1.3-850. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Hotelling						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.03	7.39	146.85	1,103.49	53.84	40.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.03	7.39	146.85	1,103.49	53.84	40.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.02	7.38	138.42	46.28	9.54	7.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.02	7.38	138.42	46.28	9.54	7.15
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	17.53	9.23	173.01	57.85	11.92	8.94
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.53	9.23	173.01	57.85	11.92	8.94
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	15.58	8.21	153.82	51.43	10.60	7.95
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.58	8.21	153.82	51.43	10.60	7.95
Project Year 2025						
Containerships 10,000 TEU	15.58	8.21	153.82	51.43	10.60	7.95
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.58	8.21	153.82	51.43	10.60	7.95
Project Year 2027						
Containerships 10,000 TEU	15.58	8.21	153.82	51.43	10.60	7.95
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.58	8.21	153.82	51.43	10.60	7.95

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-851. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Peak day ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

Table 1.3-852. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Peak day ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-853 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 5/6
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.55	45.94	5.60	4.48
Containerships 5,000 TEU	3.05	1.17	40.70	34.06	4.15	3.32
Containerships 4,000 TEU	3.91	1.50	46.16	43.67	5.33	4.26
Containerships 3,000 TEU	1.62	0.62	19.13	18.10	2.21	1.77
Containerships 1,000 TEU	1.07	0.41	12.70	12.01	1.46	1.17
Maximum	4.11	1.57	48.55	45.94	5.60	4.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	4.51	1.73	50.10	2.02	1.05	0.84
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.10	2.02	1.05	0.84
Project Year 2027						
Containerships 10,000 TEU	4.51	1.73	50.10	2.02	1.05	0.84
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.10	2.02	1.05	0.84

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Study years 2012-2027 assume worst case container vessel auxiliary engines use 0.1% sulfur fuel.
(3) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-854 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 5/6
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.17	0.09	1.82	14.32	0.69	0.52
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.82	14.32	0.69	0.52
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(4) Auxiliary boilers are assumed to operate if the main engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-857 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 5/6
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	35.48	32.11	3.94	3.15
Containerships 5,000 TEU	2.23	0.85	29.75	23.80	2.92	2.34
Containerships 4,000 TEU	2.86	1.10	33.74	30.53	3.75	3.00
Containerships 3,000 TEU	1.19	0.45	13.98	12.65	1.55	1.24
Containerships 1,000 TEU	0.79	0.30	9.28	8.40	1.03	0.82
Maximum	3.01	1.15	35.48	32.11	3.94	3.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2025						
Containerships 10,000 TEU	3.31	1.27	36.72	1.48	0.77	0.61
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.31	1.27	36.72	1.48	0.77	0.61
Project Year 2027						
Containerships 10,000 TEU	3.31	1.27	36.72	1.48	0.77	0.61
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.31	1.27	36.72	1.48	0.77	0.61

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-858 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 5/6
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.10	8.29	0.40	0.30
Containerships 5,000 TEU	0.13	0.07	1.39	10.45	0.51	0.38
Containerships 4,000 TEU	0.12	0.06	1.24	9.34	0.46	0.34
Containerships 3,000 TEU	0.13	0.07	1.33	10.01	0.49	0.37
Containerships 1,000 TEU	0.02	0.01	0.20	1.47	0.07	0.05
Maximum	0.13	0.07	1.39	10.45	0.51	0.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2025						
Containerships 10,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2027						
Containerships 10,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-865 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 5/6

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	26.99	24.42	3.00	2.40
Containerships 5,000 TEU	2.10	0.80	27.93	22.35	2.74	2.19
Containerships 4,000 TEU	1.75	0.67	20.64	18.68	2.29	1.83
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.64	0.24	7.51	6.79	0.83	0.67
Maximum	2.29	0.88	27.93	24.42	3.00	2.40
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2025						
Containerships 10,000 TEU	2.51	0.96	27.94	1.12	0.58	0.47
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.51	0.96	27.94	1.12	0.58	0.47
Project Year 2027						
Containerships 10,000 TEU	2.51	0.96	27.94	1.12	0.58	0.47
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.51	0.96	27.94	1.12	0.58	0.47

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-866 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 5/6

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.57	4.31	0.21	0.16
Containerships 5,000 TEU	0.07	0.04	0.70	5.27	0.26	0.19
Containerships 4,000 TEU	0.06	0.03	0.60	4.54	0.22	0.17
Containerships 3,000 TEU	0.06	0.03	0.59	4.45	0.22	0.16
Containerships 1,000 TEU	0.03	0.01	0.27	2.01	0.10	0.07
Maximum	0.07	0.04	0.70	5.27	0.26	0.19
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2027						
Containerships 10,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-869. Annual Emissions from Tugboat Main Engine - Alternative 5/6

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Containerships 5,000 TEU	1.64	0.39	5.86	0.00	0.25	0.23
Containerships 4,000 TEU	0.55	0.13	1.95	0.00	0.08	0.08
Containerships 3,000 TEU	0.06	0.02	0.23	0.00	0.01	0.01
Containerships 1,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Subtotal	2.3	0.5	8.2	0.0	0.3	0.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.67	0.38	6.56	0.00	0.26	0.24
Containerships 5,000 TEU	0.56	0.13	2.19	0.00	0.09	0.08
Containerships 4,000 TEU	0.28	0.06	1.09	0.00	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	9.8	0.0	0.4	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.77	0.33	2.07	0.00	0.04	0.04
Containerships 5,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 4,000 TEU	0.89	0.16	1.03	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.3	0.6	3.8	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 6,000 TEU	1.88	0.36	2.17	0.00	0.05	0.04
Containerships 5,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 4,000 TEU	0.94	0.18	1.08	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.1	0.8	4.7	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 9,000 TEU	1.32	0.26	1.51	0.00	0.04	0.03
Containerships 6,000 TEU	1.32	0.26	1.51	0.00	0.04	0.03
Containerships 5,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 4,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	0.9	5.3	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 9,000 TEU	1.35	0.27	1.53	0.00	0.04	0.04
Containerships 6,000 TEU	2.02	0.41	2.30	0.00	0.06	0.05
Containerships 5,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 4,000 TEU	0.34	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.1	1.0	5.7	0.0	0.1	0.1

(1) Assist tug main engines are assumed to be replaced by 1/1/2013

Table 1.3-870. Annual Emissions from Tugboat Auxiliary Engines - Alternative 5/6

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.22	0.05	0.43	0.00	0.02	0.02
Containerships 4,000 TEU	0.07	0.02	0.14	0.00	0.01	0.01
Containerships 3,000 TEU	0.01	0.00	0.02	0.00	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.3	0.1	0.6	0.0	0.0	0.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.15	0.03	0.42	0.00	0.02	0.01
Containerships 5,000 TEU	0.05	0.01	0.14	0.00	0.01	0.00
Containerships 4,000 TEU	0.03	0.01	0.07	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	0.6	0.0	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.19	0.04	0.18	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.09	0.02	0.09	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	0.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.19	0.04	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.10	0.02	0.09	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 9,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 6,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.1	0.4	0.0	0.0	0.0
Project Year 2027						
Containerships 10,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 9,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 6,000 TEU	0.20	0.05	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.1	0.5	0.0	0.0	0.0

(1) Assist tug auxiliary engines are assumed to be replaced by 1/1/2014.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-871. Max Daily Emissions from Tugboat Main Engine - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.53	4.38	66.25	0.03	2.83	2.60
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.53	4.38	66.25	0.03	2.83	2.60
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	21.42	4.89	84.13	0.03	3.31	3.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.42	4.89	84.13	0.03	3.31	3.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	45.50	8.44	53.05	0.07	1.08	0.99
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	45.5	8.4	53.0	0.1	1.1	1.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	48.14	9.29	55.52	0.07	1.24	1.14
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	48.1	9.3	55.5	0.1	1.2	1.1
Project Year 2025						
Containerships 10,000 TEU	50.79	10.14	57.98	0.07	1.40	1.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.8	10.1	58.0	0.1	1.4	1.3
Project Year 2027						
Containerships 10,000 TEU	51.84	10.48	58.97	0.07	1.47	1.35
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	51.8	10.5	59.0	0.1	1.5	1.4

(1) Assist tug main engines are assumed to be replaced after a useful life of 23 yrs (in 2018).

Table 1.3-872. Max Daily Emissions from Tugboat Auxiliary Engines - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.49	0.52	4.85	0.00	0.23	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.5	4.8	0.0	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.93	0.43	5.33	0.00	0.20	0.19
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.4	5.3	0.0	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.78	1.04	4.61	0.01	0.10	0.09
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.8	1.0	4.6	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.95	1.11	4.75	0.01	0.11	0.10
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.9	1.1	4.8	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	5.11	1.17	4.89	0.01	0.12	0.11
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.1	1.2	4.9	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	5.18	1.19	4.95	0.01	0.12	0.11
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.2	1.2	4.9	0.0	0.1	0.1

(1) Assist tug auxiliary engines are assumed to be replaced after a useful life of 23yrs (in 2022).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-873. Max 1-Hour Emissions from Tugboat Main Engine - Alternative 5/6

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 5,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 4,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 3,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 1,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Maximum	8.22	1.94	29.40	0.01	1.25	1.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 5,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 4,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.50	2.17	37.34	0.01	1.47	1.35
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 5,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 4,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.10	1.87	11.77	0.01	0.24	0.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 6,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 5,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 4,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.68	2.06	12.32	0.01	0.28	0.25
Project Year 2025						
Containerships 10,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 9,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 6,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 5,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 4,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.27	2.25	12.87	0.01	0.31	0.29
Project Year 2027						
Containerships 10,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 9,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 6,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 5,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 4,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.50	2.32	13.09	0.01	0.33	0.30

Notes: (1) Emissions assume use of two tugboats for 1 hour.
(2) Assist tug main engines are assumed to be replaced after a useful life of 23 yrs (in 2018).

Table 1.3-874. Max 1-Hour Emissions from Tugboat Auxiliary Engines - Alternative 5/6

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 5,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 4,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 3,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 1,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Maximum	1.11	0.23	2.15	0.00	0.10	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 5,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 4,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.86	0.19	2.37	0.00	0.09	0.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 5,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 4,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.06	0.23	1.02	0.00	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 6,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 5,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 4,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.10	0.25	1.05	0.00	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 9,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 6,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 5,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 4,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.13	0.26	1.09	0.00	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 9,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 6,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 5,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 4,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.15	0.27	1.10	0.00	0.03	0.02

Notes: (1) Emissions assume use of two tugboats for 1 hour.
(2) Assist tug auxiliary engines are assumed to be replaced after a useful life of 23yrs (in 2022).

Table 1.3-875. Annual Emissions from AMP Electricity Consumption - Alternative 5/6 without Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.83	0.04	4.79	0.50	0.17	0.17
Containerships 5,000 TEU	0.18	0.01	1.03	0.11	0.04	0.04
Containerships 4,000 TEU	0.29	0.01	1.66	0.17	0.06	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.3	0.1	7.5	0.8	0.3	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.43	0.02	2.49	0.26	0.09	0.09
Containerships 6,000 TEU	1.11	0.06	6.36	0.66	0.22	0.22
Containerships 5,000 TEU	0.24	0.01	1.38	0.14	0.05	0.05
Containerships 4,000 TEU	0.38	0.02	2.21	0.23	0.08	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.2	0.1	12.4	1.3	0.4	0.4
Project Year 2025						
Containerships 10,000 TEU	0.37	0.02	2.12	0.22	0.07	0.07
Containerships 9,000 TEU	0.56	0.03	3.20	0.33	0.11	0.11
Containerships 6,000 TEU	0.48	0.02	2.74	0.29	0.10	0.10
Containerships 5,000 TEU	0.16	0.01	0.89	0.09	0.03	0.03
Containerships 4,000 TEU	0.17	0.01	0.96	0.10	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.1	9.9	1.0	0.3	0.3
Project Year 2027						
Containerships 10,000 TEU	0.35	0.02	2.02	0.21	0.07	0.07
Containerships 9,000 TEU	0.53	0.03	3.04	0.32	0.11	0.11
Containerships 6,000 TEU	0.68	0.03	3.92	0.41	0.14	0.14
Containerships 5,000 TEU	0.15	0.01	0.85	0.09	0.03	0.03
Containerships 4,000 TEU	0.08	0.00	0.46	0.05	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.8	0.1	10.3	1.1	0.4	0.4

Table 1.3-876. Max Daily Emissions from AMP Electricity Consumption - Alternative 5/6

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.77	0.54	61.96	6.46	2.15	2.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.8	0.5	62.0	6.5	2.2	2.2
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	13.79	0.69	79.27	8.27	2.76	2.75
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.8	0.7	79.3	8.3	2.8	2.8
Project Year 2025						
Containerships 10,000 TEU	16.55	0.83	95.13	9.93	3.31	3.30
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.5	0.8	95.1	9.9	3.3	3.3
Project Year 2027						
Containerships 10,000 TEU	16.55	0.83	95.13	9.93	3.31	3.30
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.5	0.8	95.1	9.9	3.3	3.3

Table 1.3-877. Summary of Annual Marine Vessel Emissions without Mitigation
 Alternative 5/6

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	13.7	6.1	174.8	106.4	15.0	12.0
Ships - 20nm to PA	12.8	6.4	106.1	59.2	10.1	8.1
Ships - PA	6.0	3.3	44.0	23.0	4.5	3.6
Ships - Harbor Transit	3.8	3.4	25.5	8.4	3.1	2.5
Ships - Turning & Docking	1.6	1.1	14.7	10.1	1.7	1.3
Ships - Anchoring	0.2	0.1	2.9	3.8	0.4	0.3
Ships - Hotelling	15.5	6.2	196.8	259.7	23.8	18.8
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.6	0.6	8.8	0.0	0.4	0.3
Total	56.3	27.2	573.7	470.5	58.9	46.9
Project Year 2012						
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	25.9	10.2	285.2	16.6	6.8	5.4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.7	0.6	10.5	0.0	0.4	0.4
Total	70.5	33.2	656.4	26.0	13.8	11.0
Project Year 2015						
Ships - AQMD 40nm to 20nm	17.7	7.9	202.2	5.5	3.3	2.6
Ships - 20nm to PA	16.4	8.2	122.1	3.2	2.3	1.8
Ships - PA	7.7	4.2	50.3	1.2	1.0	0.8
Ships - Harbor Transit	4.9	4.3	29.3	0.5	0.7	0.6
Ships - Turning & Docking	2.0	1.4	15.9	0.5	0.4	0.3
Ships - Anchoring	0.2	0.1	2.1	0.1	0.0	0.0
Ships - Hotelling	18	7	198	15	5	4
AMP - Hotelling	1	0	7	1	0	0
Tugboats	3.6	0.7	4.1	0.0	0.1	0.1
Total	71.8	34.1	631.6	26.4	13.3	10.6
Project Year 2020						
Ships - AQMD 40nm to 20nm	22.0	9.8	250.6	6.8	4.1	3.3
Ships - 20nm to PA	20.1	10.1	148.3	3.8	2.8	2.2
Ships - PA	9.4	5.2	61.1	1.5	1.2	1.0
Ships - Harbor Transit	6.0	5.3	35.8	0.5	0.9	0.7
Ships - Turning & Docking	2.4	1.7	19.1	0.6	0.4	0.4
Ships - Anchoring	0.2	0.1	2.7	0.2	0.1	0.1
Ships - Hotelling	9.0	3.8	96.5	10.9	3.2	2.4
AMP - Hotelling	2.2	0.1	12.4	1.3	0.4	0.4
Tugboats	4.5	0.9	5.1	0.0	0.1	0.1
Total	75.7	37.0	631.6	25.6	13.2	10.6
Project Year 2025						
Ships - AQMD 40nm to 20nm	26.6	11.9	302.8	8.2	4.9	3.9
Ships - 20nm to PA	23.8	12.1	172.8	4.4	3.3	2.6
Ships - PA	11.1	6.2	71.1	1.7	1.4	1.2
Ships - Harbor Transit	7.1	6.4	42.3	0.6	1.0	0.8
Ships - Turning & Docking	2.8	2.0	21.8	0.7	0.5	0.4
Ships - Anchoring	0.3	0.1	3.5	0.2	0.1	0.1
Ships - Hotelling	7.1	3.0	76.7	8.6	2.5	1.9
AMP - Hotelling	1.7	0.1	9.9	1.0	0.3	0.3
Tugboats	5.1	1.0	5.7	0.0	0.1	0.1
Total	85.6	42.9	706.7	25.3	14.2	11.4
Project Year 2027						
Ships - AQMD 40nm to 20nm	29.0	13.0	330.9	9.0	5.4	4.3
Ships - 20nm to PA	25.9	13.2	187.7	4.7	3.6	2.8
Ships - PA	12.1	6.8	77.2	1.8	1.6	1.2
Ships - Harbor Transit	7.7	7.0	46.0	0.7	1.1	0.9
Ships - Turning & Docking	3.0	2.2	23.7	0.7	0.6	0.4
Ships - Anchoring	0.3	0.1	3.6	0.2	0.1	0.1
Ships - Hotelling	7.4	3.1	79.4	8.8	2.6	2.0
AMP - Hotelling	1.8	0.1	10.3	1.1	0.4	0.4
Tugboats	5.6	1.1	6.2	0.0	0.2	0.1
Total	92.8	46.6	765.2	27.0	15.4	12.3

Table 1.3-878. Summary of Maximum Daily Marine Vessel Emissions without Mitigation
 Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	283	126	3,219	88	52	42
Ships - 20nm to PA	254	128	1,870	48	35	28
Ships - PA	119	66	770	18	15	12
Ships - Harbor Transit	76	67	453	7	11	9
Ships - Turning & Docking	31	22	244	8	6	4
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	148	59	1,624	116	42	33
AMP - Hotelling	11	1	62	6	2	2
Tugboats	50	9	58	0	1	1
Total	971	478	8,300	290	165	132
Project Year 2020						
Ships - AQMD 40nm to 20nm	327	146	3,724	100	60	48
Ships - 20nm to PA	284	147	2,016	50	38	31
Ships - PA	133	75	829	19	17	14
Ships - Harbor Transit	84	79	504	7	12	10
Ships - Turning & Docking	32	24	244	7	6	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	57	24	618	70	20	16
AMP - Hotelling	14	1	79	8	3	3
Tugboats	53	10	60	0	1	1
Total	984	507	8,073	262	158	127
Project Year 2025						
Ships - AQMD 40nm to 20nm	401	179	4,568	123	74	59
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	66	27	711	74	22	17
AMP - Hotelling	17	1	95	10	3	3
Tugboats	56	11	63	0	2	1
Total	1,192	617	9,825	306	191	153
Project Year 2027						
Ships - AQMD 40nm to 20nm	401	179	4,568	123	74	59
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	66	27	711	74	22	17
AMP - Hotelling	17	1	95	10	3	3
Tugboats	57	12	64	0	2	1
Total	1,193	618	9,826	306	191	153

Table 1.3-879. Summary of Average Daily Marine Vessel Emissions without Mitigation
 Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	75	34	958	583	82	66
Ships - 20nm to PA	70	35	581	324	55	44
Ships - PA	33	18	241	126	24	20
Ships - Harbor Transit	21	19	140	46	17	14
Ships - Turning & Docking	9	6	81	55	9	7
Ships - Anchoring	1	0	16	21	2	2
Ships - Hotelling	85	34	1,079	1,423	131	103
AMP - Hotelling	-	-	-	-	-	-
Tugboats	14	3	48	0	2	2
Total	308	149	3,144	2,578	323	257
Project Year 2012						
Ships - AQMD 40nm to 20nm	84	38	958	26	16	12
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	142	56	1,563	91	37	29
AMP - Hotelling	-	-	-	-	-	-
Tugboats	15	3	57	0	2	2
Total	386	182	3,597	142	76	60
Project Year 2015						
Ships - AQMD 40nm to 20nm	97	43	1,108	30	18	14
Ships - 20nm to PA	90	45	669	17	13	10
Ships - PA	42	23	276	7	6	4
Ships - Harbor Transit	27	24	160	2	4	3
Ships - Turning & Docking	11	8	87	3	2	2
Ships - Anchoring	1	0	11	1	0	0
Ships - Hotelling	99	40	1,085	80	29	22
AMP - Hotelling	7	0	41	4	1	1
Tugboats	20	4	23	0	0	0
Total	394	187	3,461	145	73	58
Project Year 2020						
Ships - AQMD 40nm to 20nm	121	54	1,373	37	22	18
Ships - 20nm to PA	110	55	813	21	15	12
Ships - PA	52	28	335	8	7	5
Ships - Harbor Transit	33	29	196	3	5	4
Ships - Turning & Docking	13	9	105	3	2	2
Ships - Anchoring	1	1	15	1	0	0
Ships - Hotelling	49	21	529	60	17	13
AMP - Hotelling	12	1	68	7	2	2
Tugboats	25	5	28	0	1	1
Total	415	203	3,461	140	72	58
Project Year 2025						
Ships - AQMD 40nm to 20nm	146	65	1,659	45	27	22
Ships - 20nm to PA	130	66	947	24	18	14
Ships - PA	61	34	390	9	8	6
Ships - Harbor Transit	39	35	232	3	6	5
Ships - Turning & Docking	15	11	119	4	3	2
Ships - Anchoring	2	1	19	1	0	0
Ships - Hotelling	39	16	420	47	14	11
AMP - Hotelling	9	0	54	6	2	2
Tugboats	28	6	31	0	1	1
Total	469	235	3,872	139	78	62
Project Year 2027						
Ships - AQMD 40nm to 20nm	159	71	1,813	49	29	24
Ships - 20nm to PA	142	72	1,029	26	19	16
Ships - PA	66	37	423	10	9	7
Ships - Harbor Transit	42	38	252	4	6	5
Ships - Turning & Docking	17	12	130	4	3	2
Ships - Anchoring	2	1	20	1	0	0
Ships - Hotelling	40	17	435	48	14	11
AMP - Hotelling	10	0	56	6	2	2
Tugboats	30	6	34	0	1	1
Total	509	255	4,193	148	84	67

Table 1.3-880. Summary of Maximum Hourly Marine Vessel Emissions without Mitigation
 Alternative 5/6

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	199	112	1,581	40	30	24
Project Year 2020						
Ships - AQMD 40nm to 20nm	75	34	857	23	14	11
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	228	131	1,820	45	35	28
Project Year 2025						
Ships - AQMD 40nm to 20nm	92	41	1,046	28	17	14
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	274	160	2,194	53	42	33
Project Year 2027						
Ships - AQMD 40nm to 20nm	92	41	1,046	28	17	14
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	275	160	2,194	53	42	33

Table 1.3-881. AMP Compliance Rates
 Alternative 5/6 with and without Mitigation

Project Year	Unmitigated Compliance Rate	Mitigated Compliance Rate
Project Year Baseline	0%	0%
Project Year 2012	0%	0%
Project Year 2014	50%	50%
Project Year 2015	50%	50%
Project Year 2016	50%	70%
Project Year 2020	80%	80%
Project Year 2025	80%	80%
Project Year 2027	80%	95%

Source: 17 CCR 93118.3, POLA

Table 1.3-882. Vessel Speed Reduction Program (VSRP) Compliance Rates
 Alternative 5/6 with Mitigation

Year	Compliance Rate	Compliance Boundary (nm)
Year 2008 - 2012	95%	20
Year 2014	95%	40

Notes: (1) POLA recognizes APL for VSR compliance, which is defined as a compliance rate of at least 95%.
 (2) VSR mitigation measure starting in 2009 applies from 40 nm to the PA.

Table 1.3-883. Annual Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.06	1.60	0.99	0.14	0.11
Containerships 5,000 TEU	9.97	4.50	128.88	74.76	10.68	8.54
Containerships 4,000 TEU	2.43	1.10	29.56	18.26	2.61	2.09
Containerships 3,000 TEU	0.20	0.09	2.18	1.31	0.20	0.16
Containerships 1,000 TEU	0.03	0.01	0.34	0.21	0.03	0.02
Subtotal	12.76	5.76	162.56	95.53	13.66	10.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.28	4.64	117.36	3.08	1.87	1.50
Containerships 5,000 TEU	2.93	1.32	33.44	0.88	0.53	0.43
Containerships 4,000 TEU	1.07	0.48	12.25	0.32	0.20	0.16
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.29	6.45	163.05	4.29	2.60	2.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.86	5.10	68.41	1.45	1.25	1.00
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	3.44	1.72	25.35	0.56	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.19	8.32	113.80	2.43	2.06	1.65
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.98	25.21	0.52	0.47	0.37
Containerships 6,000 TEU	9.86	5.10	68.41	1.45	1.25	1.00
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	3.44	1.72	25.35	0.56	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	19.94	10.30	139.01	2.95	2.53	2.02
Project Year 2025						
Containerships 10,000 TEU	4.60	2.43	30.95	0.64	0.57	0.46
Containerships 9,000 TEU	7.50	3.96	50.41	1.04	0.93	0.75
Containerships 6,000 TEU	6.57	3.40	45.61	0.97	0.83	0.67
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	2.30	1.15	16.90	0.37	0.30	0.24
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.86	12.44	163.91	3.44	3.00	2.40
Project Year 2027						
Containerships 10,000 TEU	4.60	2.43	30.95	0.64	0.57	0.46
Containerships 9,000 TEU	7.50	3.96	50.41	1.04	0.93	0.75
Containerships 6,000 TEU	9.86	5.10	68.41	1.45	1.25	1.00
Containerships 5,000 TEU	2.89	1.50	20.04	0.42	0.37	0.29
Containerships 4,000 TEU	1.15	0.57	8.45	0.19	0.15	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	26.00	13.57	178.26	3.74	3.27	2.61

Notes: (1) Mitigation measures include VSR, slide valves, and low sulfur fuel.

Table 1.3-884. Annual Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	0.83	0.40	0.08	0.06
Containerships 5,000 TEU	8.82	4.56	69.01	30.84	6.29	5.03
Containerships 4,000 TEU	2.33	1.17	18.22	9.07	1.73	1.38
Containerships 3,000 TEU	0.20	0.10	1.67	0.87	0.15	0.12
Containerships 1,000 TEU	0.02	0.01	0.20	0.12	0.02	0.01
Subtotal	11.48	5.89	89.93	41.29	8.27	6.62
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.53	6.47	87.40	1.86	1.59	1.27
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	3.11	1.55	22.86	0.51	0.41	0.33
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.61	7.50	102.64	2.20	1.86	1.49
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.38	1.79	22.73	0.47	0.42	0.34
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	3.11	1.55	22.86	0.51	0.41	0.33
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.99	9.29	125.37	2.66	2.28	1.83
Project Year 2025						
Containerships 10,000 TEU	4.15	2.19	27.91	0.57	0.52	0.41
Containerships 9,000 TEU	6.76	3.57	45.47	0.94	0.84	0.67
Containerships 6,000 TEU	5.93	3.07	41.13	0.87	0.75	0.60
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	2.07	1.04	15.24	0.34	0.27	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.52	11.22	147.83	3.10	2.71	2.17
Project Year 2027						
Containerships 10,000 TEU	4.15	2.19	27.91	0.57	0.52	0.41
Containerships 9,000 TEU	6.76	3.57	45.47	0.94	0.84	0.67
Containerships 6,000 TEU	8.89	4.60	61.70	1.31	1.13	0.90
Containerships 5,000 TEU	2.61	1.35	18.07	0.38	0.33	0.26
Containerships 4,000 TEU	1.04	0.52	7.62	0.17	0.14	0.11
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.45	12.24	160.78	3.37	2.95	2.36

Notes: (1) Mitigation measures include VSR, slide valves, and low sulfur fuel.

Table 1.3-885. Annual Emissions from OGV Main Engine - Alternative 5/6 with Mitigation

Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.34	0.14	0.04	0.03
Containerships 5,000 TEU	4.15	2.37	27.83	10.61	2.73	2.18
Containerships 4,000 TEU	1.10	0.60	7.32	3.18	0.74	0.59
Containerships 3,000 TEU	0.10	0.05	0.67	0.31	0.07	0.05
Containerships 1,000 TEU	0.01	0.00	0.07	0.04	0.01	0.01
Subtotal	5.42	3.05	36.23	14.28	3.58	2.86
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.86	3.33	34.92	0.63	0.68	0.55
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	1.46	0.80	9.12	0.18	0.17	0.14
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.84	3.86	41.00	0.75	0.80	0.64
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.58	0.92	9.11	0.16	0.18	0.15
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	1.46	0.80	9.12	0.18	0.17	0.14
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.41	4.78	50.12	0.91	0.98	0.79
Project Year 2025						
Containerships 10,000 TEU	1.94	1.13	11.19	0.19	0.22	0.18
Containerships 9,000 TEU	3.16	1.85	18.22	0.32	0.36	0.29
Containerships 6,000 TEU	2.77	1.58	16.43	0.30	0.32	0.26
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.97	0.53	6.08	0.12	0.12	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.06	5.78	59.16	1.05	1.17	0.93
Project Year 2027						
Containerships 10,000 TEU	1.94	1.13	11.19	0.19	0.22	0.18
Containerships 9,000 TEU	3.16	1.85	18.22	0.32	0.36	0.29
Containerships 6,000 TEU	4.16	2.37	24.65	0.45	0.48	0.39
Containerships 5,000 TEU	1.22	0.69	7.24	0.13	0.14	0.11
Containerships 4,000 TEU	0.49	0.27	3.04	0.06	0.06	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.96	6.30	64.34	1.14	1.27	1.02

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-886. Annual Emissions from OGV Main Engine - Alternative 5/6 with Mitigation

Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.02	0.11	0.01	0.01	0.01
Containerships 5,000 TEU	1.40	1.46	8.85	0.93	1.13	0.90
Containerships 4,000 TEU	0.37	0.36	2.14	0.28	0.29	0.23
Containerships 3,000 TEU	0.03	0.03	0.18	0.03	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.83	1.87	11.30	1.25	1.45	1.16
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.98	2.04	11.03	0.06	0.28	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.49	0.48	2.67	0.02	0.07	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.31	2.37	12.82	0.07	0.33	0.26
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.53	0.57	3.04	0.01	0.08	0.06
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.49	0.48	2.67	0.02	0.07	0.05
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.84	2.94	15.85	0.08	0.40	0.32
Project Year 2025						
Containerships 10,000 TEU	0.66	0.70	3.73	0.02	0.10	0.08
Containerships 9,000 TEU	1.07	1.15	6.07	0.03	0.16	0.12
Containerships 6,000 TEU	0.94	0.97	5.23	0.03	0.13	0.11
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.33	0.32	1.78	0.01	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.40	3.57	19.11	0.09	0.49	0.39
Project Year 2027						
Containerships 10,000 TEU	0.66	0.70	3.73	0.02	0.10	0.08
Containerships 9,000 TEU	1.07	1.15	6.07	0.03	0.16	0.12
Containerships 6,000 TEU	1.40	1.46	7.84	0.04	0.20	0.16
Containerships 5,000 TEU	0.41	0.43	2.30	0.01	0.06	0.05
Containerships 4,000 TEU	0.16	0.16	0.89	0.01	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.70	3.89	20.83	0.10	0.53	0.43

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-887. Annual Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.09	0.02	0.01	0.01
Containerships 5,000 TEU	1.23	1.05	7.21	1.22	0.87	0.70
Containerships 4,000 TEU	0.33	0.26	1.78	0.37	0.22	0.18
Containerships 3,000 TEU	0.03	0.02	0.15	0.04	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	1.60	1.36	9.25	1.64	1.12	0.90
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.74	1.48	9.01	0.07	0.22	0.17
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.43	0.35	2.22	0.02	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.02	1.71	10.49	0.09	0.25	0.20
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.47	0.41	2.45	0.02	0.06	0.05
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.43	0.35	2.22	0.02	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.49	2.13	12.93	0.10	0.31	0.25
Project Year 2025						
Containerships 10,000 TEU	0.57	0.51	3.01	0.02	0.07	0.06
Containerships 9,000 TEU	0.94	0.83	4.90	0.04	0.12	0.10
Containerships 6,000 TEU	0.82	0.70	4.26	0.03	0.10	0.08
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.29	0.23	1.48	0.01	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.98	2.58	15.52	0.12	0.38	0.30
Project Year 2027						
Containerships 10,000 TEU	0.57	0.51	3.01	0.02	0.07	0.06
Containerships 9,000 TEU	0.94	0.83	4.90	0.04	0.12	0.10
Containerships 6,000 TEU	1.23	1.06	6.39	0.05	0.15	0.12
Containerships 5,000 TEU	0.36	0.31	1.88	0.02	0.05	0.04
Containerships 4,000 TEU	0.14	0.12	0.74	0.01	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.25	2.82	16.91	0.13	0.41	0.33

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-888. Annual Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.01	0.05	0.01	0.01	0.01
Containerships 5,000 TEU	0.66	0.65	4.03	0.48	0.51	0.41
Containerships 4,000 TEU	0.17	0.17	1.00	0.13	0.13	0.11
Containerships 3,000 TEU	0.01	0.01	0.09	0.01	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Subtotal	0.85	0.84	5.18	0.63	0.66	0.53
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.93	0.91	5.04	0.03	0.13	0.10
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.23	0.23	1.25	0.01	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.08	1.06	5.87	0.03	0.15	0.12
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.25	0.25	1.36	0.01	0.03	0.03
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.23	0.23	1.25	0.01	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.33	1.31	7.23	0.04	0.18	0.15
Project Year 2025						
Containerships 10,000 TEU	0.31	0.30	1.67	0.01	0.04	0.03
Containerships 9,000 TEU	0.50	0.49	2.71	0.02	0.07	0.05
Containerships 6,000 TEU	0.44	0.43	2.38	0.01	0.06	0.05
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.15	0.15	0.83	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.59	1.56	8.64	0.05	0.22	0.17
Project Year 2027						
Containerships 10,000 TEU	0.31	0.30	1.67	0.01	0.04	0.03
Containerships 9,000 TEU	0.50	0.49	2.71	0.02	0.07	0.05
Containerships 6,000 TEU	0.66	0.65	3.57	0.02	0.09	0.07
Containerships 5,000 TEU	0.19	0.19	1.05	0.01	0.03	0.02
Containerships 4,000 TEU	0.08	0.08	0.42	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.73	1.70	9.42	0.05	0.24	0.19

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.
 Turning occurs during only one trip segment (arrival or departure).

Table 1.3-889. Annual Emissions from OGV Main Engine - Alternative 5/6 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Docking						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Mitigation measures include slide valves and low sulfur fuel.

Table 1.3-890. Max Daily Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.76	59.46	1,599.93	988.19	141.17	112.94
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.76	59.46	1,599.93	988.19	141.17	112.94
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	131.82	59.49	1,504.61	39.55	24.01	19.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	131.82	59.49	1,504.61	39.55	24.01	19.21
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	252.79	130.78	1,754.20	37.16	31.99	25.59
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	252.79	130.78	1,754.20	37.16	31.99	25.59
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	288.43	152.44	1,938.91	39.93	35.87	28.69
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	288.43	152.44	1,938.91	39.93	35.87	28.69
Project Year 2025						
Containerships 10,000 TEU	354.15	187.18	2,380.74	49.03	44.04	35.23
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	354.15	187.18	2,380.74	49.03	44.04	35.23
Project Year 2027						
Containerships 10,000 TEU	354.15	187.18	2,380.74	49.03	44.04	35.23
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	354.15	187.18	2,380.74	49.03	44.04	35.23

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009 .
 (2) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and VSR at 40nm.

Table 1.3-891. Max Daily Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	113.24	58.58	833.46	396.84	80.87	64.70
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	113.24	58.58	833.46	396.84	80.87	64.70
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	114.00	58.98	791.06	16.76	14.42	11.54
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	114.00	58.98	791.06	16.76	14.42	11.54
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	227.99	117.95	1,582.11	33.52	28.85	23.08
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	227.99	117.95	1,582.11	33.52	28.85	23.08
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	260.13	137.49	1,748.71	36.01	32.35	25.88
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	260.13	137.49	1,748.71	36.01	32.35	25.88
Project Year 2025						
Containerships 10,000 TEU	319.41	168.82	2,147.19	44.22	39.72	31.78
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	319.41	168.82	2,147.19	44.22	39.72	31.78
Project Year 2027						
Containerships 10,000 TEU	319.41	168.82	2,147.19	44.22	39.72	31.78
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	319.41	168.82	2,147.19	44.22	39.72	31.78

(2) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.

(3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

(4) All study years are 95% compliant with VSR for the peak day.

Table 1.3-892. Max Daily Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.29	30.34	335.24	136.10	35.02	28.01
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.29	30.34	335.24	136.10	35.02	28.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	53.28	30.34	315.99	5.71	6.20	4.96
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	53.28	30.34	315.99	5.71	6.20	4.96
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	106.55	60.67	631.98	11.42	12.40	9.92
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	106.55	60.67	631.98	11.42	12.40	9.92
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	121.39	70.98	700.96	12.13	14.00	11.20
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	121.39	70.98	700.96	12.13	14.00	11.20
Project Year 2025						
Containerships 10,000 TEU	149.05	87.15	860.69	14.89	17.19	13.75
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	149.05	87.15	860.69	14.89	17.19	13.75
Project Year 2027						
Containerships 10,000 TEU	149.05	87.15	860.69	14.89	17.19	13.75
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	149.05	87.15	860.69	14.89	17.19	13.75

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-893. Max Daily Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	106.61	11.96	14.45	11.56
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.01	18.67	106.61	11.96	14.45	11.56
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	36.02	37.35	201.02	1.00	5.12	4.10
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	36.02	37.35	201.02	1.00	5.12	4.10
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	41.07	44.06	233.46	1.07	5.99	4.79
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	41.07	44.06	233.46	1.07	5.99	4.79
Project Year 2025						
Containerships 10,000 TEU	50.42	54.10	286.66	1.31	7.35	5.88
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.42	54.10	286.66	1.31	7.35	5.88
Project Year 2027						
Containerships 10,000 TEU	50.42	54.10	286.66	1.31	7.35	5.88
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.42	54.10	286.66	1.31	7.35	5.88

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-894. Max Daily Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	86.88	15.62	11.15	8.92
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.78	13.53	86.88	15.62	11.15	8.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	31.57	27.05	163.83	1.31	3.95	3.16
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	31.57	27.05	163.83	1.31	3.95	3.16
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	35.98	31.88	188.29	1.39	4.59	3.67
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	35.98	31.88	188.29	1.39	4.59	3.67
Project Year 2025						
Containerships 10,000 TEU	44.18	39.14	231.20	1.71	5.64	4.51
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	44.18	39.14	231.20	1.71	5.64	4.51
Project Year 2027						
Containerships 10,000 TEU	44.18	39.14	231.20	1.71	5.64	4.51
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	44.18	39.14	231.20	1.71	5.64	4.51

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-895. Max Daily Emissions from OGV Main Engine - Alternative 5/6 with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	48.55	6.20	6.50	5.20
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.41	8.29	48.55	6.20	6.50	5.20
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	16.82	16.58	91.55	0.52	2.30	1.84
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.82	16.58	91.55	0.52	2.30	1.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	19.17	18.90	104.39	0.59	2.63	2.10
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	19.17	18.90	104.39	0.59	2.63	2.10
Project Year 2025						
Containerships 10,000 TEU	23.54	23.21	128.17	0.73	3.22	2.58
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.54	23.21	128.17	0.73	3.22	2.58
Project Year 2027						
Containerships 10,000 TEU	23.54	23.21	128.17	0.73	3.22	2.58
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.54	23.21	128.17	0.73	3.22	2.58

Notes: (1) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) Assumes turning occurs during arrivals only.

Table 1.3-896. Max Daily Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Docking

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (2) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
 (3) Main engines are off during docking.

Table 1.3-897 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.33	25.87	696.10	429.94	61.42	49.14
Containerships 5,000 TEU	48.27	21.79	624.12	362.06	51.72	41.38
Containerships 4,000 TEU	31.93	14.41	387.72	239.47	34.21	27.37
Containerships 3,000 TEU	18.83	8.56	206.99	124.71	18.59	14.88
Containerships 1,000 TEU	10.08	4.55	122.42	75.61	10.80	8.64
Maximum	57.33	25.87	696.10	429.94	61.42	49.14
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	57.35	25.88	654.62	17.21	10.45	8.36
Containerships 5,000 TEU	48.30	21.80	551.27	14.49	8.80	7.04
Containerships 4,000 TEU	31.94	14.42	364.62	9.58	5.82	4.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	57.35	25.88	654.62	17.21	10.45	8.36
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	43.02	22.64	295.35	6.17	5.43	4.34
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	43.02	22.64	295.35	6.17	5.43	4.34
Project Year 2025						
Containerships 10,000 TEU	52.83	27.80	362.66	7.57	6.66	5.33
Containerships 9,000 TEU	43.02	22.64	295.35	6.17	5.43	4.34
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	52.83	27.80	362.66	7.57	6.66	5.33
Project Year 2027						
Containerships 10,000 TEU	52.83	27.80	362.66	7.57	6.66	5.33
Containerships 9,000 TEU	43.02	22.64	295.35	6.17	5.43	4.34
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	52.83	27.80	362.66	7.57	6.66	5.33

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Main engines in study years 2012-2027 use 0.1% sulfur fuel.
 (3) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009.
 (4) Max 1-hour emissions assume the ship does not comply with the VSRP at 40nm.

Table 1.3-898 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	246.90	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	18.66	9.04	146.79	3.39	2.55	2.04
Containerships 1,000 TEU	5.55	2.51	61.14	1.59	0.98	0.79
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.52	19.35	264.67	5.66	4.80	3.84
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	42.97	22.61	294.73	6.15	5.42	4.33
Project Year 2025						
Containerships 10,000 TEU	52.76	27.77	361.89	7.55	6.65	5.32
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	52.76	27.77	361.89	7.55	6.65	5.32
Project Year 2027						
Containerships 10,000 TEU	52.76	27.77	361.89	7.55	6.65	5.32
Containerships 9,000 TEU	42.97	22.61	294.73	6.15	5.42	4.33
Containerships 6,000 TEU	37.52	19.35	264.67	5.66	4.80	3.84
Containerships 5,000 TEU	32.94	16.99	231.89	4.96	4.21	3.37
Containerships 4,000 TEU	25.95	12.96	192.60	4.28	3.42	2.74
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	52.76	27.77	361.89	7.55	6.65	5.32

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
 (2) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.
 (3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.
 (4) Baseline main engines use 5% MGO and 95% IFO July 2008 to June 2009 .

Table 1.3-899 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6 with Mitigation

Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.65	15.17	167.62	68.05	17.51	14.01
Containerships 5,000 TEU	23.47	13.37	157.22	59.95	15.42	12.34
Containerships 4,000 TEU	18.71	10.20	124.05	53.91	12.58	10.06
Containerships 3,000 TEU	13.61	7.12	96.02	44.44	9.45	7.56
Containerships 1,000 TEU	3.86	1.79	37.03	20.44	3.30	2.64
Maximum	26.65	15.17	167.62	68.05	17.51	14.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	26.64	15.17	158.00	2.85	3.10	2.48
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	30.35	17.74	175.24	3.03	3.50	2.80
Project Year 2025						
Containerships 10,000 TEU	37.26	21.79	215.17	3.72	4.30	3.44
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.26	21.79	215.17	3.72	4.30	3.44
Project Year 2027						
Containerships 10,000 TEU	37.26	21.79	215.17	3.72	4.30	3.44
Containerships 9,000 TEU	30.35	17.74	175.24	3.03	3.50	2.80
Containerships 6,000 TEU	26.64	15.17	158.00	2.85	3.10	2.48
Containerships 5,000 TEU	23.47	13.36	139.19	2.51	2.73	2.19
Containerships 4,000 TEU	18.71	10.20	116.92	2.26	2.23	1.78
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	37.26	21.79	215.17	3.72	4.30	3.44

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-900 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	106.61	11.96	14.45	11.56
Containerships 5,000 TEU	15.87	16.45	99.99	10.54	12.73	10.18
Containerships 4,000 TEU	12.64	12.36	72.70	9.48	9.71	7.77
Containerships 3,000 TEU	9.18	8.45	51.55	7.81	6.77	5.42
Containerships 1,000 TEU	2.58	1.89	14.12	3.59	1.70	1.36
Maximum	18.01	18.67	106.61	11.96	14.45	11.56
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	18.01	18.67	100.51	0.50	2.56	2.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	20.53	22.03	116.73	0.53	2.99	2.40
Project Year 2025						
Containerships 10,000 TEU	25.21	27.05	143.33	0.65	3.68	2.94
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	25.21	27.05	143.33	0.65	3.68	2.94
Project Year 2027						
Containerships 10,000 TEU	25.21	27.05	143.33	0.65	3.68	2.94
Containerships 9,000 TEU	20.53	22.03	116.73	0.53	2.99	2.40
Containerships 6,000 TEU	18.01	18.67	100.51	0.50	2.56	2.05
Containerships 5,000 TEU	15.87	16.45	88.55	0.44	2.25	1.80
Containerships 4,000 TEU	12.64	12.36	68.54	0.40	1.72	1.38
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	25.21	27.05	143.33	0.65	3.68	2.94

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-901 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6 with Mitigation
 Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	86.88	15.62	11.15	8.92
Containerships 5,000 TEU	13.91	11.92	81.49	13.76	9.82	7.86
Containerships 4,000 TEU	11.08	8.97	60.41	12.38	7.59	6.08
Containerships 3,000 TEU	8.05	6.15	43.80	10.20	5.38	4.30
Containerships 1,000 TEU	2.27	1.40	13.28	4.69	1.46	1.17
Maximum	15.78	13.53	86.88	15.62	11.15	8.92
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	15.78	13.53	81.91	0.66	1.98	1.58
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	17.99	15.94	94.15	0.70	2.30	1.84
Project Year 2025						
Containerships 10,000 TEU	22.09	19.57	115.60	0.85	2.82	2.26
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	22.09	19.57	115.60	0.85	2.82	2.26
Project Year 2027						
Containerships 10,000 TEU	22.09	19.57	115.60	0.85	2.82	2.26
Containerships 9,000 TEU	17.99	15.94	94.15	0.70	2.30	1.84
Containerships 6,000 TEU	15.78	13.53	81.91	0.66	1.98	1.58
Containerships 5,000 TEU	13.91	11.92	72.16	0.58	1.74	1.39
Containerships 4,000 TEU	11.08	8.97	56.96	0.52	1.35	1.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	22.09	19.57	115.60	0.85	2.82	2.26

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-902 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6 with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	48.55	6.20	6.50	5.20
Containerships 5,000 TEU	7.41	7.30	45.54	5.46	5.73	4.58
Containerships 4,000 TEU	5.90	5.81	34.05	4.35	4.56	3.65
Containerships 3,000 TEU	4.28	4.22	24.72	3.16	3.31	2.65
Containerships 1,000 TEU	1.20	1.19	6.94	0.89	0.93	0.74
Maximum	8.41	8.29	48.55	6.20	6.50	5.20
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	8.41	8.29	45.78	0.26	1.15	0.92
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.59	9.45	52.19	0.30	1.31	1.05
Project Year 2025						
Containerships 10,000 TEU	11.77	11.60	64.09	0.36	1.61	1.29
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.77	11.60	64.09	0.36	1.61	1.29
Project Year 2027						
Containerships 10,000 TEU	11.77	11.60	64.09	0.36	1.61	1.29
Containerships 9,000 TEU	9.59	9.45	52.19	0.30	1.31	1.05
Containerships 6,000 TEU	8.41	8.29	45.78	0.26	1.15	0.92
Containerships 5,000 TEU	7.41	7.30	40.33	0.23	1.01	0.81
Containerships 4,000 TEU	5.90	5.81	32.10	0.18	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.77	11.60	64.09	0.36	1.61	1.29

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

Table 1.3-903 Max 1-Hour Emissions from OGV Main Engine - Alternative 5/6 with Mitigation

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Docking						
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).

(2) Max 1-hour emissions assume the ship is 100% MARPOL Annex VI compliant.

(3) For study years 2012-2027, assumes worst case fuel with 0.1% sulfur.

(4) Main engines are off during docking.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-904. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	1.00	2.00
Containerships 6,000 TEU	0.01	0.00	0.11	0.11	0.01	0.01
Containerships 5,000 TEU	0.63	0.24	8.40	7.03	0.86	0.69
Containerships 4,000 TEU	0.30	0.11	3.52	3.33	0.41	0.32
Containerships 3,000 TEU	0.02	0.01	0.20	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Subtotal	0.96	0.37	12.27	10.69	2.30	3.04
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.74	0.28	8.18	0.33	0.17	0.14
Containerships 5,000 TEU	0.18	0.07	2.05	0.08	0.04	0.03
Containerships 4,000 TEU	0.13	0.05	1.46	0.06	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.05	0.40	11.69	0.47	0.24	0.20
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.09	0.42	12.10	0.49	0.25	0.20
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.52	0.20	5.78	0.23	0.12	0.10
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.88	0.72	20.87	0.84	0.44	0.35
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.33	0.13	3.68	0.15	0.08	0.06
Containerships 6,000 TEU	1.09	0.42	12.10	0.49	0.25	0.20
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.52	0.20	5.78	0.23	0.12	0.10
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.21	0.85	24.55	0.99	0.51	0.41
Project Year 2025						
Containerships 10,000 TEU	0.40	0.15	4.42	0.18	0.09	0.07
Containerships 9,000 TEU	0.66	0.25	7.37	0.30	0.15	0.12
Containerships 6,000 TEU	0.73	0.28	8.07	0.32	0.17	0.13
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.35	0.13	3.85	0.16	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.40	0.92	26.70	1.07	0.56	0.45
Project Year 2027						
Containerships 10,000 TEU	0.40	0.15	4.42	0.18	0.09	0.07
Containerships 9,000 TEU	0.66	0.25	7.37	0.30	0.15	0.12
Containerships 6,000 TEU	1.09	0.42	12.10	0.49	0.25	0.20
Containerships 5,000 TEU	0.27	0.10	2.99	0.12	0.06	0.05
Containerships 4,000 TEU	0.17	0.07	1.93	0.08	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.59	0.99	28.80	1.16	0.60	0.48

Notes: (1) Mitigation measures include VSR and low sulfur fuel.

Table 1.3-905. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.00	0.00	0.02	0.15	0.01	0.01
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.04	0.02	0.36	0.12	0.03	0.02
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.20	0.07	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.72	0.24	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 6,000 TEU	0.04	0.02	0.36	0.12	0.03	0.02
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.20	0.07	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.88	0.30	0.06	0.05
Project Year 2025						
Containerships 10,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 9,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 6,000 TEU	0.02	0.01	0.24	0.08	0.02	0.01
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	1.02	0.34	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 9,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 6,000 TEU	0.04	0.02	0.36	0.12	0.03	0.02
Containerships 5,000 TEU	0.02	0.01	0.15	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.07	0.36	0.07	0.06

Notes: (1) Auxiliary boilers are assumed to operate when engine load is less than 20%.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-906. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.15	0.13	0.02	0.01
Containerships 5,000 TEU	0.82	0.31	10.94	8.76	1.07	0.86
Containerships 4,000 TEU	0.35	0.13	4.15	3.76	0.46	0.37
Containerships 3,000 TEU	0.02	0.01	0.21	0.19	0.02	0.02
Containerships 1,000 TEU	0.00	0.00	0.04	0.04	0.00	0.00
Subtotal	1.21	0.46	15.49	12.87	1.58	1.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.38	0.53	15.35	0.62	0.32	0.26
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.47	0.18	5.21	0.21	0.11	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.69	0.65	18.82	0.76	0.39	0.31
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.30	0.11	3.32	0.13	0.07	0.06
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.47	0.18	5.21	0.21	0.11	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.99	0.76	22.14	0.89	0.46	0.37
Project Year 2025						
Containerships 10,000 TEU	0.36	0.14	3.99	0.16	0.08	0.07
Containerships 9,000 TEU	0.60	0.23	6.64	0.27	0.14	0.11
Containerships 6,000 TEU	0.65	0.25	7.28	0.29	0.15	0.12
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.31	0.12	3.47	0.14	0.07	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.17	0.83	24.08	0.97	0.50	0.40
Project Year 2027						
Containerships 10,000 TEU	0.36	0.14	3.99	0.16	0.08	0.07
Containerships 9,000 TEU	0.60	0.23	6.64	0.27	0.14	0.11
Containerships 6,000 TEU	0.98	0.38	10.91	0.44	0.23	0.18
Containerships 5,000 TEU	0.24	0.09	2.70	0.11	0.06	0.05
Containerships 4,000 TEU	0.16	0.06	1.74	0.07	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.34	0.90	25.98	1.05	0.54	0.43

Notes: (1) Mitigation measures include VSR and low sulfur fuel.

Table 1.3-907. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 5,000 TEU	0.05	0.02	0.49	3.71	0.18	0.14
Containerships 4,000 TEU	0.01	0.01	0.15	1.11	0.05	0.04
Containerships 3,000 TEU	0.00	0.00	0.02	0.15	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Subtotal	0.06	0.03	0.67	5.00	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.53	0.18	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.18	0.06	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.03	0.65	0.22	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.18	0.06	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.08	0.04	0.80	0.27	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 9,000 TEU	0.03	0.02	0.29	0.10	0.02	0.02
Containerships 6,000 TEU	0.02	0.01	0.22	0.07	0.02	0.01
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.01	0.12	0.04	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.92	0.31	0.06	0.05
Project Year 2027						
Containerships 10,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 9,000 TEU	0.03	0.02	0.29	0.10	0.02	0.02
Containerships 6,000 TEU	0.03	0.02	0.33	0.11	0.02	0.02
Containerships 5,000 TEU	0.01	0.01	0.14	0.05	0.01	0.01
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	0.97	0.32	0.07	0.05

Auxiliary boilers are assumed not to operate in the fairway.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-908. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.07	0.06	0.01	0.01
Containerships 5,000 TEU	0.40	0.15	5.27	4.21	0.52	0.41
Containerships 4,000 TEU	0.17	0.06	1.99	1.80	0.22	0.18
Containerships 3,000 TEU	0.01	0.00	0.10	0.09	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Subtotal	0.58	0.22	7.44	6.18	0.76	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.66	0.25	7.33	0.30	0.15	0.12
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.22	0.09	2.48	0.10	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.81	0.31	8.99	0.36	0.19	0.15
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.05	1.59	0.06	0.03	0.03
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.22	0.09	2.48	0.10	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.95	0.36	10.58	0.43	0.22	0.18
Project Year 2025						
Containerships 10,000 TEU	0.17	0.07	1.91	0.08	0.04	0.03
Containerships 9,000 TEU	0.29	0.11	3.18	0.13	0.07	0.05
Containerships 6,000 TEU	0.31	0.12	3.48	0.14	0.07	0.06
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.15	0.06	1.65	0.07	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.04	0.40	11.51	0.46	0.24	0.19
Project Year 2027						
Containerships 10,000 TEU	0.17	0.07	1.91	0.08	0.04	0.03
Containerships 9,000 TEU	0.29	0.11	3.18	0.13	0.07	0.05
Containerships 6,000 TEU	0.47	0.18	5.22	0.21	0.11	0.09
Containerships 5,000 TEU	0.12	0.04	1.29	0.05	0.03	0.02
Containerships 4,000 TEU	0.07	0.03	0.83	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.12	0.43	12.42	0.50	0.26	0.21

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-909. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Precautionary Area

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 5,000 TEU	0.02	0.01	0.25	1.85	0.09	0.07
Containerships 4,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 3,000 TEU	0.00	0.00	0.01	0.07	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.03	0.02	0.33	2.49	0.12	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.01	0.26	0.09	0.02	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.01	0.00	0.09	0.03	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.03	0.02	0.32	0.11	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.01	0.00	0.09	0.03	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.04	0.02	0.39	0.13	0.03	0.02
Project Year 2025						
Containerships 10,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.01	0.01	0.11	0.04	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.02	0.46	0.15	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 9,000 TEU	0.01	0.01	0.15	0.05	0.01	0.01
Containerships 6,000 TEU	0.02	0.01	0.16	0.05	0.01	0.01
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.48	0.16	0.03	0.02

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-910. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.13	0.05	1.80	1.44	0.18	0.14
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.20	0.08	2.54	2.11	0.26	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.23	0.09	2.50	0.10	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.08	0.03	0.85	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.11	3.07	0.12	0.06	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.54	0.02	0.01	0.01
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.08	0.03	0.85	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.32	0.12	3.61	0.15	0.08	0.06
Project Year 2025						
Containerships 10,000 TEU	0.06	0.02	0.65	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.09	0.04	0.02	0.02
Containerships 6,000 TEU	0.11	0.04	1.19	0.05	0.02	0.02
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.35	0.14	3.93	0.16	0.08	0.07
Project Year 2027						
Containerships 10,000 TEU	0.06	0.02	0.65	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.09	0.04	0.02	0.02
Containerships 6,000 TEU	0.16	0.06	1.78	0.07	0.04	0.03
Containerships 5,000 TEU	0.04	0.02	0.44	0.02	0.01	0.01
Containerships 4,000 TEU	0.03	0.01	0.28	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.38	0.15	4.24	0.17	0.09	0.07

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-911. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.08	0.63	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.03	0.19	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.01	0.11	0.85	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.05	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-912. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.02	0.02	0.00	0.00
Containerships 5,000 TEU	0.12	0.05	1.57	1.26	0.15	0.12
Containerships 4,000 TEU	0.05	0.02	0.59	0.54	0.07	0.05
Containerships 3,000 TEU	0.00	0.00	0.03	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.17	0.07	2.22	1.85	0.23	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.02	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.20	0.08	2.19	0.09	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.24	0.09	2.68	0.11	0.06	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.11	3.16	0.13	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 9,000 TEU	0.09	0.03	0.95	0.04	0.02	0.02
Containerships 6,000 TEU	0.09	0.04	1.04	0.04	0.02	0.02
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.04	0.02	0.49	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.31	0.12	3.44	0.14	0.07	0.06
Project Year 2027						
Containerships 10,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 9,000 TEU	0.09	0.03	0.95	0.04	0.02	0.02
Containerships 6,000 TEU	0.14	0.05	1.56	0.06	0.03	0.03
Containerships 5,000 TEU	0.03	0.01	0.38	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.25	0.01	0.01	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.33	0.13	3.71	0.15	0.08	0.06

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-913. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.55	0.03	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.10	0.74	0.04	0.03
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.12	0.04	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.05	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.14	0.05	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-914. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.03	0.02	0.00	0.00
Containerships 5,000 TEU	0.17	0.07	2.31	1.85	0.23	0.18
Containerships 4,000 TEU	0.05	0.02	0.57	0.51	0.06	0.05
Containerships 3,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 1,000 TEU	0.00	0.00	0.01	0.01	0.00	0.00
Subtotal	0.23	0.09	2.96	2.44	0.30	0.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.24	0.09	2.65	0.11	0.06	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.06	0.02	0.71	0.03	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.28	0.11	3.13	0.13	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.06	0.02	0.71	0.03	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.33	0.13	3.69	0.15	0.08	0.06
Project Year 2025						
Containerships 10,000 TEU	0.06	0.02	0.68	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.13	0.05	0.02	0.02
Containerships 6,000 TEU	0.11	0.04	1.23	0.05	0.03	0.02
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.04	0.02	0.47	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.37	0.14	4.08	0.16	0.09	0.07
Project Year 2027						
Containerships 10,000 TEU	0.06	0.02	0.68	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.13	0.05	0.02	0.02
Containerships 6,000 TEU	0.17	0.06	1.85	0.07	0.04	0.03
Containerships 5,000 TEU	0.05	0.02	0.57	0.02	0.01	0.01
Containerships 4,000 TEU	0.02	0.01	0.24	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.40	0.15	4.46	0.18	0.09	0.07

Notes: (1) Mitigation measures include low sulfur fuel.
Turning occurs during only one trip segment (arrival or departure).

Table 1.3-915. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation Turning

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.06	0.44	0.02	0.02
Containerships 4,000 TEU	0.00	0.00	0.02	0.12	0.01	0.00
Containerships 3,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.01	0.00	0.08	0.58	0.03	0.02
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.06	0.02	0.00	0.00
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.08	0.03	0.01	0.00
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.00	0.09	0.03	0.01	0.00
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.10	0.03	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.
Turning occurs during only one trip segment (arrival or departure).

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-916. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation Docking

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.05	0.05	0.01	0.00
Containerships 5,000 TEU	0.37	0.14	4.94	3.96	0.49	0.39
Containerships 4,000 TEU	0.10	0.04	1.22	1.10	0.14	0.11
Containerships 3,000 TEU	0.01	0.00	0.11	0.10	0.01	0.01
Containerships 1,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Subtotal	0.49	0.19	6.34	5.22	0.64	0.51
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.51	0.20	5.69	0.23	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.14	0.05	1.52	0.06	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.60	0.23	6.70	0.27	0.14	0.11
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.14	0.05	1.52	0.06	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.71	0.27	7.91	0.32	0.17	0.13
Project Year 2025						
Containerships 10,000 TEU	0.13	0.05	1.45	0.06	0.03	0.02
Containerships 9,000 TEU	0.22	0.08	2.42	0.10	0.05	0.04
Containerships 6,000 TEU	0.24	0.09	2.65	0.11	0.06	0.04
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.09	0.03	1.01	0.04	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.79	0.30	8.74	0.35	0.18	0.15
Project Year 2027						
Containerships 10,000 TEU	0.13	0.05	1.45	0.06	0.03	0.02
Containerships 9,000 TEU	0.22	0.08	2.42	0.10	0.05	0.04
Containerships 6,000 TEU	0.36	0.14	3.97	0.16	0.08	0.07
Containerships 5,000 TEU	0.11	0.04	1.21	0.05	0.03	0.02
Containerships 4,000 TEU	0.05	0.02	0.51	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.86	0.33	9.56	0.38	0.20	0.16

Notes: (1) Mitigation measures include low sulfur fuel.

Table 1.3-917. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation Docking

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.01	0.12	0.93	0.05	0.03
Containerships 4,000 TEU	0.00	0.00	0.04	0.27	0.01	0.01
Containerships 3,000 TEU	0.00	0.00	0.00	0.03	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.02	0.01	0.17	1.24	0.06	0.05
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.16	0.05	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.06	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.06	0.02	0.00	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.19	0.07	0.01	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.05	0.02	0.00	0.00
Containerships 6,000 TEU	0.01	0.00	0.08	0.03	0.01	0.00
Containerships 5,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.21	0.07	0.01	0.01

Notes: (1) Mitigation measures include low sulfur fuel.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-918. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Hotelling

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.12	0.05	1.47	1.33	0.16	0.13
Containerships 5,000 TEU	10.03	3.84	133.62	106.93	13.12	10.50
Containerships 4,000 TEU	3.71	1.42	43.68	39.52	4.85	3.88
Containerships 3,000 TEU	0.29	0.11	3.44	3.11	0.38	0.31
Containerships 1,000 TEU	0.02	0.01	0.19	0.17	0.02	0.02
Subtotal	14.17	5.43	182.39	151.06	18.54	14.83
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.09	6.93	200.98	8.09	4.19	3.36
Containerships 5,000 TEU	3.91	1.50	43.45	1.75	0.91	0.73
Containerships 4,000 TEU	2.09	0.80	23.23	0.94	0.48	0.39
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	24.09	9.23	267.65	10.78	5.59	4.47
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.10	3.87	112.25	4.52	2.34	1.87
Containerships 5,000 TEU	2.18	0.84	24.25	0.98	0.51	0.40
Containerships 4,000 TEU	3.50	1.34	38.83	1.56	0.81	0.65
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.78	6.04	175.33	7.06	3.66	2.93
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.31	0.50	14.60	0.59	0.30	0.24
Containerships 6,000 TEU	3.35	1.28	37.23	1.50	0.78	0.62
Containerships 5,000 TEU	0.73	0.28	8.05	0.32	0.17	0.13
Containerships 4,000 TEU	1.16	0.45	12.93	0.52	0.27	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.55	2.51	72.81	2.93	1.52	1.22
Project Year 2025						
Containerships 10,000 TEU	1.12	0.43	12.42	0.50	0.26	0.21
Containerships 9,000 TEU	1.68	0.65	18.71	0.75	0.39	0.31
Containerships 6,000 TEU	1.44	0.55	16.05	0.65	0.33	0.27
Containerships 5,000 TEU	0.47	0.18	5.23	0.21	0.11	0.09
Containerships 4,000 TEU	0.51	0.19	5.64	0.23	0.12	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.23	2.00	58.05	2.34	1.21	0.97
Project Year 2027						
Containerships 10,000 TEU	0.27	0.10	2.95	0.12	0.06	0.05
Containerships 9,000 TEU	0.40	0.15	4.45	0.18	0.09	0.07
Containerships 6,000 TEU	0.52	0.20	5.73	0.23	0.12	0.10
Containerships 5,000 TEU	0.11	0.04	1.25	0.05	0.03	0.02
Containerships 4,000 TEU	0.06	0.02	0.67	0.03	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.36	0.52	15.06	0.61	0.31	0.25

Notes: (1) Mitigation measures include AMP and low sulfur fuel (for non-AMP ships).

Table 1.3-919. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Hotelling

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.01	0.00	0.09	0.66	0.03	0.02
Containerships 5,000 TEU	1.07	0.56	11.16	83.84	4.09	3.07
Containerships 4,000 TEU	0.26	0.14	2.69	20.22	0.99	0.74
Containerships 3,000 TEU	0.05	0.03	0.50	3.74	0.18	0.14
Containerships 1,000 TEU	0.00	0.00	0.02	0.16	0.01	0.01
Subtotal	1.38	0.73	14.45	108.62	5.30	3.97
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.21	0.64	11.98	4.01	0.83	0.62
Containerships 5,000 TEU	0.42	0.22	4.10	1.37	0.28	0.21
Containerships 4,000 TEU	0.14	0.08	1.43	0.48	0.10	0.07
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.77	0.93	17.51	5.86	1.21	0.90
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.36	0.71	13.38	4.47	0.92	0.69
Containerships 5,000 TEU	0.46	0.24	4.58	1.53	0.32	0.24
Containerships 4,000 TEU	0.48	0.26	4.78	1.60	0.33	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.30	1.21	22.74	7.60	1.57	1.18
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.49	0.26	4.84	1.62	0.33	0.25
Containerships 6,000 TEU	1.12	0.59	11.10	3.71	0.76	0.57
Containerships 5,000 TEU	0.39	0.20	3.80	1.27	0.26	0.20
Containerships 4,000 TEU	0.40	0.21	3.98	1.33	0.27	0.21
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.40	1.27	23.72	7.93	1.63	1.23
Project Year 2025						
Containerships 10,000 TEU	0.35	0.18	3.43	1.15	0.24	0.18
Containerships 9,000 TEU	0.63	0.33	6.20	2.07	0.43	0.32
Containerships 6,000 TEU	0.48	0.26	4.78	1.60	0.33	0.25
Containerships 5,000 TEU	0.25	0.13	2.47	0.83	0.17	0.13
Containerships 4,000 TEU	0.18	0.09	1.74	0.58	0.12	0.09
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.89	0.99	18.62	6.22	1.28	0.96
Project Year 2027						
Containerships 10,000 TEU	0.33	0.17	3.26	1.09	0.22	0.17
Containerships 9,000 TEU	0.60	0.31	5.90	1.97	0.41	0.30
Containerships 6,000 TEU	0.69	0.36	6.84	2.29	0.47	0.35
Containerships 5,000 TEU	0.24	0.13	2.36	0.79	0.16	0.12
Containerships 4,000 TEU	0.08	0.04	0.83	0.28	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.94	1.02	19.18	6.41	1.32	0.99

Notes: (1) Mitigation measures include low sulfur fuel.
(2) Boilers are assumed to operate during hotelling regardless of whether the ship uses AMP.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-920. Annual Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.15	0.06	2.00	1.60	0.20	0.16
Containerships 4,000 TEU	0.06	0.02	0.68	0.61	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.04	0.03	0.00	0.00
Subtotal	0.21	0.08	2.71	2.24	0.27	0.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.15	0.06	1.63	0.07	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.04	0.02	0.48	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.18	0.07	1.96	0.08	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.56	0.02	0.01	0.01
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.04	0.02	0.48	0.02	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.23	0.09	2.51	0.10	0.05	0.04
Project Year 2025						
Containerships 10,000 TEU	0.06	0.02	0.67	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.11	0.04	0.02	0.02
Containerships 6,000 TEU	0.04	0.02	0.49	0.02	0.01	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.03	0.01	0.32	0.01	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.30	0.11	3.32	0.13	0.07	0.06
Project Year 2027						
Containerships 10,000 TEU	0.06	0.02	0.67	0.03	0.01	0.01
Containerships 9,000 TEU	0.10	0.04	1.11	0.04	0.02	0.02
Containerships 6,000 TEU	0.07	0.03	0.74	0.03	0.02	0.01
Containerships 5,000 TEU	0.07	0.03	0.73	0.03	0.02	0.01
Containerships 4,000 TEU	0.01	0.01	0.16	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.31	0.12	3.41	0.14	0.07	0.06

Notes: (1) Mitigation measures include low sulfur fuel.
(2) AMP mitigation would not apply during anchoring.

Table 1.3-921. Annual Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation Anchoring

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	0.02	0.01	0.16	1.24	0.06	0.05
Containerships 4,000 TEU	0.00	0.00	0.04	0.31	0.02	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	0.00	0.00	0.00	0.02	0.00	0.00
Subtotal	0.02	0.01	0.21	1.57	0.08	0.06
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.11	0.04	0.01	0.01
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.01	0.01	0.13	0.04	0.01	0.01
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.03	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.17	0.06	0.01	0.01
Project Year 2025						
Containerships 10,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.02	0.01	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.22	0.07	0.02	0.01
Project Year 2027						
Containerships 10,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 9,000 TEU	0.01	0.00	0.07	0.02	0.01	0.00
Containerships 6,000 TEU	0.00	0.00	0.04	0.01	0.00	0.00
Containerships 5,000 TEU	0.01	0.00	0.07	0.02	0.00	0.00
Containerships 4,000 TEU	0.00	0.00	0.01	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.02	0.01	0.22	0.07	0.02	0.01

Notes: (1) Mitigation measures include low sulfur fuel.
(2) AMP mitigation would not apply during anchoring.

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Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

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Table 1.3-922. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.44	3.61	111.54	105.53	12.87	10.30
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.44	3.61	111.54	105.53	12.87	10.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.44	3.62	104.89	4.22	2.19	1.75
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.44	3.62	104.89	4.22	2.19	1.75
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	27.93	10.69	310.27	12.49	6.47	5.18
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	27.93	10.69	310.27	12.49	6.47	5.18
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	25.50	9.77	283.32	11.41	5.91	4.73
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.50	9.77	283.32	11.41	5.91	4.73
Project Year 2025						
Containerships 10,000 TEU	30.61	11.72	340.03	13.69	7.10	5.68
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	30.61	11.72	340.03	13.69	7.10	5.68
Project Year 2027						
Containerships 10,000 TEU	30.61	11.72	340.03	13.69	7.10	5.68
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	30.61	11.72	340.03	13.69	7.10	5.68

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 assume 0.1% sulfur fuel at 24nm and VSR at 40nm.

Table 1.3-923. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.94	0.50	9.32	3.12	0.64	0.48
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.94	0.50	9.32	3.12	0.64	0.48
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.27	0.67	12.58	4.21	0.87	0.65
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.27	0.67	12.58	4.21	0.87	0.65
Project Year 2025						
Containerships 10,000 TEU	1.27	0.67	12.58	4.21	0.87	0.65
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.27	0.67	12.58	4.21	0.87	0.65
Project Year 2027						
Containerships 10,000 TEU	1.27	0.67	12.58	4.21	0.87	0.65
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.27	0.67	12.58	4.21	0.87	0.65

Notes: (1) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

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Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-924. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.51	4.79	147.42	133.39	16.37	13.10
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.51	4.79	147.42	133.39	16.37	13.10
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.59	4.82	139.92	5.63	2.92	2.34
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.59	4.82	139.92	5.63	2.92	2.34
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	25.19	9.65	279.83	11.27	5.84	4.67
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	25.19	9.65	279.83	11.27	5.84	4.67
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	23.00	8.81	255.53	10.29	5.33	4.27
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	23.00	8.81	255.53	10.29	5.33	4.27
Project Year 2025						
Containerships 10,000 TEU	27.61	10.57	306.68	12.35	6.40	5.12
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	27.61	10.57	306.68	12.35	6.40	5.12
Project Year 2027						
Containerships 10,000 TEU	27.61	10.57	306.68	12.35	6.40	5.12
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	27.61	10.57	306.68	12.35	6.40	5.12

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) All study years are 95% compliant with VSR for the peak day.

Table 1.3-925. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.43	33.27	1.62	1.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.43	33.27	1.62	1.22
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.43	0.22	4.20	1.41	0.29	0.22
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.43	0.22	4.20	1.41	0.29	0.22
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.85	0.45	8.41	2.81	0.58	0.43
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.85	0.45	8.41	2.81	0.58	0.43
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.15	0.61	11.34	3.79	0.78	0.59
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.15	0.61	11.34	3.79	0.78	0.59
Project Year 2025						
Containerships 10,000 TEU	1.15	0.61	11.34	3.79	0.78	0.59
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.15	0.61	11.34	3.79	0.78	0.59
Project Year 2027						
Containerships 10,000 TEU	1.15	0.61	11.34	3.79	0.78	0.59
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.15	0.61	11.34	3.79	0.78	0.59

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.
(4) All study years are 95% compliant with VSR for the peak day.

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Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-926. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.02	2.31	70.97	64.22	7.88	6.30
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.02	2.31	70.97	64.22	7.88	6.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	6.02	2.31	66.89	2.69	1.40	1.12
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	6.02	2.31	66.89	2.69	1.40	1.12
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	12.04	4.61	133.79	5.39	2.79	2.23
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.04	4.61	133.79	5.39	2.79	2.23
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	11.02	4.22	122.37	4.93	2.55	2.04
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	11.02	4.22	122.37	4.93	2.55	2.04
Project Year 2025						
Containerships 10,000 TEU	13.22	5.06	146.87	5.91	3.06	2.45
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.22	5.06	146.87	5.91	3.06	2.45
Project Year 2027						
Containerships 10,000 TEU	13.22	5.06	146.87	5.91	3.06	2.45
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.22	5.06	146.87	5.91	3.06	2.45

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-927. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.21	16.58	0.81	0.61
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.21	16.58	0.81	0.61
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.21	0.11	2.08	0.70	0.14	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.21	0.11	2.08	0.70	0.14	0.11
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.42	0.22	4.16	1.39	0.29	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.42	0.22	4.16	1.39	0.29	0.21
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.57	0.30	5.61	1.88	0.39	0.29
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.61	1.88	0.39	0.29
Project Year 2025						
Containerships 10,000 TEU	0.57	0.30	5.61	1.88	0.39	0.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.61	1.88	0.39	0.29
Project Year 2027						
Containerships 10,000 TEU	0.57	0.30	5.61	1.88	0.39	0.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.57	0.30	5.61	1.88	0.39	0.29

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-928. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.76	1.44	41.74	1.68	0.87	0.70
Project Year 2025						
Containerships 10,000 TEU	4.51	1.73	50.10	2.02	1.05	0.84
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.51	1.73	50.10	2.02	1.05	0.84
Project Year 2027						
Containerships 10,000 TEU	4.51	1.73	50.10	2.02	1.05	0.84
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.51	1.73	50.10	2.02	1.05	0.84

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-929. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.75	5.65	0.28	0.21
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.07	0.04	0.71	0.24	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.08	1.42	0.47	0.10	0.07
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.14	0.08	1.42	0.47	0.10	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2025						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2027						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-930. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.59	1.38	39.93	1.61	0.83	0.67
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.59	1.38	39.93	1.61	0.83	0.67
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.29	1.26	36.53	1.47	0.76	0.61
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.29	1.26	36.53	1.47	0.76	0.61
Project Year 2025						
Containerships 10,000 TEU	3.95	1.51	43.84	1.76	0.91	0.73
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.95	1.51	43.84	1.76	0.91	0.73
Project Year 2027						
Containerships 10,000 TEU	3.95	1.51	43.84	1.76	0.91	0.73
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.95	1.51	43.84	1.76	0.91	0.73

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-931. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.66	4.95	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.13	0.07	1.24	0.42	0.09	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.13	0.07	1.24	0.42	0.09	0.06
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.17	0.09	1.68	0.56	0.12	0.09
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.09	1.68	0.56	0.12	0.09
Project Year 2025						
Containerships 10,000 TEU	0.17	0.09	1.68	0.56	0.12	0.09
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.09	1.68	0.56	0.12	0.09
Project Year 2027						
Containerships 10,000 TEU	0.17	0.09	1.68	0.56	0.12	0.09
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.17	0.09	1.68	0.56	0.12	0.09

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-932. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.14	0.82	25.19	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.28	1.64	47.50	1.91	0.99	0.79
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.28	1.64	47.50	1.91	0.99	0.79
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.91	1.50	43.45	1.75	0.91	0.73
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.91	1.50	43.45	1.75	0.91	0.73
Project Year 2025						
Containerships 10,000 TEU	4.69	1.80	52.15	2.10	1.09	0.87
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.69	1.80	52.15	2.10	1.09	0.87
Project Year 2027						
Containerships 10,000 TEU	4.69	1.80	52.15	2.10	1.09	0.87
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.69	1.80	52.15	2.10	1.09	0.87

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

Table 1.3-933. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation Turning

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.54	4.02	0.20	0.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.05	0.03	0.50	0.17	0.03	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.10	0.05	1.01	0.34	0.07	0.05
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.10	0.05	1.01	0.34	0.07	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2025						
Containerships 10,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2027						
Containerships 10,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.09	0.05	0.89	0.30	0.06	0.05

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) Assumes turning occurs during arrivals only.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-934. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation Docking

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.58	1.75	53.98	48.84	5.99	4.80
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.58	1.75	53.98	48.84	5.99	4.80
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.58	1.75	50.89	2.05	1.06	0.85
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.58	1.75	50.89	2.05	1.06	0.85
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.16	3.51	101.78	4.10	2.12	1.70
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	9.16	3.51	101.78	4.10	2.12	1.70
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	8.38	3.21	93.11	3.75	1.94	1.55
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	8.38	3.21	93.11	3.75	1.94	1.55
Project Year 2025						
Containerships 10,000 TEU	10.06	3.85	111.75	4.50	2.33	1.87
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.06	3.85	111.75	4.50	2.33	1.87
Project Year 2027						
Containerships 10,000 TEU	10.06	3.85	111.75	4.50	2.33	1.87
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.06	3.85	111.75	4.50	2.33	1.87

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-935. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation Docking

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.15	8.62	0.42	0.32
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.15	8.62	0.42	0.32
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.08	0.36	0.07	0.06
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.11	0.06	1.08	0.36	0.07	0.06
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.22	0.12	2.16	0.72	0.15	0.11
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2025						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10
Project Year 2027						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.19	0.10	1.91	0.64	0.13	0.10

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

Table 1.3-936. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation Hotelling

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.11	80.07	2,463.84	2,229.46	273.60	218.88
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.11	80.07	2,463.84	2,229.46	273.60	218.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	209.05	80.05	2,322.34	93.50	48.46	38.77
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	209.05	80.05	2,322.34	93.50	48.46	38.77
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	128.85	49.34	1,431.43	57.63	29.87	23.90
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	128.85	49.34	1,431.43	57.63	29.87	23.90
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	41.16	15.76	457.25	18.41	9.54	7.63
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	41.16	15.76	457.25	18.41	9.54	7.63
Project Year 2025						
Containerships 10,000 TEU	49.40	18.92	548.78	22.09	11.45	9.16
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	49.40	18.92	548.78	22.09	11.45	9.16
Project Year 2027						
Containerships 10,000 TEU	12.35	4.73	137.19	5.52	2.86	2.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	12.35	4.73	137.19	5.52	2.86	2.29

Notes: (1) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (95%).

Table 1.3-937. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation Hotelling

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.03	7.39	146.85	1,103.49	53.84	40.38
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.03	7.39	146.85	1,103.49	53.84	40.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	14.02	7.38	138.42	46.28	9.54	7.15
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	14.02	7.38	138.42	46.28	9.54	7.15
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	17.29	9.10	170.63	57.05	11.76	8.82
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	17.29	9.10	170.63	57.05	11.76	8.82
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	15.35	8.08	151.50	50.65	10.44	7.83
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.35	8.08	151.50	50.65	10.44	7.83
Project Year 2025						
Containerships 10,000 TEU	15.35	8.08	151.50	50.65	10.44	7.83
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.35	8.08	151.50	50.65	10.44	7.83
Project Year 2027						
Containerships 10,000 TEU	15.35	8.08	151.50	50.65	10.44	7.83
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	15.35	8.08	151.50	50.65	10.44	7.83

Notes: (1) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(2) Study years 2012-2027 max day assume fuel with 0.1% sulfur.

No

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-938. Max Daily Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Peak day ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

Table 1.3-939. Max Daily Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2025						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2027						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-

Notes: (1) Peak day ship activities are assumed not to include anchoring. Other ship activities would produce greater peak daily emissions.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-940 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.55	45.94	5.60	4.48
Containerships 5,000 TEU	3.05	1.17	40.70	34.06	4.15	3.32
Containerships 4,000 TEU	3.91	1.50	46.16	43.67	5.33	4.26
Containerships 3,000 TEU	1.62	0.62	19.13	18.10	2.21	1.77
Containerships 1,000 TEU	1.07	0.41	12.70	12.01	1.46	1.17
Maximum	4.11	1.57	48.55	45.94	5.60	4.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	4.51	1.73	50.10	2.02	1.05	0.84
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.10	2.02	1.05	0.84
Project Year 2027						
Containerships 10,000 TEU	4.51	1.73	50.10	2.02	1.05	0.84
Containerships 9,000 TEU	3.76	1.44	41.74	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.10	2.02	1.05	0.84

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Study years 2012-2027 assume worst case container vessel auxiliary engines use 0.1% sulfur fuel.
(3) Baseline auxiliary engines use 5% MGO and 95% IFO July 2008 to June 2009.

Table 1.3-941 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Fairway: AQMD Overwater Boundary 40nm to 20nm

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	0.17	0.09	1.82	14.32	0.69	0.52
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.82	14.32	0.69	0.52
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2025						
Containerships 10,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Baseline auxiliary boilers use 5% MGO and 95% IFO July 2008 to June 2009.
(3) Study years 2012-2027 max day assume fuel with 0.1% sulfur.
(4) Auxiliary boilers are assumed to operate if the main engine load is less than 20 percent.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-942 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	48.40	43.80	5.38	4.30
Containerships 5,000 TEU	3.05	1.17	40.58	32.47	3.98	3.19
Containerships 4,000 TEU	3.91	1.50	46.02	41.64	5.11	4.09
Containerships 3,000 TEU	1.62	0.62	19.07	17.26	2.12	1.69
Containerships 1,000 TEU	1.07	0.41	12.66	11.45	1.41	1.12
Maximum	4.11	1.57	48.40	43.80	5.38	4.30
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.11	1.57	45.64	1.84	0.95	0.76
Project Year 2025						
Containerships 10,000 TEU	4.51	1.73	50.06	2.02	1.04	0.84
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.06	2.02	1.04	0.84
Project Year 2027						
Containerships 10,000 TEU	4.51	1.73	50.06	2.02	1.04	0.84
Containerships 9,000 TEU	3.75	1.44	41.71	1.68	0.87	0.70
Containerships 6,000 TEU	4.11	1.57	45.64	1.84	0.95	0.76
Containerships 5,000 TEU	3.05	1.17	33.83	1.36	0.71	0.56
Containerships 4,000 TEU	3.91	1.50	43.39	1.75	0.91	0.72
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	4.51	1.73	50.06	2.02	1.04	0.84

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.
(3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

Table 1.3-943 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Fairway: 20nm to Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.43	10.74	0.52	0.39
Containerships 5,000 TEU	0.17	0.09	1.80	13.54	0.66	0.50
Containerships 4,000 TEU	0.15	0.08	1.61	12.11	0.59	0.44
Containerships 3,000 TEU	0.17	0.09	1.82	13.65	0.67	0.50
Containerships 1,000 TEU	0.02	0.01	0.25	1.91	0.09	0.07
Maximum	0.17	0.09	1.82	13.65	0.67	0.50
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.17	0.09	1.70	0.57	0.12	0.09
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2025						
Containerships 10,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09
Project Year 2027						
Containerships 10,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 9,000 TEU	0.18	0.10	1.82	0.61	0.13	0.09
Containerships 6,000 TEU	0.14	0.07	1.35	0.45	0.09	0.07
Containerships 5,000 TEU	0.17	0.09	1.70	0.57	0.12	0.09
Containerships 4,000 TEU	0.15	0.08	1.52	0.51	0.10	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.18	0.10	1.82	0.61	0.13	0.09

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary boiler would use residual fuel with 0.1% sulfur.
(3) Max 1-hour emissions assume the ship is 95% compliant with VSRP for all study years.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-944 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	35.48	32.11	3.94	3.15
Containerships 5,000 TEU	2.23	0.85	29.75	23.80	2.92	2.34
Containerships 4,000 TEU	2.86	1.10	33.74	30.53	3.75	3.00
Containerships 3,000 TEU	1.19	0.45	13.98	12.65	1.55	1.24
Containerships 1,000 TEU	0.79	0.30	9.28	8.40	1.03	0.82
Maximum	3.01	1.15	35.48	32.11	3.94	3.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.01	1.15	33.45	1.35	0.70	0.56
Project Year 2025						
Containerships 10,000 TEU	3.31	1.27	36.72	1.48	0.77	0.61
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.31	1.27	36.72	1.48	0.77	0.61
Project Year 2027						
Containerships 10,000 TEU	3.31	1.27	36.72	1.48	0.77	0.61
Containerships 9,000 TEU	2.75	1.05	30.59	1.23	0.64	0.51
Containerships 6,000 TEU	3.01	1.15	33.45	1.35	0.70	0.56
Containerships 5,000 TEU	2.23	0.85	24.80	1.00	0.52	0.41
Containerships 4,000 TEU	2.86	1.10	31.80	1.28	0.66	0.53
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.31	1.27	36.72	1.48	0.77	0.61

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-945 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Precautionary Area

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.10	8.29	0.40	0.30
Containerships 5,000 TEU	0.13	0.07	1.39	10.45	0.51	0.38
Containerships 4,000 TEU	0.12	0.06	1.24	9.34	0.46	0.34
Containerships 3,000 TEU	0.13	0.07	1.33	10.01	0.49	0.37
Containerships 1,000 TEU	0.02	0.01	0.20	1.47	0.07	0.05
Maximum	0.13	0.07	1.39	10.45	0.51	0.38
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.13	0.07	1.31	0.44	0.09	0.07
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2025						
Containerships 10,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07
Project Year 2027						
Containerships 10,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 9,000 TEU	0.14	0.07	1.40	0.47	0.10	0.07
Containerships 6,000 TEU	0.11	0.06	1.04	0.35	0.07	0.05
Containerships 5,000 TEU	0.13	0.07	1.31	0.44	0.09	0.07
Containerships 4,000 TEU	0.12	0.06	1.17	0.39	0.08	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.14	0.07	1.40	0.47	0.10	0.07

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-946 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	24.20	21.90	2.69	2.15
Containerships 5,000 TEU	1.52	0.58	20.29	16.24	1.99	1.59
Containerships 4,000 TEU	1.95	0.75	23.01	20.82	2.56	2.04
Containerships 3,000 TEU	0.81	0.31	9.54	8.63	1.06	0.85
Containerships 1,000 TEU	0.54	0.21	6.33	5.73	0.70	0.56
Maximum	2.05	0.79	24.20	21.90	2.69	2.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.05	0.79	22.82	0.92	0.48	0.38
Project Year 2025						
Containerships 10,000 TEU	2.25	0.86	25.05	1.01	0.52	0.42
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.25	0.86	25.05	1.01	0.52	0.42
Project Year 2027						
Containerships 10,000 TEU	2.25	0.86	25.05	1.01	0.52	0.42
Containerships 9,000 TEU	1.88	0.72	20.87	0.84	0.44	0.35
Containerships 6,000 TEU	2.05	0.79	22.82	0.92	0.48	0.38
Containerships 5,000 TEU	1.52	0.58	16.92	0.68	0.35	0.28
Containerships 4,000 TEU	1.95	0.75	21.69	0.87	0.45	0.36
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.25	0.86	25.05	1.01	0.52	0.42

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-947 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Harbor Transit - Inbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.75	5.65	0.28	0.21
Containerships 5,000 TEU	0.09	0.05	0.95	7.13	0.35	0.26
Containerships 4,000 TEU	0.08	0.04	0.85	6.37	0.31	0.23
Containerships 3,000 TEU	0.09	0.05	0.91	6.83	0.33	0.25
Containerships 1,000 TEU	0.01	0.01	0.13	1.01	0.05	0.04
Maximum	0.09	0.05	0.95	7.13	0.35	0.26
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.09	0.05	0.89	0.30	0.06	0.05
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2025						
Containerships 10,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05
Project Year 2027						
Containerships 10,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 9,000 TEU	0.10	0.05	0.96	0.32	0.07	0.05
Containerships 6,000 TEU	0.07	0.04	0.71	0.24	0.05	0.04
Containerships 5,000 TEU	0.09	0.05	0.89	0.30	0.06	0.05
Containerships 4,000 TEU	0.08	0.04	0.80	0.27	0.06	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.10	0.05	0.96	0.32	0.07	0.05

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-948 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	21.18	19.16	2.35	1.88
Containerships 5,000 TEU	1.33	0.51	17.75	14.21	1.74	1.39
Containerships 4,000 TEU	1.71	0.65	20.13	18.22	2.24	1.79
Containerships 3,000 TEU	0.71	0.27	8.34	7.55	0.93	0.74
Containerships 1,000 TEU	0.47	0.18	5.54	5.01	0.61	0.49
Maximum	1.80	0.69	21.18	19.16	2.35	1.88
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.80	0.69	19.97	0.80	0.42	0.33
Project Year 2025						
Containerships 10,000 TEU	1.97	0.76	21.92	0.88	0.46	0.37
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.97	0.76	21.92	0.88	0.46	0.37
Project Year 2027						
Containerships 10,000 TEU	1.97	0.76	21.92	0.88	0.46	0.37
Containerships 9,000 TEU	1.64	0.63	18.26	0.74	0.38	0.30
Containerships 6,000 TEU	1.80	0.69	19.97	0.80	0.42	0.33
Containerships 5,000 TEU	1.33	0.51	14.80	0.60	0.31	0.25
Containerships 4,000 TEU	1.71	0.65	18.98	0.76	0.40	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.97	0.76	21.92	0.88	0.46	0.37

Notes: (1) For the baseline, assume the ship does not comply with VSR, and auxiliary engines use 0.2% S MGO to April 2008, 2.7% S IFO for May/June 2008, and 5% MGO and 95% IFO July 2008 to March 2009.
(2) For 2012-2027, max daily emissions assume auxiliary engines use fuel with 0.1% sulfur.
use fuel with 0.1% sulfur.

Table 1.3-949 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Harbor Transit - Outbound

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.66	4.95	0.24	0.18
Containerships 5,000 TEU	0.08	0.04	0.83	6.24	0.30	0.23
Containerships 4,000 TEU	0.07	0.04	0.74	5.58	0.27	0.20
Containerships 3,000 TEU	0.08	0.04	0.79	5.97	0.29	0.22
Containerships 1,000 TEU	0.01	0.01	0.12	0.88	0.04	0.03
Maximum	0.08	0.04	0.83	6.24	0.30	0.23
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.78	0.26	0.05	0.04
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2025						
Containerships 10,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04
Project Year 2027						
Containerships 10,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 9,000 TEU	0.08	0.04	0.84	0.28	0.06	0.04
Containerships 6,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 5,000 TEU	0.08	0.04	0.78	0.26	0.05	0.04
Containerships 4,000 TEU	0.07	0.04	0.70	0.23	0.05	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.08	0.04	0.84	0.28	0.06	0.04

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-950 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	25.19	22.79	2.80	2.24
Containerships 5,000 TEU	1.96	0.75	26.06	20.86	2.56	2.05
Containerships 4,000 TEU	1.64	0.63	19.26	17.43	2.14	1.71
Containerships 3,000 TEU	1.29	0.50	15.25	13.80	1.69	1.36
Containerships 1,000 TEU	0.59	0.23	7.01	6.34	0.78	0.62
Maximum	2.14	0.82	26.06	22.79	2.80	2.24
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.14	0.82	23.75	0.96	0.50	0.40
Project Year 2025						
Containerships 10,000 TEU	2.35	0.90	26.08	1.05	0.54	0.44
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.35	0.90	26.08	1.05	0.54	0.44
Project Year 2027						
Containerships 10,000 TEU	2.35	0.90	26.08	1.05	0.54	0.44
Containerships 9,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 6,000 TEU	2.14	0.82	23.75	0.96	0.50	0.40
Containerships 5,000 TEU	1.96	0.75	21.73	0.87	0.45	0.36
Containerships 4,000 TEU	1.64	0.63	18.16	0.73	0.38	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.35	0.90	26.08	1.05	0.54	0.44

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-951 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation Turning

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	4.02	0.20	0.15
Containerships 5,000 TEU	0.06	0.03	0.65	4.92	0.24	0.18
Containerships 4,000 TEU	0.05	0.03	0.56	4.24	0.21	0.15
Containerships 3,000 TEU	0.05	0.03	0.55	4.15	0.20	0.15
Containerships 1,000 TEU	0.02	0.01	0.25	1.88	0.09	0.07
Maximum	0.06	0.03	0.65	4.92	0.24	0.18
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2025						
Containerships 10,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03
Project Year 2027						
Containerships 10,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 9,000 TEU	0.05	0.02	0.45	0.15	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.50	0.17	0.03	0.03
Containerships 5,000 TEU	0.06	0.03	0.62	0.21	0.04	0.03
Containerships 4,000 TEU	0.05	0.03	0.53	0.18	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.06	0.03	0.62	0.21	0.04	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-952 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation Docking

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	26.99	24.42	3.00	2.40
Containerships 5,000 TEU	2.10	0.80	27.93	22.35	2.74	2.19
Containerships 4,000 TEU	1.75	0.67	20.64	18.68	2.29	1.83
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.64	0.24	7.51	6.79	0.83	0.67
Maximum	2.29	0.88	27.93	24.42	3.00	2.40
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.29	0.88	25.45	1.02	0.53	0.42
Project Year 2025						
Containerships 10,000 TEU	2.51	0.96	27.94	1.12	0.58	0.47
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.51	0.96	27.94	1.12	0.58	0.47
Project Year 2027						
Containerships 10,000 TEU	2.51	0.96	27.94	1.12	0.58	0.47
Containerships 9,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 6,000 TEU	2.29	0.88	25.45	1.02	0.53	0.42
Containerships 5,000 TEU	2.10	0.80	23.28	0.94	0.49	0.39
Containerships 4,000 TEU	1.75	0.67	19.46	0.78	0.41	0.32
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	2.51	0.96	27.94	1.12	0.58	0.47

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.

Table 1.3-953 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation Docking

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.57	4.31	0.21	0.16
Containerships 5,000 TEU	0.07	0.04	0.70	5.27	0.26	0.19
Containerships 4,000 TEU	0.06	0.03	0.60	4.54	0.22	0.17
Containerships 3,000 TEU	0.06	0.03	0.59	4.45	0.22	0.16
Containerships 1,000 TEU	0.03	0.01	0.27	2.01	0.10	0.07
Maximum	0.07	0.04	0.70	5.27	0.26	0.19
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2025						
Containerships 10,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03
Project Year 2027						
Containerships 10,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 9,000 TEU	0.05	0.03	0.48	0.16	0.03	0.02
Containerships 6,000 TEU	0.05	0.03	0.54	0.18	0.04	0.03
Containerships 5,000 TEU	0.07	0.04	0.66	0.22	0.05	0.03
Containerships 4,000 TEU	0.06	0.03	0.57	0.19	0.04	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.07	0.04	0.66	0.22	0.05	0.03

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-954 Max 1-Hour Emissions from OGV Auxiliary Engines - Alternative 5/6 with Mitigation
Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	38.49	34.83	4.27	3.42
Containerships 5,000 TEU	2.52	0.97	33.59	26.88	3.30	2.64
Containerships 4,000 TEU	3.33	1.27	39.20	35.47	4.35	3.48
Containerships 3,000 TEU	1.39	0.53	16.34	14.79	1.81	1.45
Containerships 1,000 TEU	0.82	0.31	9.69	8.77	1.08	0.86
Maximum	3.33	1.27	39.20	35.47	4.35	3.48
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2025						
Containerships 10,000 TEU	3.12	1.20	34.68	1.40	0.72	0.58
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62
Project Year 2027						
Containerships 10,000 TEU	3.12	1.20	34.68	1.40	0.72	0.58
Containerships 9,000 TEU	2.60	1.00	28.90	1.16	0.60	0.48
Containerships 6,000 TEU	3.27	1.25	36.29	1.46	0.76	0.61
Containerships 5,000 TEU	2.52	0.97	28.01	1.13	0.58	0.47
Containerships 4,000 TEU	3.33	1.27	36.96	1.49	0.77	0.62
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	3.33	1.27	36.96	1.49	0.77	0.62

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel auxiliary engine would use residual fuel with 0.1% sulfur.
(3) AMP is applied to the study years as follows: 2012 (0%), 2015 (50%), 2020-2027 (95%).

Table 1.3-955 Max 1-Hour Emissions from OGV Auxiliary Boilers - Alternative 5/6 with Mitigation
Hotelling

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.29	17.24	0.84	0.63
Containerships 5,000 TEU	0.27	0.14	2.80	21.08	1.03	0.77
Containerships 4,000 TEU	0.23	0.12	2.42	18.15	0.89	0.66
Containerships 3,000 TEU	0.23	0.12	2.37	17.79	0.87	0.65
Containerships 1,000 TEU	0.10	0.05	1.07	8.05	0.39	0.29
Maximum	0.27	0.14	2.80	21.08	1.03	0.77
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2025						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14
Project Year 2027						
Containerships 10,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 9,000 TEU	0.19	0.10	1.91	0.64	0.13	0.10
Containerships 6,000 TEU	0.22	0.12	2.16	0.72	0.15	0.11
Containerships 5,000 TEU	0.27	0.14	2.64	0.88	0.18	0.14
Containerships 4,000 TEU	0.23	0.12	2.28	0.76	0.16	0.12
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.27	0.14	2.64	0.88	0.18	0.14

Notes: (1) Emissions correspond to activity from 1 ship for 1 hour (or less than 1 hour if transit time is less).
(2) Assumes worst case container vessel boiler would use residual fuel with 0.1% sulfur.

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-956. Annual Emissions from Tugboat Main Engine - Alternative 5/6 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Containerships 5,000 TEU	1.64	0.39	5.86	0.00	0.25	0.23
Containerships 4,000 TEU	0.55	0.13	1.95	0.00	0.08	0.08
Containerships 3,000 TEU	0.06	0.02	0.23	0.00	0.01	0.01
Containerships 1,000 TEU	0.02	0.00	0.07	0.00	0.00	0.00
Subtotal	2.3	0.5	8.2	0.0	0.3	0.3
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.67	0.38	6.56	0.00	0.26	0.24
Containerships 5,000 TEU	0.56	0.13	2.19	0.00	0.09	0.08
Containerships 4,000 TEU	0.28	0.06	1.09	0.00	0.04	0.04
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.6	9.8	0.0	0.4	0.4
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.77	0.33	2.07	0.00	0.04	0.04
Containerships 5,000 TEU	0.59	0.11	0.69	0.00	0.01	0.01
Containerships 4,000 TEU	0.89	0.16	1.03	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	3.3	0.6	3.8	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 6,000 TEU	1.88	0.36	2.17	0.00	0.05	0.04
Containerships 5,000 TEU	0.63	0.12	0.72	0.00	0.02	0.01
Containerships 4,000 TEU	0.94	0.18	1.08	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.1	0.8	4.7	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 9,000 TEU	1.32	0.26	1.51	0.00	0.04	0.03
Containerships 6,000 TEU	1.32	0.26	1.51	0.00	0.04	0.03
Containerships 5,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 4,000 TEU	0.66	0.13	0.75	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.6	0.9	5.3	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 9,000 TEU	1.35	0.27	1.53	0.00	0.04	0.04
Containerships 6,000 TEU	2.02	0.41	2.30	0.00	0.06	0.05
Containerships 5,000 TEU	0.67	0.14	0.77	0.00	0.02	0.02
Containerships 4,000 TEU	0.34	0.07	0.38	0.00	0.01	0.01
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.1	1.0	5.7	0.0	0.1	0.1

Table 1.3-957. Annual Emissions from Tugboat Aux. Engines - Alternative 5/6 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Containerships 5,000 TEU	0.22	0.05	0.43	0.00	0.02	0.02
Containerships 4,000 TEU	0.07	0.02	0.14	0.00	0.01	0.01
Containerships 3,000 TEU	0.01	0.00	0.02	0.00	0.00	0.00
Containerships 1,000 TEU	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	0.3	0.1	0.6	0.0	0.0	0.0
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.15	0.03	0.42	0.00	0.02	0.01
Containerships 5,000 TEU	0.05	0.01	0.14	0.00	0.01	0.00
Containerships 4,000 TEU	0.03	0.01	0.07	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.2	0.1	0.6	0.0	0.0	0.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.19	0.04	0.18	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.09	0.02	0.09	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.3	0.1	0.3	0.0	0.0	0.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 6,000 TEU	0.19	0.04	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.06	0.01	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.10	0.02	0.09	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.4	0.1	0.4	0.0	0.0	0.0
Project Year 2025						
Containerships 10,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 9,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 6,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.1	0.4	0.0	0.0	0.0
Project Year 2027						
Containerships 10,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 9,000 TEU	0.13	0.03	0.13	0.00	0.00	0.00
Containerships 6,000 TEU	0.20	0.05	0.19	0.00	0.00	0.00
Containerships 5,000 TEU	0.07	0.02	0.06	0.00	0.00	0.00
Containerships 4,000 TEU	0.03	0.01	0.03	0.00	0.00	0.00
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	0.5	0.1	0.5	0.0	0.0	0.0

Table 1.3-958. Max Daily Emissions from Tugboat Main Engine - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	18.53	4.38	66.25	0.03	2.83	2.60
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	18.5	4.4	66.2	0.0	2.8	2.6
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	21.42	4.89	84.13	0.03	3.31	3.04
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	21.4	4.9	84.1	0.0	3.3	3.0
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	45.50	8.44	53.05	0.07	1.08	0.99
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	45.5	8.4	53.0	0.1	1.1	1.0
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	48.14	9.29	55.52	0.07	1.24	1.14
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	48.1	9.3	55.5	0.1	1.2	1.1
Project Year 2025						
Containerships 10,000 TEU	50.79	10.14	57.98	0.07	1.40	1.29
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	50.8	10.1	58.0	0.1	1.4	1.3
Project Year 2027						
Containerships 10,000 TEU	51.84	10.48	58.97	0.07	1.47	1.35
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	51.8	10.5	59.0	0.1	1.5	1.4

Table 1.3-959. Max Daily Emissions from Tugboat Auxiliary Engines - Alternative 5/6

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	2.49	0.52	4.85	0.00	0.23	0.21
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.5	0.5	4.8	0.0	0.2	0.2
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.93	0.43	5.33	0.00	0.20	0.19
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.9	0.4	5.3	0.0	0.2	0.2
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	4.78	1.04	4.61	0.01	0.10	0.09
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.8	1.0	4.6	0.0	0.1	0.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	4.95	1.11	4.75	0.01	0.11	0.10
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	4.9	1.1	4.8	0.0	0.1	0.1
Project Year 2025						
Containerships 10,000 TEU	5.11	1.17	4.89	0.01	0.12	0.11
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.1	1.2	4.9	0.0	0.1	0.1
Project Year 2027						
Containerships 10,000 TEU	5.18	1.19	4.95	0.01	0.12	0.11
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	5.2	1.2	4.9	0.0	0.1	0.1

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Marine (OGV and Harbor Craft)**

December 2011

Table 1.3-960 Max 1-Hr Emissions from Tugboat Main Engine - Alternative 5/6 with Mitigation

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 5,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 4,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 3,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Containerships 1,000 TEU	8.22	1.94	29.40	0.01	1.25	1.15
Maximum	8.22	1.94	29.40	0.01	1.25	1.15
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 5,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 4,000 TEU	9.50	2.17	37.34	0.01	1.47	1.35
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	9.50	2.17	37.34	0.01	1.47	1.35
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 5,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 4,000 TEU	10.10	1.87	11.77	0.01	0.24	0.22
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.10	1.87	11.77	0.01	0.24	0.22
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 6,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 5,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 4,000 TEU	10.68	2.06	12.32	0.01	0.28	0.25
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	10.68	2.06	12.32	0.01	0.28	0.25
Project Year 2025						
Containerships 10,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 9,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 6,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 5,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 4,000 TEU	11.27	2.25	12.87	0.01	0.31	0.29
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.27	2.25	12.87	0.01	0.31	0.29
Project Year 2027						
Containerships 10,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 9,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 6,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 5,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 4,000 TEU	11.50	2.32	13.09	0.01	0.33	0.30
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	11.50	2.32	13.09	0.01	0.33	0.30

Notes: (1) Emissions assume use of two tugboats for 1 hour.

Table 1.3-961 Max 1-Hour Emissions from Tugboat Aux. Engines - Alternative 5/6 with Mitigation

Project Scenario/Activity	Pounds Per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 5,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 4,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 3,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Containerships 1,000 TEU	1.11	0.23	2.15	0.00	0.10	0.09
Maximum	1.11	0.23	2.15	0.00	0.10	0.09
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 5,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 4,000 TEU	0.86	0.19	2.37	0.00	0.09	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	0.86	0.19	2.37	0.00	0.09	0.08
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 5,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 4,000 TEU	1.06	0.23	1.02	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.06	0.23	1.02	0.00	0.02	0.02
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 6,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 5,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 4,000 TEU	1.10	0.25	1.05	0.00	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.10	0.25	1.05	0.00	0.02	0.02
Project Year 2025						
Containerships 10,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 9,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 6,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 5,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 4,000 TEU	1.13	0.26	1.09	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.13	0.26	1.09	0.00	0.03	0.02
Project Year 2027						
Containerships 10,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 9,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 6,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 5,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 4,000 TEU	1.15	0.27	1.10	0.00	0.03	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Maximum	1.15	0.27	1.10	0.00	0.03	0.02

Notes: (1) Emissions assume use of two tugboats for 1 hour.

Table 1.3-962. Annual Emissions from AMP Electricity Consumption - Alternative 5/6 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	0.83	0.04	4.79	0.50	0.17	0.17
Containerships 5,000 TEU	0.18	0.01	1.03	0.11	0.04	0.04
Containerships 4,000 TEU	0.29	0.01	1.66	0.17	0.06	0.06
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.3	0.1	7.5	0.8	0.3	0.3
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	0.43	0.02	2.49	0.26	0.09	0.09
Containerships 6,000 TEU	1.11	0.06	6.36	0.66	0.22	0.22
Containerships 5,000 TEU	0.24	0.01	1.38	0.14	0.05	0.05
Containerships 4,000 TEU	0.38	0.02	2.21	0.23	0.08	0.08
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.2	0.1	12.4	1.3	0.4	0.4
Project Year 2025						
Containerships 10,000 TEU	0.37	0.02	2.12	0.22	0.07	0.07
Containerships 9,000 TEU	0.56	0.03	3.20	0.33	0.11	0.11
Containerships 6,000 TEU	0.48	0.02	2.74	0.29	0.10	0.10
Containerships 5,000 TEU	0.16	0.01	0.89	0.09	0.03	0.03
Containerships 4,000 TEU	0.17	0.01	0.96	0.10	0.03	0.03
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	1.7	0.1	9.9	1.0	0.3	0.3
Project Year 2027						
Containerships 10,000 TEU	0.42	0.02	2.40	0.25	0.08	0.08
Containerships 9,000 TEU	0.63	0.03	3.61	0.38	0.13	0.13
Containerships 6,000 TEU	0.81	0.04	4.65	0.49	0.16	0.16
Containerships 5,000 TEU	0.18	0.01	1.01	0.11	0.04	0.04
Containerships 4,000 TEU	0.09	0.00	0.55	0.06	0.02	0.02
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	2.1	0.1	12.2	1.3	0.4	0.4

Note: These emissions represent regional power plant emissions associated with AMP generation.

Table 1.3-963. Max Daily Emissions from AMP Electricity Consumption - Alternative 5/6 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2012						
Containerships 10,000 TEU	-	-	-	-	-	-

Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-
Project Year 2015						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	10.6	0.5	61.1	6.4	2.1	2.1
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	10.6	0.5	61.1	6.4	2.1	2.1
Project Year 2020						
Containerships 10,000 TEU	-	-	-	-	-	-
Containerships 9,000 TEU	13.6	0.7	78.1	8.1	2.7	2.7
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	13.6	0.7	78.1	8.1	2.7	2.7
Project Year 2025						
Containerships 10,000 TEU	16.3	0.8	93.7	9.8	3.3	3.3
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	16.3	0.8	93.7	9.8	3.3	3.3
Project Year 2027						
Containerships 10,000 TEU	19.4	1.0	111.3	11.6	3.9	3.9
Containerships 9,000 TEU	-	-	-	-	-	-
Containerships 6,000 TEU	-	-	-	-	-	-
Containerships 5,000 TEU	-	-	-	-	-	-
Containerships 4,000 TEU	-	-	-	-	-	-
Containerships 3,000 TEU	-	-	-	-	-	-
Containerships 1,000 TEU	-	-	-	-	-	-
Subtotal	19.4	1.0	111.3	11.6	3.9	3.9

Notes: (1) These emissions represent regional power plant emissions associated with AMP generation.

(2) Peak Day AMP usage is assumed to be equivalent to annual AMP usage.

Table 1.3-964. Summary of Annual Marine Vessel Emissions with Mitigation
Alternative 5/6 with Mitigation

Project Scenario/Activity	Tons Per Year					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	13.7	6.1	174.8	106.4	16.0	14.0
Ships - 20nm to PA	12.8	6.4	106.1	59.2	10.1	8.1
Ships - PA	6.0	3.3	44.0	23.0	4.5	3.6
Ships - Harbor Transit	3.8	3.4	25.5	8.4	3.1	2.5
Ships - Turning & Docking	1.6	1.1	14.7	10.1	1.7	1.3
Ships - Anchoring	0.2	0.1	2.9	3.8	0.4	0.3
Ships - Hotelling	15.5	6.2	196.8	259.7	23.8	18.8
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.6	0.6	8.8	0.0	0.4	0.3
Total	56.3	27.2	573.7	470.5	59.9	48.9
Project Year 2012						
Ships - AQMD 40nm to 20nm	15.3	6.8	174.7	4.8	2.8	2.3
Ships - 20nm to PA	14.0	7.0	103.3	2.7	1.9	1.6
Ships - PA	6.5	3.6	42.5	1.0	0.9	0.7
Ships - Harbor Transit	4.2	3.7	24.9	0.4	0.6	0.5
Ships - Turning & Docking	1.7	1.2	13.6	0.4	0.3	0.3
Ships - Anchoring	0.2	0.1	1.7	0.1	0.0	0.0
Ships - Hotelling	25.9	10.2	285.2	16.6	6.8	5.4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	2.7	0.6	10.5	0.0	0.4	0.4
Total	70.5	33.2	656.4	26.0	13.8	11.0
Project Year 2015						
Ships - AQMD 40nm to 20nm	18.1	9.1	135.4	3.5	2.5	2.0
Ships - 20nm to PA	16.4	8.2	122.1	3.2	2.3	1.8
Ships - PA	7.7	4.2	50.3	1.2	1.0	0.8
Ships - Harbor Transit	4.9	4.3	29.3	0.5	0.7	0.6
Ships - Turning & Docking	2.0	1.4	15.9	0.5	0.4	0.3
Ships - Anchoring	0.2	0.1	2.1	0.1	0.0	0.0
Ships - Hotelling	18.1	7.3	198.1	14.7	5.2	4.1
AMP - Hotelling	1.3	0.1	7.5	0.8	0.3	0.3
Tugboats	3.6	0.7	4.1	0.0	0.1	0.1
Total	72.2	35.2	564.8	24.4	12.6	10.0
Project Year 2020						
Ships - AQMD 40nm to 20nm	22.2	11.2	164.4	4.2	3.1	2.5
Ships - 20nm to PA	20.1	10.1	148.3	3.8	2.8	2.2
Ships - PA	9.4	5.2	61.1	1.5	1.2	1.0
Ships - Harbor Transit	6.0	5.3	35.8	0.5	0.9	0.7
Ships - Turning & Docking	2.4	1.7	19.1	0.6	0.4	0.4
Ships - Anchoring	0.2	0.1	2.7	0.2	0.1	0.1
Ships - Hotelling	9.0	3.8	96.5	10.9	3.2	2.4
AMP - Hotelling	2.2	0.1	12.4	1.3	0.4	0.4
Tugboats	4.5	0.9	5.1	0.0	0.1	0.1
Total	75.9	38.4	545.5	23.0	12.2	9.8
Project Year 2025						
Ships - AQMD 40nm to 20nm	26.4	13.4	191.6	4.9	3.6	2.9
Ships - 20nm to PA	23.8	12.1	172.8	4.4	3.3	2.6
Ships - PA	11.1	6.2	71.1	1.7	1.4	1.2
Ships - Harbor Transit	7.1	6.4	42.3	0.6	1.0	0.8
Ships - Turning & Docking	2.8	2.0	21.8	0.7	0.5	0.4
Ships - Anchoring	0.3	0.1	3.5	0.2	0.1	0.1
Ships - Hotelling	7.1	3.0	76.7	8.6	2.5	1.9
AMP - Hotelling	1.7	0.1	9.9	1.0	0.3	0.3
Tugboats	5.1	1.0	5.7	0.0	0.1	0.1
Total	85.4	44.4	595.5	22.0	12.9	10.4
Project Year 2027						
Ships - AQMD 40nm to 20nm	28.7	14.6	208.1	5.3	3.9	3.2
Ships - 20nm to PA	25.9	13.2	187.7	4.7	3.6	2.8
Ships - PA	12.1	6.8	77.2	1.8	1.6	1.2
Ships - Harbor Transit	7.7	7.0	46.0	0.7	1.1	0.9
Ships - Turning & Docking	3.0	2.2	23.7	0.7	0.6	0.4
Ships - Anchoring	0.3	0.1	3.6	0.2	0.1	0.1
Ships - Hotelling	3.3	1.5	34.2	7.0	1.6	1.2
AMP - Hotelling	2.1	0.1	12.2	1.3	0.4	0.4
Tugboats	5.6	1.1	6.2	0.0	0.2	0.1
Total	88.7	46.7	599.2	21.7	13.0	10.5

AMP Hotelling emissions include the emissions generated by regional power plants to generate the electricity consumed by the ships while hotelling.

Table 1.3-965. Summary of Maximum Daily Marine Vessel Emissions with Mitigation
 Alternative 5/6 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	141	63	1,711	1,094	154	123
Ships - 20nm to PA	126	64	985	564	99	79
Ships - PA	60	33	408	217	44	35
Ships - Harbor Transit	38	34	240	79	31	25
Ships - Turning & Docking	15	11	129	90	16	13
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,611	3,333	327	259
AMP - Hotelling	-	-	-	-	-	-
Tugboats	21	5	71	0	3	3
Total	624	296	6,157	5,377	674	537
Project Year 2012						
Ships - AQMD 40nm to 20nm	141	63	1,610	44	26	21
Ships - 20nm to PA	127	64	935	24	18	14
Ships - PA	60	33	385	9	8	6
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	15	11	122	4	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	223	87	2,461	140	58	46
AMP - Hotelling	-	-	-	-	-	-
Tugboats	23	5	89	0	4	3
Total	627	297	5,828	224	121	97
Project Year 2015						
Ships - AQMD 40nm to 20nm	282	142	2,074	53	39	31
Ships - 20nm to PA	254	128	1,870	48	35	28
Ships - PA	119	66	770	18	15	12
Ships - Harbor Transit	76	67	453	7	11	9
Ships - Turning & Docking	31	22	244	8	6	4
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	146	58	1,602	115	42	33
AMP - Hotelling	11	1	61	6	2	2
Tugboats	50	9	58	0	1	1
Total	968	493	7,132	254	151	121
Project Year 2020						
Ships - AQMD 40nm to 20nm	315	163	2,235	56	43	34
Ships - 20nm to PA	284	147	2,016	50	38	31
Ships - PA	133	75	829	19	17	14
Ships - Harbor Transit	84	79	504	7	12	10
Ships - Turning & Docking	32	24	244	7	6	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	57	24	609	69	20	15
AMP - Hotelling	14	1	78	8	3	3
Tugboats	53	10	60	0	1	1
Total	972	523	6,574	216	140	112
Project Year 2025						
Ships - AQMD 40nm to 20nm	386	200	2,733	67	52	42
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	65	27	700	73	22	17
AMP - Hotelling	-	-	-	-	-	-
Tugboats	56	11	63	0	2	1
Total	1,160	636	7,885	239	165	132
Project Year 2027						
Ships - AQMD 40nm to 20nm	386	200	2,733	67	52	42
Ships - 20nm to PA	348	180	2,465	60	47	37
Ships - PA	163	93	1,013	23	21	16
Ships - Harbor Transit	103	97	615	8	15	12
Ships - Turning & Docking	39	29	295	8	7	5
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	28	13	289	56	13	10
AMP - Hotelling	19	1	111	12	4	4
Tugboats	57	12	64	0	2	1
Total	1,143	623	7,586	234	160	129

Table 1.3-966. Summary of Average Daily Marine Vessel Emissions with Mitigation
 Alternative 5/6 with Mitigation

Project Scenario/Activity	Pounds per Day					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	75	34	958	583	87	77
Ships - 20nm to PA	70	35	581	324	55	44
Ships - PA	33	18	241	126	24	20
Ships - Harbor Transit	21	19	140	46	17	14
Ships - Turning & Docking	9	6	81	55	9	7
Ships - Anchoring	1	0	16	21	2	2
Ships - Hotelling	85	34	1,079	1,423	131	103
AMP - Hotelling	-	-	-	-	-	-
Tugboats	14	3	48	0	2	2
Total	308	149	3,144	2,578	328	268
Project Year 2012						
Ships - AQMD 40nm to 20nm	84	38	958	26	16	12
Ships - 20nm to PA	77	38	566	15	11	9
Ships - PA	36	20	233	6	5	4
Ships - Harbor Transit	23	20	136	2	3	3
Ships - Turning & Docking	9	7	74	2	2	1
Ships - Anchoring	1	0	10	1	0	0
Ships - Hotelling	142	56	1,563	91	37	29
AMP - Hotelling	-	-	-	-	-	-
Tugboats	15	3	57	0	2	2
Total	386	182	3,597	142	76	60
Project Year 2015						
Ships - AQMD 40nm to 20nm	99	50	742	19	14	11
Ships - 20nm to PA	90	45	669	17	13	10
Ships - PA	42	23	276	7	6	4
Ships - Harbor Transit	27	24	160	2	4	3
Ships - Turning & Docking	11	8	87	3	2	2
Ships - Anchoring	1	0	11	1	0	0
Ships - Hotelling	99	40	1,085	80	29	22
AMP - Hotelling	7	0	41	4	1	1
Tugboats	20	4	23	0	0	0
Total	396	193	3,095	134	69	55
Project Year 2020						
Ships - AQMD 40nm to 20nm	122	61	901	23	17	14
Ships - 20nm to PA	110	55	813	21	15	12
Ships - PA	52	28	335	8	7	5
Ships - Harbor Transit	33	29	196	3	5	4
Ships - Turning & Docking	13	9	105	3	2	2
Ships - Anchoring	1	1	15	1	0	0
Ships - Hotelling	49	21	529	60	17	13
AMP - Hotelling	12	1	68	7	2	2
Tugboats	25	5	28	0	1	1
Total	416	210	2,989	126	67	54
Project Year 2025						
Ships - AQMD 40nm to 20nm	144	74	1,050	27	20	16
Ships - 20nm to PA	130	66	947	24	18	14
Ships - PA	61	34	390	9	8	6
Ships - Harbor Transit	39	35	232	3	6	5
Ships - Turning & Docking	15	11	119	4	3	2
Ships - Anchoring	2	1	19	1	0	0
Ships - Hotelling	39	16	420	47	14	11
AMP - Hotelling	9	0	54	6	2	2
Tugboats	28	6	31	0	1	1
Total	468	243	3,263	120	71	57
Project Year 2027						
Ships - AQMD 40nm to 20nm	157	80	1,141	29	22	17
Ships - 20nm to PA	142	72	1,029	26	19	16
Ships - PA	66	37	423	10	9	7
Ships - Harbor Transit	42	38	252	4	6	5
Ships - Turning & Docking	17	12	130	4	3	2
Ships - Anchoring	2	1	20	1	0	0
Ships - Hotelling	18	8	188	38	9	7
AMP - Hotelling	12	1	67	7	2	2
Tugboats	30	6	34	0	1	1
Total	486	256	3,283	119	71	57

Table 1.3-967. Summary of Maximum Hourly Marine Vessel Emissions with Mitigation
 Alternative 5/6

Project Scenario/Activity	Pounds per Hour					
	CO	VOC	NOx	SOx	PM10	PM2.5
Baseline						
Ships - AQMD 40nm to 20nm	62	28	746	490	68	54
Ships - 20nm to PA	42	21	315	63	11	9
Ships - PA	30	16	204	111	22	18
Ships - Harbor Transit	38	34	241	82	31	25
Ships - Turning & Docking	13	10	104	64	13	10
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	42	57	5	4
AMP - Hotelling	-	-	-	-	-	-
Tugboats	9	2	32	0	1	1
Total	197	112	1,684	866	151	121
Project Year 2012						
Ships - AQMD 40nm to 20nm	61	27	700	19	11	9
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	10	2	40	0	2	1
Total	198	112	1,607	40	31	25
Project Year 2015						
Ships - AQMD 40nm to 20nm	42	21	312	8	6	5
Ships - 20nm to PA	42	21	312	8	6	5
Ships - PA	30	16	193	5	4	3
Ships - Harbor Transit	38	34	227	3	6	4
Ships - Turning & Docking	13	10	96	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	11	2	13	0	0	0
Total	179	106	1,192	29	25	20
Project Year 2020						
Ships - AQMD 40nm to 20nm	47	24	343	9	7	5
Ships - 20nm to PA	47	24	342	9	6	5
Ships - PA	34	19	210	5	4	3
Ships - Harbor Transit	43	40	255	4	6	5
Ships - Turning & Docking	14	11	103	3	2	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	2	13	0	0	0
Total	200	122	1,306	31	27	22
Project Year 2025						
Ships - AQMD 40nm to 20nm	58	30	415	10	8	6
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	12	3	14	0	0	0
Total	240	148	1,562	35	33	26
Project Year 2027						
Ships - AQMD 40nm to 20nm	58	30	415	10	8	6
Ships - 20nm to PA	57	30	414	10	8	6
Ships - PA	41	23	253	6	5	4
Ships - Harbor Transit	52	48	308	4	8	6
Ships - Turning & Docking	17	14	119	3	3	2
Ships - Anchoring	-	-	-	-	-	-
Ships - Hotelling	4	1	40	2	1	1
AMP - Hotelling	-	-	-	-	-	-
Tugboats	13	3	14	0	0	0
Total	240	148	1,563	35	33	26

Table 1.3-968. Ship Visit Data - Berths 302-306 Terminal

Ship Fleet	No. of Ship Calls							Annual TEU						
	Project	Alt 1	Alt 2	Alt. 3	Alt. 4	Alt. 5	Alt 6	Project	Alt 1	Alt 2	Alt. 3	Alt. 4	Alt. 5	Alt 6
Project Year 2012														
Containerships 10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Containerships 9,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Containerships 6,000	156.0	156.0	156.0	156.0	156.0	156.0	156.0	1,372,320	1,372,320	1,372,320	1,372,320	1,372,320	1,372,320	1,372,320
Containerships 5,000	52.0	52.0	52.0	52.0	52.0	52.0	52.0	381,200	381,200	381,200	381,200	381,200	381,200	381,200
Containerships 4,000	26.0	26.0	26.0	26.0	26.0	26.0	26.0	152,480	152,480	152,480	152,480	152,480	152,480	152,480
Containerships 3,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Containerships 1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	234.0	234.0	234.0	234.0	234.0	234.0	234.0	1,906,000	1,906,000	1,906,000	1,906,000	1,906,000	1,906,000	1,906,000
Project Year 2015														
Containerships 10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Containerships 9,000	-	-	-	52.0	52.0	-	-	-	-	-	675,643	727,393	-	-
Containerships 6,000	156.0	156.0	156.0	104.0	104.0	156.0	156.0	1,677,103	1,402,705	1,402,705	900,857	969,857	1,677,103	1,677,103
Containerships 5,000	52.0	52.0	52.0	52.0	52.0	52.0	52.0	465,862	389,640	389,640	375,357	404,107	465,862	465,862
Containerships 4,000	78.0	26.0	26.0	26.0	26.0	78.0	78.0	559,034	155,856	155,856	150,143	161,643	559,034	559,034
Containerships 3,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Containerships 1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	286.0	234.0	234.0	234.0	234.0	286.0	286.0	2,702,000	1,948,201	1,948,201	2,102,000	2,263,000	2,702,000	2,702,000
Project Year 2020														
Containerships 10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Containerships 9,000	52.0	-	-	52.0	52.0	52.0	52.0	689,684	-	-	609,463	656,382	689,684	689,684
Containerships 6,000	156.0	156.0	156.0	156.0	156.0	156.0	156.0	1,379,368	1,464,146	1,464,146	1,218,926	1,312,765	1,379,368	1,379,368
Containerships 5,000	52.0	52.0	52.0	52.0	52.0	52.0	52.0	383,158	406,707	406,707	338,591	364,657	383,158	383,158
Containerships 4,000	78.0	26.0	26.0	26.0	26.0	78.0	78.0	459,789	162,683	162,683	135,436	145,863	459,789	459,789
Containerships 3,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Containerships 1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	338.0	234.0	234.0	286.0	286.0	338.0	338.0	2,912,000	2,033,536	2,033,536	2,302,417	2,479,667	2,912,000	2,912,000
Project Year 2025														
Containerships 10,000	52.0	-	-	-	-	52.0	52.0	637,143	-	-	-	-	637,143	637,143
Containerships 9,000	104.0	52.0	52.0	52.0	52.0	104.0	104.0	1,146,857	560,878	560,878	563,138	606,675	1,146,857	1,146,857
Containerships 6,000	104.0	156.0	156.0	208.0	208.0	104.0	104.0	764,571	1,121,755	1,121,755	1,501,700	1,617,800	764,571	764,571
Containerships 5,000	52.0	52.0	52.0	52.0	52.0	52.0	52.0	318,571	311,599	311,599	312,854	337,042	318,571	318,571
Containerships 4,000	52.0	26.0	26.0	26.0	26.0	52.0	52.0	254,857	124,639	124,639	125,142	134,817	254,857	254,857
Containerships 3,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Containerships 1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	364.0	286.0	286.0	338.0	338.0	364.0	364.0	3,122,000	2,118,871	2,118,871	2,502,833	2,696,333	3,122,000	3,122,000
Project Year 2027														
Containerships 10,000	52.0	-	-	-	-	52.0	52.0	604,906	-	-	-	-	604,906	604,906
Containerships 9,000	104.0	52.0	52.0	52.0	104.0	104.0	104.0	1,088,830	569,912	569,912	581,175	1,164,977	1,088,830	1,088,830
Containerships 6,000	156.0	156.0	156.0	208.0	156.0	156.0	156.0	1,088,830	1,139,824	1,139,824	1,549,800	1,164,977	1,088,830	1,088,830
Containerships 5,000	52.0	52.0	52.0	52.0	52.0	52.0	52.0	302,453	316,618	316,618	322,875	323,605	302,453	302,453
Containerships 4,000	26.0	26.0	26.0	26.0	26.0	26.0	26.0	120,981	126,647	126,647	129,150	129,442	120,981	120,981
Containerships 3,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Containerships 1,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	390.0	286.0	286.0	338.0	338.0	390.0	390.0	3,206,000	2,153,000	2,153,000	2,583,000	2,783,000	3,206,000	3,206,000

(1) Hotelling times for container ships are calculated based on the lifts per call, ship work rate, crane productivity, and mean cranes per ship. A 3-hour tie-up and un-tie time is included in the estimate.

(2) Assumes 1.75 TEU per container.

Table 1.3-968. Ship Visit

Ship Fleet	Average Lifts per Ship Call							Ship Work Rate (hr/day)							Mean Cranes per Ship							
	Project	Alt 1	Alt 2	Alt. 3	Alt. 4	Alt. 5	Alt 6	Project	Alt 1	Alt 2	Alt. 3	Alt. 4	Alt. 5	Alt 6	Project	Alt 1	Alt 2	Alt. 3	Alt. 4	Alt. 5	Alt 6	
Project Year 2012																						
Containerships 10,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Containerships 9,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Containerships 6,000	5,026.8	5,027	5,027	5,027	5,027	5,027	5,027	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Containerships 5,000	4,189.0	4,189	4,189	4,189	4,189	4,189	4,189	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Containerships 4,000	3,351.2	3,351	3,351	3,351	3,351	3,351	3,351	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Containerships 3,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Containerships 1,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total	4,654.5	4,654	4,654	4,654	4,654	4,654	4,654	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Project Year 2015																						
Containerships 10,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Containerships 9,000	-	-	-	7,425	7,993	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Containerships 6,000	6,143.2	5,138	5,138	4,950	5,329	6,143	6,143	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Containerships 5,000	5,119.4	4,282	4,282	4,125	4,441	5,119	5,119	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Containerships 4,000	4,095.5	3,425	3,425	3,300	3,553	4,095	4,095	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Containerships 3,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Containerships 1,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Total	5,398.6	4,758	4,758	5,133	5,526	5,399	5,399	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Project Year 2020																						
Containerships 10,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Containerships 9,000	7,578.9	-	-	6,697	7,213	7,579	7,579	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Containerships 6,000	5,052.6	5,363	5,363	4,465	4,809	5,053	5,053	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Containerships 5,000	4,210.5	4,469	4,469	3,721	4,007	4,211	4,211	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Containerships 4,000	3,368.4	3,575	3,575	2,977	3,206	3,368	3,368	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Containerships 3,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Containerships 1,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Total	4,923.1	4,966	4,966	4,600	4,954	4,923	4,923	21.0	21.0	21.0	21.0	21.0	21.0	21.0	3.7	3.5	3.5	3.7	4.0	3.7	3.7	3.7
Project Year 2025																						
Containerships 10,000	7,001.6	-	-	-	-	7,002	7,002	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Containerships 9,000	6,301.4	6,163	6,163	6,188	6,667	6,301	6,301	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Containerships 6,000	4,200.9	4,109	4,109	4,126	4,445	4,201	4,201	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Containerships 5,000	3,500.8	3,424	3,424	3,438	3,704	3,501	3,501	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Containerships 4,000	2,800.6	2,739	2,739	2,750	2,963	2,801	2,801	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Containerships 3,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Containerships 1,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Total	4,901.1	4,234	4,234	4,231	4,558	4,901	4,901	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Project Year 2027																						
Containerships 10,000	6,647.3	-	-	-	-	6,647	6,647	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Containerships 9,000	5,982.6	6,263	6,263	6,387	6,401	5,983	5,983	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Containerships 6,000	3,988.4	4,175	4,175	4,258	4,267	3,988	3,988	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Containerships 5,000	3,323.7	3,479	3,479	3,548	3,556	3,324	3,324	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Containerships 4,000	2,658.9	2,783	2,783	2,838	2,845	2,659	2,659	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Containerships 3,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Containerships 1,000	-	-	-	-	-	-	-	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5
Total	4,697.4	4,302	4,302	4,367	4,705	4,697	4,697	21.0	21.0	21.0	21.0	21.0	21.0	21.0	4.5	3.5	3.5	4.2	4.5	4.5	4.5	4.5

(1) Hotelling times for contite (JWD, 2004)

(2) Assumes 1.75 TEU pe

Table 1.3-968. Ship Visit

Ship Fleet	Gross Dock Crane Productivity (lifts/hour)							Hotelling Time (hr)						
	Project	Alt 1	Alt 2	Alt. 3	Alt. 4	Alt. 5	Alt 6	Project	Alt 1	Alt 2	Alt. 3	Alt. 4	Alt. 5	Alt 6
Project Year 2012														
Containerships 10,000	24.0	24.0	24.0	24.0	24.0	24.0	24.0	-	-	-	-	-	-	-
Containerships 9,000	24.0	24.0	24.0	24.0	24.0	24.0	24.0	-	-	-	-	-	-	-
Containerships 6,000	24.0	24.0	24.0	24.0	24.0	24.0	24.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0
Containerships 5,000	24.0	24.0	24.0	24.0	24.0	24.0	24.0	59.7	59.7	59.7	59.7	59.7	59.7	59.7
Containerships 4,000	24.0	24.0	24.0	24.0	24.0	24.0	24.0	48.3	48.3	48.3	48.3	48.3	48.3	48.3
Containerships 3,000	24.0	24.0	24.0	24.0	24.0	24.0	24.0	-	-	-	-	-	-	-
Containerships 1,000	24.0	24.0	24.0	24.0	24.0	24.0	24.0	-	-	-	-	-	-	-
Total	24.0	24.0	24.0	24.0	24.0	24.0	24.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
Project Year 2015														
Containerships 10,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	-	-	-	-	-	-	-
Containerships 9,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	-	-	-	95.2	94.4	-	-
Containerships 6,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	79.3	69.7	69.7	64.5	63.9	79.3	79.3
Containerships 5,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	66.6	58.6	58.6	54.2	53.8	66.6	66.6
Containerships 4,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	53.9	47.5	47.5	44.0	43.6	53.9	53.9
Containerships 3,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	-	-	-	-	-	-	-
Containerships 1,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	-	-	-	-	-	-	-
Total	25.0	25.0	25.0	25.0	25.0	25.0	25.0	70.1	64.8	64.8	66.8	66.2	70.1	70.1
Project Year 2020														
Containerships 10,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	-	-	-	-	-	-	-
Containerships 9,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	97.1	-	-	86.2	85.4	97.1	97.1
Containerships 6,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	65.8	72.7	72.7	58.5	58.0	65.8	65.8
Containerships 5,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	55.3	61.0	61.0	49.2	48.8	55.3	55.3
Containerships 4,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	44.8	49.4	49.4	40.0	39.6	44.8	44.8
Containerships 3,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	-	-	-	-	-	-	-
Containerships 1,000	25.0	25.0	25.0	25.0	25.0	25.0	25.0	-	-	-	-	-	-	-
Total	25.0	25.0	25.0	25.0	25.0	25.0	25.0	64.2	67.5	67.5	60.1	59.6	64.2	64.2
Project Year 2025														
Containerships 10,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	68.9	-	-	-	-	68.9	68.9
Containerships 9,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	62.3	77.1	77.1	65.4	65.7	62.3	62.3
Containerships 6,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	42.5	52.4	52.4	44.6	44.8	42.5	42.5
Containerships 5,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	35.9	44.2	44.2	37.6	37.8	35.9	35.9
Containerships 4,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	29.3	35.9	35.9	30.7	30.9	29.3	29.3
Containerships 3,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	-	-	-	-	-	-	-
Containerships 1,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	-	-	-	-	-	-	-
Total	27.0	27.0	27.0	27.0	27.0	27.0	27.0	49.1	53.9	53.9	45.6	45.9	49.1	49.1
Project Year 2027														
Containerships 10,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	65.5	-	-	-	-	65.5	65.5
Containerships 9,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	59.3	78.3	78.3	67.4	63.2	59.3	59.3
Containerships 6,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	40.5	53.2	53.2	45.9	43.1	40.5	40.5
Containerships 5,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	34.3	44.8	44.8	38.8	36.4	34.3	34.3
Containerships 4,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	28.0	36.5	36.5	31.6	29.8	28.0	28.0
Containerships 3,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	-	-	-	-	-	-	-
Containerships 1,000	27.0	27.0	27.0	27.0	27.0	27.0	27.0	-	-	-	-	-	-	-
Total	27.0	27.0	27.0	27.0	27.0	27.0	27.0	47.2	54.7	54.7	47.0	47.3	47.2	47.2

(1) Hotelling times for cont

(2) Assumes 1.75 TEU pe

Table 1.3-969. APL Terminal Ship Type - Forecasted Call Numbers																
Proposed Project								Alt 4								
Ship Type	Ship	CEQA						Ship Type	Ship	CEQA						
	Size	Baseline	2012	2015	2020	2025	2027		Size	Baseline	2012	2015	2020	2025	2027	
Container	1000	2	-	-	-	-	-	Container	1000	2	-	-	-	-	-	
Container	2000	-	-	-	-	-	-	Container	2000	-	-	-	-	-	-	
Container	3000	7	-	-	-	-	-	Container	3000	7	-	-	-	-	-	
Container	4000	59	26	78	78	52	26	Container	4000	59	26	26	26	26	26	
Container	5000	177	52	52	52	52	52	Container	5000	177	52	52	52	52	52	
Container	6000	2	156	156	156	104	156	Container	6000	2	156	104	156	208	156	
Container	7000	-	-	-	-	-	-	Container	7000	-	-	-	-	-	-	
Container	9,000	-	-	-	52	104	104	Container	9,000	-	-	52	52	52	104	
Container	10,000	-	-	-	-	52	52	Container	10,000	-	-	-	-	-	-	
		247	234	286	338	364	390			247	234	234	286	338	338	
Alt 1/2								Alt 5/6								
Ship Type	Ship	CEQA						Ship Type	Ship	CEQA						
	Size	Baseline	2012	2015	2020	2025	2027		Size	Baseline	2012	2015	2020	2025	2027	
Container	1000	2	-	-	-	-	-	Container	1000	2	-	-	-	-	-	
Container	2000	-	-	-	-	-	-	Container	2000	-	-	-	-	-	-	
Container	3000	7	-	-	-	-	-	Container	3000	7	-	-	-	-	-	
Container	4000	59	26	26	26	26	26	Container	4000	59	26	78	78	52	26	
Container	5000	177	52	52	52	52	52	Container	5000	177	52	52	52	52	52	
Container	6000	2	156	156	156	156	156	Container	6000	2	156	156	156	104	156	
Container	7000	-	-	-	-	-	-	Container	7000	-	-	-	-	-	-	
Container	9,000	-	-	-	-	52	52	Container	9,000	-	-	-	52	104	104	
Container	10,000	-	-	-	-	-	-	Container	10,000	-	-	-	-	52	52	
		247	234	234	234	286	286			247	234	286	338	364	390	
Alt 3																
Ship Type	Ship	CEQA						Ship Type	Ship	CEQA						
	Size	Baseline	2012	2015	2020	2025	2027		Size	Baseline	2012	2015	2020	2025	2027	
Container	1000	2	-	-	-	-	-									
Container	2000	-	-	-	-	-	-									
Container	3000	7	-	-	-	-	-									
Container	4000	59	26	26	26	26	26									
Container	5000	177	52	52	52	52	52									
Container	6000	2	156	104	156	208	208									
Container	7000	-	-	-	-	-	-									
Container	9,000	-	-	52	52	52	52									
Container	10,000	-	-	-	-	-	-									
		247	234	234	286	338	338									

Table 1.3-970. Annual Berth 302-305 TEU Throughput for CEQA Baseline

Terminal	Baseline 7/08 - 6/09
APL	1,128,080

Source: APL NOP/NOI

Table 1.3-971. Annual Berth 302-306 TEU Throughput by Project Alternative

Scenario	Study Year				
	2012	2015	2020	2025	2027
Proposed Project	1,906,000	2,702,000	2,912,000	3,122,000	3,206,000
Alt. 1 - No Project	1,906,000	1,948,201	2,033,536	2,118,871	2,153,000
Alt. 2 - No Federal Action	1,906,000	1,948,201	2,033,536	2,118,871	2,153,000
Alt. 3 - Improve Existing Terminal Only	1,906,000	2,102,000	2,302,417	2,502,833	2,583,000
Alt. 4 - Improve Existing Terminal and 41 Acre Fill	1,906,000	1,906,000	2,263,000	2,479,667	2,696,333
Alt. 5 - Proposed Project without 30 Acre Backlands	1,906,000	2,702,000	2,912,000	3,122,000	3,206,000
Alt. 6 - Proposed Project with Expanded On-Dock Rail	1,906,000	2,702,000	2,912,000	3,122,000	3,206,000

Source: POLA, 2010.

Ratio of TEUs to Containers	1.75
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Table 1.3-972. Assist Tug Emission Factor Derivation

Assist Tugs	Main Engine (1934 HP)											Auxiliary Engine (149 HP)												
	Study Year	MY	Hrs	CO	ROG	NOx	SOx ⁴	PM	PM2.5	CO2	CH4	N2O	MY	Hrs	CO	ROG	NOx	SOx ⁴	PM	PM2.5	CO2	CH4	N2O	
ZH (1995 MY) EF ¹				2.99	0.84	12.98	NA	0.50	0.46	486	0.017	0.023												
ZH (2013 MY) EF ¹				3.73	0.68	4.37	NA	0.10	0.09	486	0.017	0.023												
ULSD FCF ²				1.00	0.72	0.93	NA	0.72	0.72	1.00	1.000	1.000												
2011 FCF ³				0.00	0.00	0.95	NA	0.85	0.85	-	0.000	0.000												
2008	1995	18,694	3.45	0.77	13.64	0.01	0.51	0.47	486	0.015	0.023	1998	16,050	2.97	0.65	8.23	0.01	0.30	0.28	486	0.013	0.023		
2012	1995	24,446	3.60	0.82	14.12	0.01	0.56	0.51	486	0.016	0.021	1999	20,865	3.03	0.68	8.38	0.01	0.32	0.29	486	0.014	0.022		
Starcrest - Baseline	NA	NA	3.11	0.74	11.12	0.01	0.47	0.44	486	0.012	0.021	NA	NA	3.92	0.81	7.62	0.01	0.36	0.33	486	0.015	0.022		
Calculated Growth 2008-2012	NA	NA	1.04	1.07	1.04	1.00	1.09	1.09	1.00	NA	NA	NA	NA	1.02	1.03	1.02	1.00	1.05	1.05	1.00	NA	NA		
2012 ⁵	NA	NA	3.24	0.78	11.52	0.01	0.52	0.48	486	0.016	0.021	NA	NA	4.00	0.84	7.75	0.01	0.38	0.35	486	0.017	0.022		
2015	2013	2,876	3.82	0.71	4.45	0.01	0.09	0.08	486	0.014	0.021	2014	1,605	3.76	0.82	3.62	0.01	0.08	0.07	486	0.016	0.022		
2020	2013	10,066	4.04	0.78	4.66	0.01	0.10	0.10	486	0.016	0.021	2014	9,630	3.89	0.87	3.73	0.01	0.09	0.08	486	0.017	0.022		
2025	2013	17,256	4.26	0.85	4.87	0.01	0.12	0.11	486	0.017	0.021	2014	17,655	4.02	0.92	3.84	0.01	0.09	0.09	486	0.018	0.022		
2027	2013	20,132	4.35	0.88	4.95	0.01	0.12	0.11	486	0.018	0.021	2014	20,865	4.07	0.94	3.89	0.01	0.10	0.09	486	0.019	0.022		

Note: Emission factors in g/hp-hr.

(1) Zero hour emission factor from CARB, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B. Main engines are assumed to be replaced by 2013, auxiliary engines by 2014.

(2) Source: 2009 Port of LA Emissions Inventory, Table 4.8. Applied to emission factors pre-2011, except for CO2, CH4, and N2O to which it is assumed they do not apply.

(3) Source: CARB, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Table II-4.

Applied to engine model years newer than 2011.

(4) SOx (gms/hp-hr) = (S content in X/1,000,000) x (2 SO2/g S) x BSFC (184 g/hp-hr).

The sulfur content is assumed to be 15ppm per 13 CCR 2281(a).

(5) The CH4 emission factor is 2% of the ROG factor. Source: 2009 POLA EI.

(6) The 2012 emission factors are determined by as follows: Calculate the emission factors for the baseline and 2012 using the 2009 POLA EI methodology. Determine the increase in the emission factor for each pollutant due to engine deterioration, and then multiply the emission factors for the baseline APL tug fleet by this increase to determine the APL fleet emission factor in 2012.

Table 1.3-972. Assist Tug Emission Factor Derivation

g/kWh	
CO2	N2O
652	0.031

Methodology:
EF = ZH + (DR x cumulative hours)
DR = (DF x ZH) / cumulative hours at the end of useful life

Source: IVL, Methodology for Calculating Emissions from Ships: Update on Emission Factors.
Prepared by IVL Swedish Environmental Research Institute for the Swedish Environmental Protection Agency.

g/hp-hr	
CO2	N2O
486	0.023

0.746 kW/hp
0.92 PM2.5/PM10
CARB CEIDARS Profile 425 - Diesel Engine Exhaust

APPENDIX A COMMERCIAL HARBOR CRAFT EMISSION FACTOR TABLE											
HP Range	Model Year	Main Engine					Auxiliary Engine				
		CO	ROG	Nox	PM	PM2.5 ¹	CO	ROG	Nox	PM	PM2.5 ¹
121-175 hp	pre-1971	3.21	1.32	16.52	0.73	0.67	4.53	1.57	14	0.65	0.60
	1971-1978	3.21	1.1	15.34	0.63	0.58	4.53	1.31	13	0.55	0.51
	1979-1983	3.21	1	14.16	0.52	0.48	4.53	1.19	12	0.46	0.42
	1984-1986	3.14	0.94	12.98	0.52	0.48	4.43	1.12	11	0.46	0.42
	1987-1995	3.07	0.88	12.98	0.52	0.48	4.33	1.05	11	0.46	0.42
	1996-1999	1.97	0.68	9.64	0.36	0.33	2.78	0.81	8.17	0.32	0.29
	2000-2003	1.97	0.68	7.31	0.36	0.33	2.78	0.81	7.31	0.32	0.29
	2004-2012	3.73	0.68	5.1	0.22	0.20	3.73	0.81	5.1	0.22	0.20
	2013-2020	3.73	0.68	3.8	0.09	0.08	3.73	0.81	3.8	0.09	0.08
1901-3300 hp	pre-1971	3.07	1.26	16.52	0.7	0.64	4.33	1.5	14	0.62	0.57
	1971-1978	3.07	1.05	15.34	0.6	0.55	4.33	1.25	13	0.53	0.49
	1979-1983	3.07	0.95	14.16	0.5	0.46	4.33	1.13	12	0.45	0.41
	1984-1986	3.07	0.9	12.98	0.5	0.46	4.33	1.07	11	0.45	0.41
	1987-1998	2.99	0.84	12.98	0.5	0.46	4.22	1	11	0.45	0.41
	1999	1.97	0.68	9.64	0.36	0.33	2.78	0.81	8.17	0.32	0.29
	2000-2006	1.97	0.68	7.31	0.36	0.33	2.78	0.81	7.31	0.32	0.29
	2007-2012	3.73	0.68	5.53	0.2	0.18	3.73	0.81	5.53	0.2	0.18
	2013-2015	3.73	0.68	4.37	0.1	0.09	3.73	0.81	4.37	0.1	0.09
	2016-2020	3.73	0.18	1.3	0.03	0.03	3.73	0.18	1.3	0.03	0.03

Note: Emission factors in g/hp-hr.
Source: CARB, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California, Appendix B.
¹PM2.5 emission factors are derived from the PM emission factors using CARB CEIDARS Profile 425.

Table 4.1: Propulsion Engine Data by Vessel Category											
Harbor	Vessel	Engine	Model year			Horsepower			Annual Operating Hrs		
Vessel Type	Count	Count	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Assist tug	18	36	1967	2008	1995	750	2,400	1,934	600	2,415	1,438

Source: 2009 POLA EI, Table 4.1

Table 4.2: Auxiliary Engine Data by Vessel Category											
Harbor	Vessel	Engine	Model year			Horsepower			Annual Operating Hrs		
Vessel Type	Count	Count	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Assist tug	18	36	1967	2008	1998	115	425	149	172	3,025	1,605

Source: 2009 POLA EI, Table 4.2

Table 4.6: Engine Deterioration Factors for Harbor Craft Diesel Engines				
HP Range	CO	HC	NOx	PM
25-50	0.41	0.51	0.06	0.31
51-250	0.16	0.28	0.14	0.44
>251	0.25	0.44	0.21	0.67

Source: 2009 POLA EI

Table 4.7: Useful Life by Vessel Type and Engine Type, years		
Vessel Type	Auxiliary Engines	Main Engines
Assist tug	23	21

Source: 2009 POLA EI

Table 4.8: Fuel Correction Factors for ULSD									
MY	CO	HC	NOx	SOx	PM	PM2.5 ¹	CO2	CH4	N2O
< 1995	1	0.72	0.93	0.043	0.72	0.72	1	0.72	0.93
1996+	1	0.72	0.95	0.043	0.8	0.8	1	0.72	0.95

Source: 2009 POLA EI

1. PM2.5 ULSD correction factor is assumed to be equivalent to the factor for PM.

Table II-4 Fuel Correction Factor				
Year	HP Range	MY	NOx	PM
1994-2006	<25	Pre-1995	0.93	0.75
	25-50	Pre-1999		
	51-100	Pre-1998		
	101-175	Pre-1997	0.948	0.822
	176+	Pre-1996		
	176+	1995+		
2007+	<25	Pre-1995	0.93	0.72
	25-50	Pre-1999		
	51-100	Pre-1998		
	101-175	Pre-1997	0.948	0.800
	176+	Pre-1996		
	<25	1995+		
	25-50	1999-2010	0.948	0.800
	51-100	1998-2010		
101-175	1997-2010			
176+	1996-2010	0.948	0.852	
All	2011+			

Source: CARB In-Use Harbor Craft Regulation

Table 1.3-973. Summary of Annual Marine Vessel GHG Emissions without Mitigation - Proposed Project

<i>Project Scenario/Activity</i>	Short Tons Per Year		
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
<i>Baseline</i>			
Ships - AQMD 40nm to 20nm	42,111	1	2
Ships - 20nm to PA	3,615	0	0
Ships - PA	1,398	0	0
Ships - Harbor Transit	508	0	0
Ships - Turning & Docking	598	0	0
Ships - Anchoring	227	0	0
Ships - Hotelling	15,494	0	1
AMP - Hotelling	-	-	-
Tugboats	396	0	0
Total	64,347	1	3
<i>Project Year 2012</i>			
Ships - AQMD 40nm to 20nm	47,016	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	23,565	0	1
AMP - Hotelling	-	-	-
Tugboats	375	0	0
Total	77,578	1	4
<i>Project Year 2015</i>			
Ships - AQMD 40nm to 20nm	54,520	1	3
Ships - 20nm to PA	4,613	0	0
Ships - PA	1,771	0	0
Ships - Harbor Transit	648	0	0
Ships - Turning & Docking	716	0	0
Ships - Anchoring	175	0	0
Ships - Hotelling	20,976	0	1
AMP - Hotelling	7,985	0	0
Tugboats	458	0	0
Total	91,862	2	4

Table 1.3-973. Summary of Annual Marine Vessel GHG Emissions without Mitigation - Proposed Project

<i>Project Scenario/Activity</i>	Short Tons Per Year		
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
<i>Project Year 2020</i>			
Ships - AQMD 40nm to 20nm	67,444	1	3
Ships - 20nm to PA	5,563	0	0
Ships - PA	2,128	0	0
Ships - Harbor Transit	775	0	0
Ships - Turning & Docking	844	0	0
Ships - Anchoring	224	0	0
Ships - Hotelling	15,724	0	1
AMP - Hotelling	9,683	0	0
Tugboats	542	0	0
Total	102,926	2	5
<i>Project Year 2025</i>			
Ships - AQMD 40nm to 20nm	81,213	2	4
Ships - 20nm to PA	6,379	0	0
Ships - PA	2,423	0	0
Ships - Harbor Transit	870	0	0
Ships - Turning & Docking	930	0	0
Ships - Anchoring	295	0	0
Ships - Hotelling	12,393	0	1
AMP - Hotelling	7,720	0	0
Tugboats	583	0	0
Total	112,807	2	5
<i>Project Year 2027</i>			
Ships - AQMD 40nm to 20nm	88,713	2	4
Ships - 20nm to PA	6,903	0	0
Ships - PA	2,618	0	0
Ships - Harbor Transit	937	0	0
Ships - Turning & Docking	1,013	0	0
Ships - Anchoring	300	0	0
Ships - Hotelling	12,794	0	1
AMP - Hotelling	8,012	0	0
Tugboats	625	0	0
Total	121,916	2	6

(1) There is no AMP usage assumed for the baseline.

Table 1.3-974. Summary of Annual Marine Vessel GHG Emissions with Mitigation - Proposed Project

<i>Project Scenario/Activity</i>	Short Tons Per Year		
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
Baseline			
Ships - AQMD 40nm to 20nm	42,111	1	2
Ships - 20nm to PA	3,615	0	0
Ships - PA	1,398	0	0
Ships - Harbor Transit	508	0	0
Ships - Turning & Docking	598	0	0
Ships - Anchoring	227	0	0
Ships - Hotelling	15,494	0	1
AMP - Hotelling	-	-	-
Tugboats	396	0	0
Total	64,347	1	3
Project Year 2012			
Ships - AQMD 40nm to 20nm	47,016	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	23,565	0	1
AMP - Hotelling	-	-	-
Tugboats	375	0	0
Total	77,578	1	4
Project Year 2015			
Ships - AQMD 40nm to 20nm	51,647	1	2
Ships - 20nm to PA	4,613	0	0
Ships - PA	1,771	0	0
Ships - Harbor Transit	648	0	0
Ships - Turning & Docking	716	0	0
Ships - Anchoring	175	0	0
Ships - Hotelling	20,976	0	1
AMP - Hotelling	7,985	0	0
Tugboats	458	0	0
Total	88,989	2	4

Table 1.3-974. Summary of Annual Marine Vessel GHG Emissions with Mitigation - Proposed Project

<i>Project Scenario/Activity</i>	Short Tons Per Year		
	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
Project Year 2020			
Ships - AQMD 40nm to 20nm	63,737	1	3
Ships - 20nm to PA	5,563	0	0
Ships - PA	2,128	0	0
Ships - Harbor Transit	775	0	0
Ships - Turning & Docking	844	0	0
Ships - Anchoring	224	0	0
Ships - Hotelling	15,724	0	1
AMP - Hotelling	9,683	0	0
Tugboats	542	0	0
Total	99,220	2	5
Project Year 2025			
Ships - AQMD 40nm to 20nm	76,408	1	4
Ships - 20nm to PA	6,379	0	0
Ships - PA	2,423	0	0
Ships - Harbor Transit	870	0	0
Ships - Turning & Docking	930	0	0
Ships - Anchoring	295	0	0
Ships - Hotelling	12,393	0	1
AMP - Hotelling	7,720	0	0
Tugboats	583	0	0
Total	108,002	2	5
Project Year 2027			
Ships - AQMD 40nm to 20nm	83,395	2	4
Ships - 20nm to PA	6,903	0	0
Ships - PA	2,618	0	0
Ships - Harbor Transit	937	0	0
Ships - Turning & Docking	1,013	0	0
Ships - Anchoring	300	0	0
Ships - Hotelling	10,269	0	1
AMP - Hotelling	9,515	0	0
Tugboats	625	0	0
Total	115,575	2	5

(1) There is no AMP usage assumed for the baseline.

Table 1.3-975. Summary of Annual Marine Vessel GHG Emissions without Mitigation - Alternative 1

<i>Short Tons Per Year</i>			
<i>Project Scenario/Activity</i>	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
Project Year 2012			
Ships - AQMD 40nm to 20nm	47,016	0.88	2.19
Ships - 20nm to PA	3,861	0.13	0.22
Ships - PA	1,475	0.07	0.09
Ships - Harbor Transit	534	0.07	0.05
Ships - Turning & Docking	605	0.02	0.04
Ships - Anchoring	147	0.00	0.01
Ships - Hotelling	23,565	0.19	1.31
AMP - Hotelling	-	-	-
Tugboats	375	0.01	0.02
Total	77,578	1.38	3.92
Project Year 2015			
Ships - AQMD 40nm to 20nm	47,017	0.88	2.19
Ships - 20nm to PA	3,861	0.13	0.22
Ships - PA	1,475	0.07	0.09
Ships - Harbor Transit	534	0.07	0.05
Ships - Turning & Docking	605	0.02	0.04
Ships - Anchoring	147	0.00	0.01
Ships - Hotelling	15,797	0.10	0.97
AMP - Hotelling	5,986	0.14	0.03
Tugboats	375	0.01	0.02
Total	75,797	1.43	3.61
Project Year 2020			
Ships - AQMD 40nm to 20nm	47,016	0.88	2.19
Ships - 20nm to PA	3,861	0.13	0.22
Ships - PA	1,475	0.07	0.09
Ships - Harbor Transit	534	0.07	0.05
Ships - Turning & Docking	605	0.02	0.04
Ships - Anchoring	147	0.00	0.01
Ships - Hotelling	11,866	0.05	0.81
AMP - Hotelling	7,284	0.17	0.04
Tugboats	375	0.01	0.02
Total	73,162	1.41	3.46
Project Year 2025			
Ships - AQMD 40nm to 20nm	59,942	1.12	2.79
Ships - 20nm to PA	4,810	0.17	0.27
Ships - PA	1,833	0.09	0.11
Ships - Harbor Transit	661	0.09	0.07
Ships - Turning & Docking	733	0.03	0.04
Ships - Anchoring	196	0.00	0.01
Ships - Hotelling	11,105	0.05	0.76
AMP - Hotelling	6,802	0.16	0.03
Tugboats	458	0.02	0.02
Total	86,540	1.72	4.12
Project Year 2027			
Ships - AQMD 40nm to 20nm	59,942	1.12	2.79
Ships - 20nm to PA	4,810	0.17	0.27
Ships - PA	1,833	0.09	0.11
Ships - Harbor Transit	661	0.09	0.07
Ships - Turning & Docking	733	0.03	0.04
Ships - Anchoring	196	0.00	0.01
Ships - Hotelling	11,274	0.05	0.77
AMP - Hotelling	6,905	0.16	0.04
Tugboats	458	0.02	0.02
Total	86,812	1.72	4.13

(1) There is no AMP usage assumed for the baseline.

Table 1.3-976. Summary of Annual Marine Vessel GHG Emissions without Mitigation - NEPA Baseline/Alternative 2

<i>Short Tons Per Year</i>			
<i>Project Scenario/Activity</i>	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
Project Year 2012			
Ships - AQMD 40nm to 20nm	47,016	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	23,565	0	1
AMP - Hotelling	-	-	-
Tugboats	375	0	0
Total	77,578	1.38	3.92
Project Year 2015			
Ships - AQMD 40nm to 20nm	47,017	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	15,797	0	1
AMP - Hotelling	5,986	0	0
Tugboats	375	0	0
Total	75,797	1.43	3.61
Project Year 2020			
Ships - AQMD 40nm to 20nm	47,016	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	11,866	0	1
AMP - Hotelling	7,284	0	0
Tugboats	375	0	0
Total	73,162	1.41	3.46
Project Year 2025			
Ships - AQMD 40nm to 20nm	59,942	1	3
Ships - 20nm to PA	4,810	0	0
Ships - PA	1,833	0	0
Ships - Harbor Transit	661	0	0
Ships - Turning & Docking	733	0	0
Ships - Anchoring	196	0	0
Ships - Hotelling	11,105	0	1
AMP - Hotelling	6,802	0	0
Tugboats	458	0	0
Total	86,540	1.72	4.12
Project Year 2027			
Ships - AQMD 40nm to 20nm	59,942	1	3
Ships - 20nm to PA	4,810	0	0
Ships - PA	1,833	0	0
Ships - Harbor Transit	661	0	0
Ships - Turning & Docking	733	0	0
Ships - Anchoring	196	0	0
Ships - Hotelling	11,274	0	1
AMP - Hotelling	6,905	0	0
Tugboats	458	0	0
Total	86,812	1.72	4.13

(1) There is no AMP usage assumed for the baseline.

Table 1.3-977. Summary of Annual Marine Vessel GHG Emissions without Mitigation - Alternative 3

<i>Short Tons Per Year</i>			
<i>Project Scenario/Activity</i>	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
Project Year 2012			
Ships - AQMD 40nm to 20nm	47,016	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	23,565	0	1
AMP - Hotelling	-	-	-
Tugboats	375	0	0
Total	77,578	1.38	3.92
Project Year 2015			
Ships - AQMD 40nm to 20nm	48,692	1	2
Ships - 20nm to PA	3,909	0	0
Ships - PA	1,490	0	0
Ships - Harbor Transit	538	0	0
Ships - Turning & Docking	594	0	0
Ships - Anchoring	176	0	0
Ships - Hotelling	15,461	0	1
AMP - Hotelling	5,781	0	0
Tugboats	375	0	0
Total	77,017	1.46	3.68
Project Year 2020			
Ships - AQMD 40nm to 20nm	59,942	1	3
Ships - 20nm to PA	4,810	0	0
Ships - PA	1,833	0	0
Ships - Harbor Transit	661	0	0
Ships - Turning & Docking	733	0	0
Ships - Anchoring	196	0	0
Ships - Hotelling	12,389	0	1
AMP - Hotelling	7,588	0	0
Tugboats	458	0	0
Total	88,610	1.74	4.21
Project Year 2025			
Ships - AQMD 40nm to 20nm	71,193	1	3
Ships - 20nm to PA	5,710	0	0
Ships - PA	2,175	0	0
Ships - Harbor Transit	785	0	0
Ships - Turning & Docking	872	0	0
Ships - Anchoring	216	0	0
Ships - Hotelling	11,146	0	1
AMP - Hotelling	6,903	0	0
Tugboats	542	0	0
Total	99,541	2.01	4.74
Project Year 2027			
Ships - AQMD 40nm to 20nm	71,193	1	3
Ships - 20nm to PA	5,710	0	0
Ships - PA	2,175	0	0
Ships - Harbor Transit	785	0	0
Ships - Turning & Docking	872	0	0
Ships - Anchoring	216	0	0
Ships - Hotelling	11,480	0	1
AMP - Hotelling	7,109	0	0
Tugboats	542	0	0
Total	100,081	2.01	4.77

(1) There is no AMP usage assumed for the baseline.

Table 1.3-978. Summary of Annual Marine Vessel GHG Emissions without Mitigation - Alternative 4

<i>Short Tons Per Year</i>			
<i>Project Scenario/Activity</i>	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
Project Year 2012			
Ships - AQMD 40nm to 20nm	47,016	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	23,565	0	1
AMP - Hotelling	-	-	-
Tugboats	375	0	0
Total	77,578	1.38	3.92
Project Year 2015			
Ships - AQMD 40nm to 20nm	48,692	1	2
Ships - 20nm to PA	3,909	0	0
Ships - PA	1,490	0	0
Ships - Harbor Transit	538	0	0
Ships - Turning & Docking	594	0	0
Ships - Anchoring	176	0	0
Ships - Hotelling	15,320	0	1
AMP - Hotelling	5,729	0	0
Tugboats	375	0	0
Total	76,824	1.46	3.67
Project Year 2020			
Ships - AQMD 40nm to 20nm	59,942	1	3
Ships - 20nm to PA	4,810	0	0
Ships - PA	1,833	0	0
Ships - Harbor Transit	661	0	0
Ships - Turning & Docking	733	0	0
Ships - Anchoring	196	0	0
Ships - Hotelling	12,281	0	1
AMP - Hotelling	7,522	0	0
Tugboats	458	0	0
Total	88,436	1.74	4.20
Project Year 2025			
Ships - AQMD 40nm to 20nm	71,193	1	3
Ships - 20nm to PA	5,710	0	0
Ships - PA	2,175	0	0
Ships - Harbor Transit	785	0	0
Ships - Turning & Docking	872	0	0
Ships - Anchoring	216	0	0
Ships - Hotelling	11,204	0	1
AMP - Hotelling	6,938	0	0
Tugboats	542	0	0
Total	99,634	2.01	4.75
Project Year 2027			
Ships - AQMD 40nm to 20nm	72,867	1	3
Ships - 20nm to PA	5,759	0	0
Ships - PA	2,190	0	0
Ships - Harbor Transit	788	0	0
Ships - Turning & Docking	862	0	0
Ships - Anchoring	245	0	0
Ships - Hotelling	11,217	0	1
AMP - Hotelling	6,860	0	0
Tugboats	542	0	0
Total	101,330	2.05	4.84

(1) There is no AMP usage assumed for the baseline.

Table 1.3-979. Summary of Annual Marine Vessel GHG Emissions without Mitigation - Alternatives 5 & 6

<i>Short Tons Per Year</i>			
<i>Project Scenario/Activity</i>	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
Project Year 2012			
Ships - AQMD 40nm to 20nm	47,016	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	23,565	0	1
AMP - Hotelling	-	-	-
Tugboats	375	0	0
Total	77,578	1.38	3.92
Project Year 2015			
Ships - AQMD 40nm to 20nm	54,520	1	3
Ships - 20nm to PA	4,613	0	0
Ships - PA	1,771	0	0
Ships - Harbor Transit	648	0	0
Ships - Turning & Docking	716	0	0
Ships - Anchoring	175	0	0
Ships - Hotelling	20,976	0	1
AMP - Hotelling	7,985	0	0
Tugboats	458	0	0
Total	91,862	1.69	4.37
Project Year 2020			
Ships - AQMD 40nm to 20nm	67,444	1	3
Ships - 20nm to PA	5,563	0	0
Ships - PA	2,128	0	0
Ships - Harbor Transit	775	0	0
Ships - Turning & Docking	844	0	0
Ships - Anchoring	224	0	0
Ships - Hotelling	15,724	0	1
AMP - Hotelling	9,683	0	0
Tugboats	542	0	0
Total	102,926	1.99	4.88
Project Year 2025			
Ships - AQMD 40nm to 20nm	81,213	2	4
Ships - 20nm to PA	6,379	0	0
Ships - PA	2,423	0	0
Ships - Harbor Transit	870	0	0
Ships - Turning & Docking	930	0	0
Ships - Anchoring	295	0	0
Ships - Hotelling	12,393	0	1
AMP - Hotelling	7,720	0	0
Tugboats	583	0	0
Total	112,807	2.29	5.38
Project Year 2027			
Ships - AQMD 40nm to 20nm	88,713	2	4
Ships - 20nm to PA	6,903	0	0
Ships - PA	2,618	0	0
Ships - Harbor Transit	937	0	0
Ships - Turning & Docking	1,013	0	0
Ships - Anchoring	300	0	0
Ships - Hotelling	12,794	0	1
AMP - Hotelling	8,012	0	0
Tugboats	625	0	0
Total	121,916	2.48	5.82

(1) There is no AMP usage assumed for the baseline.

Table 1.3-980. Summary of Annual Marine Vessel GHG Emissions with Mitigation - Alternative 1

Project Scenario/Activity	Tons Per Year		
	CO ₂	CH ₄	N ₂ O
Project Year 2012			
Ships - AQMD 40nm to 20nm	47,016	0.88	2.19
Ships - 20nm to PA	3,861	0.13	0.22
Ships - PA	1,475	0.07	0.09
Ships - Harbor Transit	534	0.07	0.05
Ships - Turning & Docking	605	0.02	0.04
Ships - Anchoring	147	0.00	0.01
Ships - Hotelling	23,565	0.19	1.31
AMP - Hotelling	-	-	-
Tugboats	375	0.01	0.02
Total	77,578	1.38	3.92
Project Year 2015			
Ships - AQMD 40nm to 20nm	44,414	0.82	2.08
Ships - 20nm to PA	3,861	0.13	0.22
Ships - PA	1,475	0.07	0.09
Ships - Harbor Transit	534	0.07	0.05
Ships - Turning & Docking	605	0.02	0.04
Ships - Anchoring	147	0.00	0.01
Ships - Hotelling	15,797	0.10	0.97
AMP - Hotelling	5,986	0.14	0.03
Tugboats	375	0.01	0.02
Total	73,193	1.37	3.50
Project Year 2020			
Ships - AQMD 40nm to 20nm	44,414	0.82	2.08
Ships - 20nm to PA	3,861	0.13	0.22
Ships - PA	1,475	0.07	0.09
Ships - Harbor Transit	534	0.07	0.05
Ships - Turning & Docking	605	0.02	0.04
Ships - Anchoring	147	0.00	0.01
Ships - Hotelling	11,866	0.05	0.81
AMP - Hotelling	7,284	0.17	0.04
Tugboats	375	0.01	0.02
Total	70,559	1.35	3.35
Project Year 2025			
Ships - AQMD 40nm to 20nm	56,504	1.04	2.64
Ships - 20nm to PA	4,810	0.17	0.27
Ships - PA	1,833	0.09	0.11
Ships - Harbor Transit	661	0.09	0.07
Ships - Turning & Docking	733	0.03	0.04
Ships - Anchoring	196	0.00	0.01
Ships - Hotelling	11,105	0.05	0.76
AMP - Hotelling	6,802	0.16	0.03
Tugboats	458	0.02	0.02
Total	83,102	1.64	3.97
Project Year 2027			
Ships - AQMD 40nm to 20nm	56,504	1.04	2.64
Ships - 20nm to PA	4,810	0.17	0.27
Ships - PA	1,833	0.09	0.11
Ships - Harbor Transit	661	0.09	0.07
Ships - Turning & Docking	733	0.03	0.04
Ships - Anchoring	196	0.00	0.01
Ships - Hotelling	9,098	0.03	0.68
AMP - Hotelling	8,200	0.19	0.04
Tugboats	458	0.02	0.02
Total	82,492	1.65	3.89

(1) There is no AMP usage assumed for the baseline.

Table 1.3-981. Summary of Annual Marine Vessel GHG Emissions with Mitigation - NEPA Baseline/Alternative 2

<i>Project Scenario/Activity</i>	<i>CO</i>	<i>VOC</i>	<i>NOx</i>
Project Year 2012			
Ships - AQMD 40nm to 20nm	44,414	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	23,565	0	1
AMP - Hotelling	-	-	-
Tugboats	375	0	0
Total	74,975	1.32	3.80
Project Year 2015			
Ships - AQMD 40nm to 20nm	44,414	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	15,797	0	1
AMP - Hotelling	5,986	0	0
Tugboats	375	0	0
Total	73,193	1.37	3.50
Project Year 2020			
Ships - AQMD 40nm to 20nm	44,414	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	11,866	0	1
AMP - Hotelling	7,284	0	0
Tugboats	375	0	0
Total	70,559	1.35	3.35
Project Year 2025			
Ships - AQMD 40nm to 20nm	56,504	1	3
Ships - 20nm to PA	4,810	0	0
Ships - PA	1,833	0	0
Ships - Harbor Transit	661	0	0
Ships - Turning & Docking	733	0	0
Ships - Anchoring	196	0	0
Ships - Hotelling	11,105	0	1
AMP - Hotelling	6,802	0	0
Tugboats	458	0	0
Total	83,102	1.64	3.97
Project Year 2027			
Ships - AQMD 40nm to 20nm	56,504	1	3
Ships - 20nm to PA	4,810	0	0
Ships - PA	1,833	0	0
Ships - Harbor Transit	661	0	0
Ships - Turning & Docking	733	0	0
Ships - Anchoring	196	0	0
Ships - Hotelling	9,098	0	1
AMP - Hotelling	8,200	0	0
Tugboats	458	0	0
Total	82,492	1.65	3.89

(1) There is no AMP usage assumed for the baseline.

Table 1.3-982. Summary of Annual Marine Vessel GHG Emissions with Mitigation - Alternative 3

<i>Project Scenario/Activity</i>	<i>CO</i>	<i>VOC</i>	<i>NOx</i>
Project Year 2012			
Ships - AQMD 40nm to 20nm	47,016	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	23,565	0	1
AMP - Hotelling	-	-	-
Tugboats	375	0	0
Total	77,578	1.38	3.92
Project Year 2015			
Ships - AQMD 40nm to 20nm	45,901	1	2
Ships - 20nm to PA	3,909	0	0
Ships - PA	1,490	0	0
Ships - Harbor Transit	538	0	0
Ships - Turning & Docking	594	0	0
Ships - Anchoring	176	0	0
Ships - Hotelling	15,461	0	1
AMP - Hotelling	5,781	0	0
Tugboats	375	0	0
Total	74,226	1.40	3.56
Project Year 2020			
Ships - AQMD 40nm to 20nm	56,504	1	3
Ships - 20nm to PA	4,810	0	0
Ships - PA	1,833	0	0
Ships - Harbor Transit	661	0	0
Ships - Turning & Docking	733	0	0
Ships - Anchoring	196	0	0
Ships - Hotelling	12,389	0	1
AMP - Hotelling	7,588	0	0
Tugboats	458	0	0
Total	85,172	1.67	4.06
Project Year 2025			
Ships - AQMD 40nm to 20nm	67,107	1	3
Ships - 20nm to PA	5,710	0	0
Ships - PA	2,175	0	0
Ships - Harbor Transit	785	0	0
Ships - Turning & Docking	872	0	0
Ships - Anchoring	216	0	0
Ships - Hotelling	11,146	0	1
AMP - Hotelling	6,903	0	0
Tugboats	542	0	0
Total	95,455	1.92	4.56
Project Year 2027			
Ships - AQMD 40nm to 20nm	67,107	1	3
Ships - 20nm to PA	5,710	0	0
Ships - PA	2,175	0	0
Ships - Harbor Transit	785	0	0
Ships - Turning & Docking	872	0	0
Ships - Anchoring	216	0	0
Ships - Hotelling	9,239	0	1
AMP - Hotelling	8,442	0	0
Tugboats	542	0	0
Total	95,087	1.93	4.50

(1) There is no AMP usage assumed for the baseline.

Table 1.3-983. Summary of Annual Marine Vessel GHG Emissions with Mitigation - Alternative 4

<i>Project Scenario/Activity</i>	<i>CO</i>	<i>VOC</i>	<i>NOx</i>
Project Year 2012			
Ships - AQMD 40nm to 20nm	47,016	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	23,565	0	1
AMP - Hotelling	-	-	-
Tugboats	375	0	0
Total	77,578	1.38	3.92
Project Year 2015			
Ships - AQMD 40nm to 20nm	45,901	1	2
Ships - 20nm to PA	3,909	0	0
Ships - PA	1,490	0	0
Ships - Harbor Transit	538	0	0
Ships - Turning & Docking	594	0	0
Ships - Anchoring	176	0	0
Ships - Hotelling	15,320	0	1
AMP - Hotelling	5,729	0	0
Tugboats	375	0	0
Total	74,033	1.40	3.55
Project Year 2020			
Ships - AQMD 40nm to 20nm	56,504	1	3
Ships - 20nm to PA	4,810	0	0
Ships - PA	1,833	0	0
Ships - Harbor Transit	661	0	0
Ships - Turning & Docking	733	0	0
Ships - Anchoring	196	0	0
Ships - Hotelling	12,281	0	1
AMP - Hotelling	7,522	0	0
Tugboats	458	0	0
Total	84,998	1.67	4.05
Project Year 2025			
Ships - AQMD 40nm to 20nm	67,107	1	3
Ships - 20nm to PA	5,710	0	0
Ships - PA	2,175	0	0
Ships - Harbor Transit	785	0	0
Ships - Turning & Docking	872	0	0
Ships - Anchoring	216	0	0
Ships - Hotelling	11,204	0	1
AMP - Hotelling	6,938	0	0
Tugboats	542	0	0
Total	95,548	1.92	4.57
Project Year 2027			
Ships - AQMD 40nm to 20nm	68,594	1	3
Ships - 20nm to PA	5,759	0	0
Ships - PA	2,190	0	0
Ships - Harbor Transit	788	0	0
Ships - Turning & Docking	862	0	0
Ships - Anchoring	245	0	0
Ships - Hotelling	9,054	0	1
AMP - Hotelling	8,147	0	0
Tugboats	542	0	0
Total	96,180	1.96	4.56

(1) There is no AMP usage assumed for the baseline.

Table 1.3-984. Summary of Annual Marine Vessel GHG Emissions with Mitigation - Alternatives 5 & 6

<i>Project Scenario/Activity</i>	<i>CO</i>	<i>VOC</i>	<i>NOx</i>
Project Year 2012			
Ships - AQMD 40nm to 20nm	47,016	1	2
Ships - 20nm to PA	3,861	0	0
Ships - PA	1,475	0	0
Ships - Harbor Transit	534	0	0
Ships - Turning & Docking	605	0	0
Ships - Anchoring	147	0	0
Ships - Hotelling	23,565	0	1
AMP - Hotelling	-	-	-
Tugboats	375	0	0
Total	77,578	1.38	3.92
Project Year 2015			
Ships - AQMD 40nm to 20nm	51,647	1	2
Ships - 20nm to PA	4,613	0	0
Ships - PA	1,771	0	0
Ships - Harbor Transit	648	0	0
Ships - Turning & Docking	716	0	0
Ships - Anchoring	175	0	0
Ships - Hotelling	20,976	0	1
AMP - Hotelling	7,985	0	0
Tugboats	458	0	0
Total	88,989	1.63	4.24
Project Year 2020			
Ships - AQMD 40nm to 20nm	63,737	1	3
Ships - 20nm to PA	5,563	0	0
Ships - PA	2,128	0	0
Ships - Harbor Transit	775	0	0
Ships - Turning & Docking	844	0	0
Ships - Anchoring	224	0	0
Ships - Hotelling	15,724	0	1
AMP - Hotelling	9,683	0	0
Tugboats	542	0	0
Total	99,220	1.91	4.71
Project Year 2025			
Ships - AQMD 40nm to 20nm	76,408	1	4
Ships - 20nm to PA	6,379	0	0
Ships - PA	2,423	0	0
Ships - Harbor Transit	870	0	0
Ships - Turning & Docking	930	0	0
Ships - Anchoring	295	0	0
Ships - Hotelling	12,393	0	1
AMP - Hotelling	7,720	0	0
Tugboats	583	0	0
Total	108,002	2.18	5.17
Project Year 2027			
Ships - AQMD 40nm to 20nm	83,395	2	4
Ships - 20nm to PA	6,903	0	0
Ships - PA	2,618	0	0
Ships - Harbor Transit	937	0	0
Ships - Turning & Docking	1,013	0	0
Ships - Anchoring	300	0	0
Ships - Hotelling	10,269	0	1
AMP - Hotelling	9,515	0	0
Tugboats	625	0	0
Total	115,575	2.37	5.48

(1) There is no AMP usage assumed for the baseline.

Table 1.4-1 Locomotive Total Annual Emissions Summary

<i>Emissions Summary</i>		Annual Locomotive Emissions, tpy									
Locomotive Description	PM10	PM2.5	DPM	NOx	SOx	CO	VOC	CO2	N2O	CH4	
CEQA Baseline	7.16	6.59	7.16	243.66	1.68	39.90	13.14	36,655	0.98	3.00	
<i>Study Year 2012</i>											
Proposed Project	7.67	7.06	7.67	272.78	0.20	51.16	13.73	47,889	1.28	3.92	
NEPA Baseline, Alternatives 1&2	7.67	7.06	7.67	272.78	0.20	51.16	13.73	47,889	1.28	3.92	
Alternative 3	7.67	7.06	7.67	272.78	0.20	51.16	13.73	47,889	1.28	3.92	
Alternative 4	7.67	7.06	7.67	272.78	0.20	51.16	13.73	47,889	1.28	3.92	
Alternative 5	7.67	7.06	7.67	272.78	0.20	51.16	13.73	47,889	1.28	3.92	
Alternative 6	7.67	7.06	7.67	272.78	0.20	51.16	13.73	47,889	1.28	3.92	
<i>Study Year 2015</i>											
Proposed Project	9.46	8.70	9.46	360.77	0.29	74.85	16.32	71,262	1.90	5.84	
NEPA Baseline, Alternatives 1&2	6.50	5.98	6.50	248.66	0.20	51.71	11.35	48,433	1.29	3.97	
Alternative 3	7.56	6.95	7.56	288.66	0.23	59.96	13.12	56,577	1.51	4.63	
Alternative 4	8.64	7.95	8.64	329.75	0.26	68.45	14.95	64,947	1.73	5.32	
Alternative 5	9.46	8.70	9.46	360.77	0.29	74.85	16.32	71,262	1.90	5.84	
Alternative 6	9.46	8.70	9.46	360.77	0.29	74.85	16.32	71,262	1.90	5.84	
<i>Study Year 2020</i>											
Proposed Project	6.99	6.44	6.99	300.77	0.31	80.33	11.41	76,675	2.04	6.29	
NEPA Baseline, Alternatives 1&2	5.15	4.74	5.15	221.53	0.23	59.02	8.51	55,649	1.48	4.56	
Alternative 3	6.02	5.54	6.02	258.89	0.27	69.07	9.88	65,562	1.75	5.37	
Alternative 4	6.21	5.72	6.21	267.13	0.28	71.29	10.18	67,750	1.81	5.55	
Alternative 5	6.99	6.44	6.99	300.77	0.31	80.33	11.41	76,675	2.04	6.29	
Alternative 6	6.99	6.44	6.99	300.77	0.31	80.33	11.41	76,675	2.04	6.29	
<i>Study Year 2025</i>											
Proposed Project	5.08	4.68	5.08	233.79	0.32	81.95	8.70	78,015	2.08	6.39	
NEPA Baseline, Alternatives 1&2	3.80	3.50	3.80	174.47	0.23	60.61	6.60	56,955	1.52	4.66	
Alternative 3	4.48	4.13	4.48	206.05	0.28	71.97	7.72	68,167	1.82	5.59	
Alternative 4	4.45	4.10	4.45	204.49	0.28	71.41	7.66	67,611	1.80	5.54	
Alternative 5	5.08	4.68	5.08	233.79	0.32	81.95	8.70	78,015	2.08	6.39	
Alternative 6	5.08	4.68	5.08	233.77	0.32	81.95	8.70	78,008	2.08	6.39	
<i>Study Year 2027</i>											
Proposed Project	4.62	4.25	4.62	212.78	0.33	84.15	8.00	80,106	2.14	6.57	
NEPA Baseline, Alternatives 1&2	3.41	3.14	3.41	156.72	0.24	61.19	6.01	57,450	1.53	4.70	
Alternative 3	4.04	3.72	4.04	185.96	0.28	73.16	7.05	69,265	1.85	5.68	
Alternative 4	4.07	3.75	4.07	187.22	0.28	73.68	7.09	69,775	1.86	5.72	
Alternative 5	4.62	4.25	4.62	212.78	0.33	84.15	8.00	80,106	2.14	6.57	
Alternative 6	4.62	4.25	4.62	212.77	0.33	84.14	8.00	80,099	2.14	6.57	

Table 1.4-2 Locomotive Total Peak Daily Emissions Summary

<i>Emissions Summary</i>		Peak Daily Locomotive Emissions, lbs/day						
Locomotive Description	PM10	PM2.5	DPM	NOx	SOx	CO	VOC	
CEQA Baseline	50.70	46.67	50.70	1,718.52	12.04	279.78	92.42	
<i>Study Year 2012</i>								
Proposed Project	47.99	44.17	47.99	1,703.47	1.23	318.93	85.56	
NEPA Baseline, Alternatives 1&2	47.99	44.17	47.99	1,703.47	1.23	318.93	85.56	
Alternative 3	47.99	44.17	47.99	1,703.47	1.23	318.93	85.56	
Alternative 4	47.99	44.17	47.99	1,703.47	1.23	318.93	85.56	
Alternative 5	47.99	44.17	47.99	1,703.47	1.23	318.93	85.56	
Alternative 6	47.99	44.17	47.99	1,703.47	1.23	318.93	85.56	
<i>Study Year 2015</i>								
Proposed Project	57.32	52.76	57.32	2,185.77	1.76	453.25	98.72	
NEPA Baseline, Alternatives 1&2	40.17	36.97	40.17	1,534.93	1.23	318.93	69.82	
Alternative 3	43.60	40.13	43.60	1,665.10	1.34	345.79	75.60	
Alternative 4	57.32	52.76	57.32	2,185.77	1.76	453.25	98.72	
Alternative 5	57.32	52.76	57.32	2,185.77	1.76	453.25	98.72	
Alternative 6	57.32	52.76	57.32	2,185.77	1.76	453.25	98.72	
<i>Study Year 2020</i>								
Proposed Project	41.76	38.44	41.76	1,796.55	1.86	480.12	67.94	
NEPA Baseline, Alternatives 1&2	30.16	27.77	30.16	1,297.07	1.34	345.79	49.69	
Alternative 3	39.44	36.31	39.44	1,696.65	1.76	453.25	64.29	
Alternative 4	39.44	36.31	39.44	1,696.65	1.76	453.25	64.29	
Alternative 5	41.76	38.44	41.76	1,796.55	1.86	480.12	67.94	
Alternative 6	41.76	38.44	41.76	1,796.55	1.86	480.12	67.94	
<i>Study Year 2025</i>								
Proposed Project	31.48	28.98	31.48	1,448.41	1.97	509.27	53.57	
NEPA Baseline, Alternatives 1&2	22.60	20.81	22.60	1,037.73	1.40	361.52	39.07	
Alternative 3	28.25	26.01	28.25	1,299.07	1.76	455.54	48.30	
Alternative 4	28.25	26.01	28.25	1,299.07	1.76	455.54	48.30	
Alternative 5	31.48	28.98	31.48	1,448.41	1.97	509.27	53.57	
Alternative 6	33.09	30.47	33.09	1,523.08	2.08	536.14	56.21	
<i>Study Year 2027</i>								
Proposed Project	29.28	26.96	29.28	1,350.75	2.08	536.79	50.42	
NEPA Baseline, Alternatives 1&2	20.80	19.16	20.80	957.22	1.45	375.60	36.43	
Alternative 3	25.04	23.06	25.04	1,153.98	1.76	456.20	43.42	
Alternative 4	26.45	24.36	26.45	1,219.57	1.87	483.06	45.76	
Alternative 5	29.28	26.96	29.28	1,350.75	2.08	536.79	50.42	
Alternative 6	29.28	26.96	29.28	1,350.75	2.08	536.79	50.42	

Table 1.4-3 Locomotive Incremental Peak Daily Emissions Summary

<i>CEQA Impacts</i>	Locomotive Description	Incremental Peak Daily Locomotive Emissions, lbs/day						
		PM10	PM2.5	DPM	NOx	SOx	CO	HC (VOC)
<i>Study Year 2012</i>								
	Proposed Project	(2.72)	(2.50)	(2.72)	(15.05)	(10.81)	39.15	(6.87)
	NEPA Baseline, Alternatives 1&2	(2.72)	(2.50)	(2.72)	(15.05)	(10.81)	39.15	(6.87)
	Alternative 3	(2.72)	(2.50)	(2.72)	(15.05)	(10.81)	39.15	(6.87)
	Alternative 4	(2.72)	(2.50)	(2.72)	(15.05)	(10.81)	39.15	(6.87)
	Alternative 5	(2.72)	(2.50)	(2.72)	(15.05)	(10.81)	39.15	(6.87)
	Alternative 6	(2.72)	(2.50)	(2.72)	(15.05)	(10.81)	39.15	(6.87)
<i>Study Year 2015</i>								
	Proposed Project	6.62	6.09	6.62	467.25	(10.29)	173.48	6.30
	NEPA Baseline, Alternatives 1&2	(10.54)	(9.69)	(10.54)	(183.59)	(10.81)	39.15	(22.60)
	Alternative 3	(7.11)	(6.54)	(7.11)	(53.42)	(10.71)	66.02	(16.82)
	Alternative 4	6.62	6.09	6.62	467.25	(10.29)	173.48	6.30
	Alternative 5	6.62	6.09	6.62	467.25	(10.29)	173.48	6.30
	Alternative 6	6.62	6.09	6.62	467.25	(10.29)	173.48	6.30
<i>Study Year 2020</i>								
	Proposed Project	(8.94)	(8.23)	(8.94)	78.02	(10.18)	200.34	(24.48)
	NEPA Baseline, Alternatives 1&2	(20.55)	(18.90)	(20.55)	(421.45)	(10.71)	66.02	(42.74)
	Alternative 3	(11.26)	(10.36)	(11.26)	(21.87)	(10.29)	173.48	(28.13)
	Alternative 4	(11.26)	(10.36)	(11.26)	(21.87)	(10.29)	173.48	(28.13)
	Alternative 5	(8.94)	(8.23)	(8.94)	78.02	(10.18)	200.34	(24.48)
	Alternative 6	(8.94)	(8.23)	(8.94)	78.02	(10.18)	200.34	(24.48)
<i>Study Year 2025</i>								
	Proposed Project	(19.22)	(17.69)	(19.22)	(270.11)	(10.07)	229.50	(38.85)
	NEPA Baseline, Alternatives 1&2	(28.10)	(25.86)	(28.10)	(680.79)	(10.65)	81.74	(53.35)
	Alternative 3	(22.45)	(20.66)	(22.45)	(419.45)	(10.28)	175.77	(44.13)
	Alternative 4	(22.45)	(20.66)	(22.45)	(419.45)	(10.28)	175.77	(44.13)
	Alternative 5	(19.22)	(17.69)	(19.22)	(270.11)	(10.07)	229.50	(38.85)
	Alternative 6	(17.61)	(16.20)	(17.61)	(195.44)	(9.97)	256.36	(36.22)
<i>Study Year 2027</i>								
	Proposed Project	(21.42)	(19.71)	(21.42)	(367.77)	(9.96)	257.02	(42.00)
	NEPA Baseline, Alternatives 1&2	(29.90)	(27.51)	(29.90)	(761.30)	(10.59)	95.83	(56.00)
	Alternative 3	(25.66)	(23.61)	(25.66)	(564.54)	(10.28)	176.42	(49.00)
	Alternative 4	(24.25)	(22.31)	(24.25)	(498.95)	(10.17)	203.29	(46.67)
	Alternative 5	(21.42)	(19.71)	(21.42)	(367.77)	(9.96)	257.02	(42.00)
	Alternative 6	(21.42)	(19.71)	(21.42)	(367.77)	(9.96)	257.02	(42.00)

Table 1.4-4 Locomotive Incremental Annual Emissions Summary

CEQA Impacts	Locomotive Description	Incremental Annual Avg Daily Locomotive Emissions, lbs/day (criteria) or short tpy (GHGs)									
		PM10	PM2.5	DPM	NOx	SOx	CO	HC (VOC)	CO2	N2O	CH4
<i>Study Year 2012</i>											
	Proposed Project	2.82	2.59	2.82	159.56	(8.10)	61.67	3.21	11,235	0.30	0.92
	NEPA Baseline, Alternatives 1&2	2.82	2.59	2.82	159.56	(8.10)	61.67	3.21	11,235	0.30	0.92
	Alternative 3	2.82	2.59	2.82	159.56	(8.10)	61.67	3.21	11,235	0.30	0.92
	Alternative 4	2.82	2.59	2.82	159.56	(8.10)	61.67	3.21	11,235	0.30	0.92
	Alternative 5	2.82	2.59	2.82	159.56	(8.10)	61.67	3.21	11,235	0.30	0.92
	Alternative 6	2.82	2.59	2.82	159.56	(8.10)	61.67	3.21	11,235	0.30	0.92
<i>Study Year 2015</i>											
	Proposed Project	12.59	11.58	12.59	641.68	(7.59)	191.47	17.44	34,607	0.92	2.84
	NEPA Baseline, Alternatives 1&2	(3.60)	(3.31)	(3.60)	27.40	(8.09)	64.69	(9.84)	11,778	0.31	0.97
	Alternative 3	2.17	2.00	2.17	246.56	(7.91)	109.92	(0.11)	19,923	0.53	1.64
	Alternative 4	8.11	7.46	8.11	471.76	(7.73)	156.40	9.89	28,292	0.76	2.32
	Alternative 5	12.59	11.58	12.59	641.68	(7.59)	191.47	17.44	34,607	0.92	2.84
	Alternative 6	12.59	11.58	12.59	641.68	(7.59)	191.47	17.44	34,607	0.92	2.84
<i>Study Year 2020</i>											
	Proposed Project	(0.91)	(0.84)	(0.91)	312.95	(7.47)	221.53	(9.49)	40,021	1.07	3.29
	NEPA Baseline, Alternatives 1&2	(11.00)	(10.12)	(11.00)	(121.24)	(7.93)	104.77	(25.36)	18,995	0.51	1.56
	Alternative 3	(6.24)	(5.74)	(6.24)	83.46	(7.71)	159.82	(17.88)	28,908	0.77	2.37
	Alternative 4	(5.19)	(4.78)	(5.19)	128.63	(7.67)	171.97	(16.23)	31,095	0.83	2.55
	Alternative 5	(0.91)	(0.84)	(0.91)	312.95	(7.47)	221.53	(9.49)	40,021	1.07	3.29
	Alternative 6	(0.91)	(0.84)	(0.91)	312.95	(7.47)	221.53	(9.49)	40,021	1.07	3.29
<i>Study Year 2025</i>											
	Proposed Project	(11.36)	(10.45)	(11.36)	(54.04)	(7.44)	230.41	(24.34)	41,360	1.10	3.40
	NEPA Baseline, Alternatives 1&2	(18.39)	(16.92)	(18.39)	(379.11)	(7.90)	113.46	(35.82)	20,301	0.54	1.67
	Alternative 3	(14.65)	(13.48)	(14.65)	(206.05)	(7.65)	175.73	(29.71)	31,513	0.84	2.59
	Alternative 4	(14.84)	(13.65)	(14.84)	(214.62)	(7.67)	172.64	(30.01)	30,957	0.83	2.54
	Alternative 5	(11.36)	(10.45)	(11.36)	(54.04)	(7.44)	230.41	(24.34)	41,360	1.10	3.40
	Alternative 6	(11.37)	(10.46)	(11.37)	(54.16)	(7.44)	230.37	(24.35)	41,353	1.10	3.40
<i>Study Year 2027</i>											
	Proposed Project	(13.93)	(12.81)	(13.93)	(169.17)	(7.39)	242.44	(28.15)	43,452	1.16	3.57
	NEPA Baseline, Alternatives 1&2	(20.54)	(18.90)	(20.54)	(476.36)	(7.89)	116.62	(39.08)	20,795	0.55	1.71
	Alternative 3	(17.09)	(15.72)	(17.09)	(316.17)	(7.63)	182.23	(33.38)	32,610	0.87	2.68
	Alternative 4	(16.94)	(15.59)	(16.94)	(309.26)	(7.62)	185.06	(33.14)	33,120	0.88	2.72
	Alternative 5	(13.93)	(12.81)	(13.93)	(169.17)	(7.39)	242.44	(28.15)	43,452	1.16	3.57
	Alternative 6	(13.93)	(12.81)	(13.93)	(169.27)	(7.40)	242.40	(28.16)	43,445	1.16	3.57

Table 1.4-5 Proposed Project Annual Locomotive Emissions

CEQA Baseline Emissions

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC	VOC			
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.21	0.20	0.21	9.35	0.003	1.08	0.56	394	0.010	0.029	
On-Dock Line Haul, while in Port ^c	1.59	1.47	1.59	53.22	0.398	8.48	2.83	3,228	0.086	0.265	
Off-Dock Line Haul, in Railyard ^d	0.36	0.33	0.36	12.13	0.091	1.93	0.65	736	0.020	0.060	
Line Haul, in SCAQMD ^e	4.70	4.32	4.70	156.83	1.172	25.00	8.35	30,985	0.827	2.545	
Total Locomotive Emissions	7.16	6.59	7.16	243.66	1.675	39.90	13.14	36,655	0.976	2.998	

Project Year 2012

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC	VOC			
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.16	0.15	0.16	7.07	0.002	0.87	0.42	317	0.008	0.024	
On-Dock Line Haul, while in Port ^c	1.65	1.52	1.65	57.91	0.042	10.71	2.87	4,074	0.109	0.335	
Off-Dock Line Haul, in Railyard ^d	0.47	0.44	0.47	16.67	0.012	3.08	0.83	1,173	0.031	0.096	
Line Haul, in SCAQMD ^e	5.10	4.69	5.10	179.00	0.129	33.10	8.87	41,014	1.095	3.369	
Total Locomotive Emissions	7.67	7.06	7.67	272.78	0.197	51.16	13.73	47,889	1.276	3.921	

Project Year 2015

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC	VOC			
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.69	0.002	0.87	0.39	317	0.008	0.024	
On-Dock Line Haul, while in Port ^c	2.09	1.93	2.09	79.40	0.06	16.39	3.53	6,235	0.166	0.512	
Off-Dock Line Haul, in Railyard ^d	0.56	0.51	0.56	21.17	0.02	4.37	0.94	1,663	0.044	0.137	
Line Haul, in SCAQMD ^e	6.36	5.85	6.36	241.37	0.195	49.82	10.72	61,735	1.648	5.071	
Total Locomotive Emissions	9.46	8.70	9.46	360.77	0.290	74.85	16.32	71,262	1.900	5.841	

Project Year 2020

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC	VOC			
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.13	0.12	0.13	5.82	0.00	0.87	0.33	317.08	0.01	0.02	
On-Dock Line Haul, while in Port ^c	1.53	1.40	1.53	65.67	0.07	17.66	2.40	6,719	0.179	0.552	
Off-Dock Line Haul, in Railyard ^d	0.41	0.37	0.41	17.51	0.02	4.71	0.64	1,792	0.048	0.147	
Line Haul, in SCAQMD ^e	4.64	4.27	4.64	199.64	0.210	53.69	7.30	66,535	1.776	5.465	
Total Locomotive Emissions	6.99	6.44	6.99	300.77	0.311	80.33	11.41	76,675	2.045	6.286	

Project Year 2025

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC	VOC			
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.92	0.004	1.28	0.37	470	0.012	0.035	
On-Dock Line Haul, while in Port ^c	1.01	0.93	1.01	46.66	0.07	16.79	1.65	6,387	0.170	0.525	
Off-Dock Line Haul, in Railyard ^d	0.36	0.33	0.36	16.50	0.02	5.94	0.58	2,259	0.060	0.186	
Line Haul, in SCAQMD ^e	3.28	3.02	3.28	151.59	0.213	54.54	5.35	67,587	1.804	5.551	
Total Locomotive Emissions	5.08	4.68	5.08	233.79	0.317	81.95	8.70	78,015	2.080	6.394	

Project Year 2027

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC	VOC			
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.96	0.004	1.40	0.37	514	0.013	0.038	
On-Dock Line Haul, while in Port ^c	0.88	0.81	0.88	40.99	0.07	16.79	1.46	6,387	0.171	0.525	
Off-Dock Line Haul, in Railyard ^d	0.34	0.32	0.34	15.99	0.03	6.55	0.57	2,491	0.067	0.205	
Line Haul, in SCAQMD ^e	2.94	2.71	2.94	136.73	0.219	56.00	4.86	69,402	1.853	5.700	
Total Locomotive Emissions	4.62	4.25	4.62	212.78	0.326	84.15	8.00	80,106	2.136	6.566	

Table 1.4-6 Proposed Project Peak Daily Locomotive Emissions

CEQA Baseline Emissions

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.06	18.67	4.08
Off-Port Switchers ^b	1.16	1.07	1.16	51.25	0.02	5.89	3.09
On-Dock Line Haul, while in Port ^c	11.13	10.24	11.13	371.71	2.78	59.26	19.80
Off-Dock Line Haul, in Railyard ^d	2.97	2.73	2.97	99.12	0.74	15.80	5.28
Line Haul, in SCAQMD ^e	33.83	31.13	33.83	1,130.01	8.44	180.15	60.18
Total Locomotive Emissions	50.70	46.67	50.70	1,718.52	12.04	279.78	92.42

Project Year 2012

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.87	0.80	0.87	38.73	0.013	4.75	2.28
On-Dock Line Haul, while in Port ^c	10.95	10.08	10.95	384.62	0.28	71.11	19.06
Off-Dock Line Haul, in Railyard ^d	2.43	2.24	2.43	85.47	0.06	15.80	4.24
Line Haul, in SCAQMD ^e	32.12	29.55	32.12	1,128.23	0.815	208.60	55.91
Total Locomotive Emissions	47.99	44.17	47.99	1,703.47	1.232	318.93	85.56

Project Year 2015

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.82	0.75	0.82	36.68	0.013	4.75	2.16
On-Dock Line Haul, while in Port ^c	13.12	12.07	13.12	497.70	0.40	102.72	22.10
Off-Dock Line Haul, in Railyard ^d	3.03	2.78	3.03	114.85	0.09	23.70	5.10
Line Haul, in SCAQMD ^e	38.75	35.65	38.75	1,470.12	1.185	303.41	65.28
Total Locomotive Emissions	57.32	52.76	57.32	2,185.77	1.756	453.25	98.72

Project Year 2020

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.70	0.64	0.70	31.90	0.013	4.75	1.80
On-Dock Line Haul, while in Port ^c	9.56	8.79	9.56	411.33	0.43	110.62	15.03
Off-Dock Line Haul, in Railyard ^d	2.05	1.88	2.05	88.14	0.09	23.70	3.22
Line Haul, in SCAQMD ^e	27.85	25.62	27.85	1,198.74	1.259	322.38	43.81
Total Locomotive Emissions	41.76	38.44	41.76	1,796.55	1.861	480.12	67.94

Project Year 2025

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.81	0.74	0.81	37.94	0.019	7.04	2.03
On-Dock Line Haul, while in Port ^c	6.65	6.12	6.65	307.46	0.43	110.62	10.86
Off-Dock Line Haul, in Railyard ^d	1.90	1.75	1.90	87.85	0.12	31.61	3.10
Line Haul, in SCAQMD ^e	20.51	18.87	20.51	948.74	1.333	341.34	33.50
Total Locomotive Emissions	31.48	28.98	31.48	1,448.41	1.973	509.27	53.57

Project Year 2027

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.83	0.76	0.83	38.16	0.021	7.69	2.03
On-Dock Line Haul, while in Port ^c	5.82	5.35	5.82	270.07	0.43	110.62	9.60
Off-Dock Line Haul, in Railyard ^d	2.08	1.91	2.08	96.45	0.15	39.51	3.43
Line Haul, in SCAQMD ^e	18.95	17.43	18.95	879.65	1.407	360.30	31.28
Total Locomotive Emissions	29.28	26.96	29.28	1,350.75	2.079	536.79	50.42

Port of Los Angeles
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Railroad Locomotive Emissions

Table 1.4-7 Alternatives 1 and 2 (incl. NEPA Baseline) Annual Locomotive Emissions

CEQA Baseline Emissions

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.21	0.20	0.21	9.35	0.003	1.08	0.56	394	0.010	0.029	
On-Dock Line Haul, while in Port ^c	1.59	1.47	1.59	53.22	0.398	8.48	2.83	3,228	0.086	0.265	
Off-Dock Line Haul, in Railyard ^d	0.36	0.33	0.36	12.13	0.091	1.93	0.65	736	0.020	0.060	
Line Haul, in SCAQMD ^e	4.70	4.32	4.70	156.83	1.172	25.00	8.35	30,985	0.827	2.545	
Total Locomotive Emissions	7.16	6.59	7.16	243.66	1.675	39.90	13.14	36,655	0.976	2.998	

NEPA/Alt 1/Alt 2: 2012

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.16	0.15	0.16	7.07	0.002	0.87	0.42	317	0.008	0.024	
On-Dock Line Haul, while in Port ^c	1.65	1.52	1.65	57.91	0.042	10.71	2.87	4,074	0.109	0.335	
Off-Dock Line Haul, in Railyard ^d	0.47	0.44	0.47	16.67	0.012	3.08	0.83	1,173	0.031	0.096	
Line Haul, in SCAQMD ^e	5.10	4.69	5.10	179.00	0.129	33.10	8.87	41,014	1.095	3.369	
Total Locomotive Emissions	7.67	7.06	7.67	272.78	0.197	51.16	13.73	47,889	1.276	3.921	

NEPA/Alt 1/Alt 2: 2015

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.69	0.002	0.87	0.39	317	0.008	0.024	
On-Dock Line Haul, while in Port ^c	1.38	1.27	1.38	52.33	0.04	10.80	2.32	4,109	0.110	0.338	
Off-Dock Line Haul, in Railyard ^d	0.40	0.37	0.40	15.27	0.01	3.15	0.68	1,199	0.032	0.098	
Line Haul, in SCAQMD ^e	4.28	3.93	4.28	162.24	0.131	33.48	7.20	41,495	1.108	3.408	
Total Locomotive Emissions	6.50	5.98	6.50	248.66	0.199	51.71	11.35	48,433	1.291	3.966	

NEPA/Alt 1/Alt 2: 2020

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.13	0.12	0.13	5.82	0.00	0.87	0.33	317.08	0.01	0.02	
On-Dock Line Haul, while in Port ^c	1.11	1.02	1.11	47.65	0.05	12.81	1.74	4,875	0.130	0.400	
Off-Dock Line Haul, in Railyard ^d	0.28	0.26	0.28	12.23	0.01	3.29	0.45	1,251	0.033	0.103	
Line Haul, in SCAQMD ^e	3.34	3.07	3.34	143.71	0.151	38.65	5.25	47,893	1.278	3.934	
Total Locomotive Emissions	5.15	4.74	5.15	221.53	0.228	59.02	8.51	55,649	1.483	4.559	

NEPA/Alt 1/Alt 2: 2025

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.92	0.004	1.28	0.37	470	0.012	0.035	
On-Dock Line Haul, while in Port ^c	0.78	0.72	0.78	36.19	0.05	13.02	1.28	4,954	0.132	0.407	
Off-Dock Line Haul, in Railyard ^d	0.21	0.19	0.21	9.52	0.01	3.43	0.34	1,304	0.035	0.107	
Line Haul, in SCAQMD ^e	2.37	2.18	2.37	109.71	0.154	39.47	3.87	48,916	1.306	4.018	
Total Locomotive Emissions	3.80	3.50	3.80	174.47	0.234	60.61	6.60	56,955	1.518	4.665	

NEPA/Alt 1/Alt 2: 2027

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.96	0.004	1.40	0.37	514	0.013	0.038	
On-Dock Line Haul, while in Port ^c	0.69	0.63	0.69	31.98	0.05	13.10	1.14	4,984	0.133	0.409	
Off-Dock Line Haul, in Railyard ^d	0.18	0.17	0.18	8.50	0.01	3.48	0.30	1,325	0.035	0.109	
Line Haul, in SCAQMD ^e	2.09	1.93	2.09	97.15	0.155	39.79	3.45	49,315	1.316	4.051	
Total Locomotive Emissions	3.41	3.14	3.41	156.72	0.236	61.19	6.01	57,450	1.531	4.705	

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Railroad Locomotive Emissions

Table 1.4-8 Alternatives 1 and 2 (incl. NEPA Baseline) Peak Daily Locomotive Emissions

CEQA Baseline Emissions

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.06	18.67	4.08
Off-Port Switchers ^b	1.16	1.07	1.16	51.25	0.02	5.89	3.09
On-Dock Line Haul, while in Port ^c	11.13	10.24	11.13	371.71	2.78	59.26	19.80
Off-Dock Line Haul, in Railyard ^d	2.97	2.73	2.97	99.12	0.74	15.80	5.28
Line Haul, in SCAQMD ^e	33.83	31.13	33.83	1,130.01	8.44	180.15	60.18
Total Locomotive Emissions	50.70	46.67	50.70	1,718.52	12.04	279.78	92.42

NEPA/Alt 1/Alt 2: 2012

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.87	0.80	0.87	38.73	0.013	4.75	2.28
On-Dock Line Haul, while in Port ^c	10.95	10.08	10.95	384.62	0.28	71.11	19.06
Off-Dock Line Haul, in Railyard ^d	2.43	2.24	2.43	85.47	0.06	15.80	4.24
Line Haul, in SCAQMD ^e	32.12	29.55	32.12	1,128.23	0.815	208.60	55.91
Total Locomotive Emissions	47.99	44.17	47.99	1,703.47	1.232	318.93	85.56

NEPA/Alt 1/Alt 2: 2015

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.82	0.75	0.82	36.68	0.013	4.75	2.16
On-Dock Line Haul, while in Port ^c	9.08	8.35	9.08	344.56	0.28	71.11	15.30
Off-Dock Line Haul, in Railyard ^d	2.02	1.86	2.02	76.57	0.06	15.80	3.40
Line Haul, in SCAQMD ^e	26.64	24.51	26.64	1,010.71	0.815	208.60	44.88
Total Locomotive Emissions	40.17	36.97	40.17	1,534.93	1.232	318.93	69.82

NEPA/Alt 1/Alt 2: 2020

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.70	0.64	0.70	31.90	0.013	4.75	1.80
On-Dock Line Haul, while in Port ^c	6.83	6.28	6.83	293.81	0.31	79.01	10.74
Off-Dock Line Haul, in Railyard ^d	1.37	1.26	1.37	58.76	0.06	15.80	2.15
Line Haul, in SCAQMD ^e	19.66	18.09	19.66	846.17	0.889	227.56	30.92
Total Locomotive Emissions	30.16	27.77	30.16	1,297.07	1.337	345.79	49.69

NEPA/Alt 1/Alt 2: 2025

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.81	0.74	0.81	37.94	0.019	7.04	2.03
On-Dock Line Haul, while in Port ^c	4.75	4.37	4.75	219.62	0.31	79.01	7.75
Off-Dock Line Haul, in Railyard ^d	1.19	1.09	1.19	54.90	0.08	19.75	1.94
Line Haul, in SCAQMD ^e	14.25	13.11	14.25	658.85	0.926	237.04	23.26
Total Locomotive Emissions	22.60	20.81	22.60	1,037.73	1.395	361.52	39.07

NEPA/Alt 1/Alt 2: 2027

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.83	0.76	0.83	38.16	0.021	7.69	2.03
On-Dock Line Haul, while in Port ^c	4.36	4.01	4.36	202.55	0.32	82.96	7.20
Off-Dock Line Haul, in Railyard ^d	1.04	0.96	1.04	48.23	0.08	19.75	1.72
Line Haul, in SCAQMD ^e	12.96	11.93	12.96	601.87	0.963	246.52	21.40
Total Locomotive Emissions	20.80	19.16	20.80	957.22	1.450	375.60	36.43

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Railroad Locomotive Emissions

Table 1.4-9 Alternative 3 Annual Locomotive Emissions

CEQA Baseline Emissions

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74		1,312	0.033	0.098
Off-Port Switchers ^b	0.21	0.20	0.21	9.35	0.003	1.08	0.56		394	0.010	0.029
On-Dock Line Haul, while in Port ^c	1.59	1.47	1.59	53.22	0.398	8.48	2.83		3,228	0.086	0.265
Off-Dock Line Haul, in Railyard ^d	0.36	0.33	0.36	12.13	0.091	1.93	0.65		736	0.020	0.060
Line Haul, in SCAQMD ^e	4.70	4.32	4.70	156.83	1.172	25.00	8.35		30,985	0.827	2.545
Total Locomotive Emissions	7.16	6.59	7.16	243.66	1.675	39.90	13.14		36,655	0.976	2.998

Alternative 3: 2012

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74		1,312	0.033	0.098
Off-Port Switchers ^b	0.16	0.15	0.16	7.07	0.002	0.87	0.42		317	0.008	0.024
On-Dock Line Haul, while in Port ^c	1.65	1.52	1.65	57.91	0.042	10.71	2.87		4,074	0.109	0.335
Off-Dock Line Haul, in Railyard ^d	0.47	0.44	0.47	16.67	0.012	3.08	0.83		1,173	0.031	0.096
Line Haul, in SCAQMD ^e	5.10	4.69	5.10	179.00	0.129	33.10	8.87		41,014	1.095	3.369
Total Locomotive Emissions	7.67	7.06	7.67	272.78	0.197	51.16	13.73		47,889	1.276	3.921

Alternative 3: 2015

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74		1,312	0.033	0.098
Off-Port Switchers ^b	0.15	0.14	0.15	6.69	0.002	0.87	0.39		317	0.008	0.024
On-Dock Line Haul, while in Port ^c	1.66	1.53	1.66	62.90	0.05	12.98	2.79		4,939	0.132	0.406
Off-Dock Line Haul, in Railyard ^d	0.43	0.40	0.43	16.47	0.01	3.40	0.73		1,293	0.035	0.106
Line Haul, in SCAQMD ^e	5.02	4.62	5.02	190.47	0.154	39.31	8.46		48,716	1.300	4.001
Total Locomotive Emissions	7.56	6.95	7.56	288.66	0.232	59.96	13.12		56,577	1.508	4.635

Alternative 3: 2020

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74		1,312	0.033	0.098
Off-Port Switchers ^b	0.13	0.12	0.13	5.82	0.00	0.87	0.33		317.08	0.01	0.02
On-Dock Line Haul, while in Port ^c	1.32	1.22	1.32	57.02	0.06	15.33	2.08		5,834	0.156	0.479
Off-Dock Line Haul, in Railyard ^d	0.32	0.30	0.32	13.85	0.01	3.72	0.51		1,417	0.038	0.116
Line Haul, in SCAQMD ^e	3.95	3.64	3.95	170.08	0.179	45.74	6.22		56,682	1.513	4.656
Total Locomotive Emissions	6.02	5.54	6.02	258.89	0.267	69.07	9.88		65,562	1.748	5.373

Alternative 3: 2025

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74		1,312	0.033	0.098
Off-Port Switchers ^b	0.15	0.14	0.15	6.92	0.004	1.28	0.37		470	0.012	0.035
On-Dock Line Haul, while in Port ^c	0.95	0.87	0.95	43.75	0.06	15.74	1.54		5,989	0.160	0.492
Off-Dock Line Haul, in Railyard ^d	0.24	0.22	0.24	11.25	0.02	4.05	0.40		1,540	0.041	0.126
Line Haul, in SCAQMD ^e	2.85	2.63	2.85	132.01	0.186	47.49	4.66		58,856	1.571	4.834
Total Locomotive Emissions	4.48	4.13	4.48	206.05	0.278	71.97	7.72		68,167	1.817	5.586

Alternative 3: 2027

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74		1,312	0.033	0.098
Off-Port Switchers ^b	0.15	0.14	0.15	6.96	0.004	1.40	0.37		514	0.013	0.038
On-Dock Line Haul, while in Port ^c	0.84	0.77	0.84	38.88	0.06	15.93	1.38		6,059	0.162	0.498
Off-Dock Line Haul, in Railyard ^d	0.22	0.20	0.22	10.20	0.02	4.18	0.36		1,589	0.042	0.131
Line Haul, in SCAQMD ^e	2.54	2.33	2.54	117.79	0.188	48.25	4.19		59,790	1.596	4.911
Total Locomotive Emissions	4.04	3.72	4.04	185.96	0.283	73.16	7.05		69,265	1.847	5.675

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Railroad Locomotive Emissions

Table 1.4-10 Alternative 3 Peak Daily Locomotive Emissions

CEQA Baseline Emissions

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.06	18.67	4.08
Off-Port Switchers ^b	1.16	1.07	1.16	51.25	0.02	5.89	3.09
On-Dock Line Haul, while in Port ^c	11.13	10.24	11.13	371.71	2.78	59.26	19.80
Off-Dock Line Haul, in Railyard ^d	2.97	2.73	2.97	99.12	0.74	15.80	5.28
Line Haul, in SCAQMD ^e	33.83	31.13	33.83	1,130.01	8.44	180.15	60.18
Total Locomotive Emissions	50.70	46.67	50.70	1,718.52	12.04	279.78	92.42

Alternative 3: 2012

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.87	0.80	0.87	38.73	0.013	4.75	2.28
On-Dock Line Haul, while in Port ^c	10.95	10.08	10.95	384.62	0.28	71.11	19.06
Off-Dock Line Haul, in Railyard ^d	2.43	2.24	2.43	85.47	0.06	15.80	4.24
Line Haul, in SCAQMD ^e	32.12	29.55	32.12	1,128.23	0.815	208.60	55.91
Total Locomotive Emissions	47.99	44.17	47.99	1,703.47	1.232	318.93	85.56

Alternative 3: 2015

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.82	0.75	0.82	36.68	0.013	4.75	2.16
On-Dock Line Haul, while in Port ^c	10.09	9.28	10.09	382.84	0.31	79.01	17.00
Off-Dock Line Haul, in Railyard ^d	2.02	1.86	2.02	76.57	0.06	15.80	3.40
Line Haul, in SCAQMD ^e	29.06	26.74	29.06	1,102.59	0.889	227.56	48.96
Total Locomotive Emissions	43.60	40.13	43.60	1,665.10	1.337	345.79	75.60

Alternative 3: 2020

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.70	0.64	0.70	31.90	0.013	4.75	1.80
On-Dock Line Haul, while in Port ^c	8.87	8.16	8.87	381.95	0.40	102.72	13.96
Off-Dock Line Haul, in Railyard ^d	2.05	1.88	2.05	88.14	0.09	23.70	3.22
Line Haul, in SCAQMD ^e	26.21	24.11	26.21	1,128.23	1.185	303.41	41.23
Total Locomotive Emissions	39.44	36.31	39.44	1,696.65	1.756	453.25	64.29

Alternative 3: 2025

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.81	0.74	0.81	37.94	0.019	7.04	2.03
On-Dock Line Haul, while in Port ^c	6.17	5.68	6.17	285.50	0.40	102.72	10.08
Off-Dock Line Haul, in Railyard ^d	1.42	1.31	1.42	65.88	0.09	23.70	2.33
Line Haul, in SCAQMD ^e	18.23	16.78	18.23	843.32	1.185	303.41	29.78
Total Locomotive Emissions	28.25	26.01	28.25	1,299.07	1.763	455.54	48.30

Alternative 3: 2027

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.83	0.76	0.83	38.16	0.021	7.69	2.03
On-Dock Line Haul, while in Port ^c	5.40	4.97	5.40	250.78	0.40	102.72	8.92
Off-Dock Line Haul, in Railyard ^d	1.25	1.15	1.25	57.87	0.09	23.70	2.06
Line Haul, in SCAQMD ^e	15.95	14.68	15.95	740.76	1.185	303.41	26.34
Total Locomotive Emissions	25.04	23.06	25.04	1,153.98	1.764	456.20	43.42

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Railroad Locomotive Emissions

Table 1.4-11 Alternative 4 Annual Locomotive Emissions

CEQA Baseline Emissions

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.21	0.20	0.21	9.35	0.003	1.08	0.56	394	0.010	0.029	
On-Dock Line Haul, while in Port ^c	1.59	1.47	1.59	53.22	0.398	8.48	2.83	3,228	0.086	0.265	
Off-Dock Line Haul, in Railyard ^d	0.36	0.33	0.36	12.13	0.091	1.93	0.65	736	0.020	0.060	
Line Haul, in SCAQMD ^e	4.70	4.32	4.70	156.83	1.172	25.00	8.35	30,985	0.827	2.545	
Total Locomotive Emissions	7.16	6.59	7.16	243.66	1.675	39.90	13.14	36,655	0.976	2.998	

Alternative 4: 2012

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.16	0.15	0.16	7.07	0.002	0.87	0.42	317	0.008	0.024	
On-Dock Line Haul, while in Port ^c	1.65	1.52	1.65	57.91	0.042	10.71	2.87	4,074	0.109	0.335	
Off-Dock Line Haul, in Railyard ^d	0.47	0.44	0.47	16.67	0.012	3.08	0.83	1,173	0.031	0.096	
Line Haul, in SCAQMD ^e	5.10	4.69	5.10	179.00	0.129	33.10	8.87	41,014	1.095	3.369	
Total Locomotive Emissions	7.67	7.06	7.67	272.78	0.197	51.16	13.73	47,889	1.276	3.921	

Alternative 4: 2015

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.69	0.002	0.87	0.39	317	0.008	0.024	
On-Dock Line Haul, while in Port ^c	1.94	1.79	1.94	73.72	0.06	15.22	3.27	5,789	0.155	0.475	
Off-Dock Line Haul, in Railyard ^d	0.47	0.43	0.47	17.73	0.01	3.66	0.79	1,392	0.037	0.114	
Line Haul, in SCAQMD ^e	5.78	5.32	5.78	219.48	0.177	45.30	9.75	56,136	1.498	4.611	
Total Locomotive Emissions	8.64	7.95	8.64	329.75	0.265	68.45	14.95	64,947	1.732	5.322	

Alternative 4: 2020

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.13	0.12	0.13	5.82	0.00	0.87	0.33	317.08	0.01	0.02	
On-Dock Line Haul, while in Port ^c	1.36	1.25	1.36	58.38	0.06	15.70	2.13	5,973	0.159	0.491	
Off-Dock Line Haul, in Railyard ^d	0.35	0.32	0.35	14.91	0.02	4.01	0.54	1,526	0.041	0.125	
Line Haul, in SCAQMD ^e	4.09	3.76	4.09	175.90	0.185	47.30	6.43	58,621	1.565	4.815	
Total Locomotive Emissions	6.21	5.72	6.21	267.13	0.276	71.29	10.18	67,750	1.806	5.552	

Alternative 4: 2025

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.92	0.004	1.28	0.37	470	0.012	0.035	
On-Dock Line Haul, while in Port ^c	0.92	0.84	0.92	42.42	0.06	15.26	1.50	5,807	0.155	0.477	
Off-Dock Line Haul, in Railyard ^d	0.26	0.24	0.26	12.12	0.02	4.36	0.43	1,659	0.044	0.136	
Line Haul, in SCAQMD ^e	2.83	2.60	2.83	130.90	0.184	47.10	4.62	58,363	1.558	4.794	
Total Locomotive Emissions	4.45	4.10	4.45	204.49	0.276	71.41	7.66	67,611	1.802	5.540	

Alternative 4: 2027

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.96	0.004	1.40	0.37	514	0.013	0.038	
On-Dock Line Haul, while in Port ^c	0.83	0.76	0.83	38.46	0.06	15.75	1.37	5,994	0.160	0.492	
Off-Dock Line Haul, in Railyard ^d	0.24	0.22	0.24	10.99	0.02	4.50	0.39	1,712	0.046	0.141	
Line Haul, in SCAQMD ^e	2.56	2.35	2.56	118.68	0.190	48.61	4.22	60,243	1.608	4.948	
Total Locomotive Emissions	4.07	3.75	4.07	187.22	0.285	73.68	7.09	69,775	1.860	5.717	

Port of Los Angeles
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Railroad Locomotive Emissions

Table 1.4-12 Alternative 4 Peak Daily Locomotive Emissions

CEQA Baseline Emissions

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.06	18.67	4.08
Off-Port Switchers ^b	1.16	1.07	1.16	51.25	0.02	5.89	3.09
On-Dock Line Haul, while in Port ^c	11.13	10.24	11.13	371.71	2.78	59.26	19.80
Off-Dock Line Haul, in Railyard ^d	2.97	2.73	2.97	99.12	0.74	15.80	5.28
Line Haul, in SCAQMD ^e	33.83	31.13	33.83	1,130.01	8.44	180.15	60.18
Total Locomotive Emissions	50.70	46.67	50.70	1,718.52	12.04	279.78	92.42

Alternative 4: 2012

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.87	0.80	0.87	38.73	0.013	4.75	2.28
On-Dock Line Haul, while in Port ^c	10.95	10.08	10.95	384.62	0.28	71.11	19.06
Off-Dock Line Haul, in Railyard ^d	2.43	2.24	2.43	85.47	0.06	15.80	4.24
Line Haul, in SCAQMD ^e	32.12	29.55	32.12	1,128.23	0.815	208.60	55.91
Total Locomotive Emissions	47.99	44.17	47.99	1,703.47	1.232	318.93	85.56

Alternative 4: 2015

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.82	0.75	0.82	36.68	0.013	4.75	2.16
On-Dock Line Haul, while in Port ^c	13.12	12.07	13.12	497.70	0.40	102.72	22.10
Off-Dock Line Haul, in Railyard ^d	3.03	2.78	3.03	114.85	0.09	23.70	5.10
Line Haul, in SCAQMD ^e	38.75	35.65	38.75	1,470.12	1.185	303.41	65.28
Total Locomotive Emissions	57.32	52.76	57.32	2,185.77	1.756	453.25	98.72

Alternative 4: 2020

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.70	0.64	0.70	31.90	0.013	4.75	1.80
On-Dock Line Haul, while in Port ^c	8.87	8.16	8.87	381.95	0.40	102.72	13.96
Off-Dock Line Haul, in Railyard ^d	2.05	1.88	2.05	88.14	0.09	23.70	3.22
Line Haul, in SCAQMD ^e	26.21	24.11	26.21	1,128.23	1.185	303.41	41.23
Total Locomotive Emissions	39.44	36.31	39.44	1,696.65	1.756	453.25	64.29

Alternative 4: 2025

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.81	0.74	0.81	37.94	0.019	7.04	2.03
On-Dock Line Haul, while in Port ^c	6.17	5.68	6.17	285.50	0.40	102.72	10.08
Off-Dock Line Haul, in Railyard ^d	1.42	1.31	1.42	65.88	0.09	23.70	2.33
Line Haul, in SCAQMD ^e	18.23	16.78	18.23	843.32	1.185	303.41	29.78
Total Locomotive Emissions	28.25	26.01	28.25	1,299.07	1.763	455.54	48.30

Alternative 4: 2027

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.83	0.76	0.83	38.16	0.021	7.69	2.03
On-Dock Line Haul, while in Port ^c	5.82	5.35	5.82	270.07	0.43	110.62	9.60
Off-Dock Line Haul, in Railyard ^d	1.25	1.15	1.25	57.87	0.09	23.70	2.06
Line Haul, in SCAQMD ^e	16.95	15.60	16.95	787.05	1.259	322.38	27.99
Total Locomotive Emissions	26.45	24.36	26.45	1,219.57	1.869	483.06	45.76

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Railroad Locomotive Emissions

Table 1.4-13 Alternative 5 Annual Locomotive Emissions

CEQA Baseline Emissions

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.21	0.20	0.21	9.35	0.003	1.08	0.56	394	0.010	0.029	
On-Dock Line Haul, while in Port ^c	1.59	1.47	1.59	53.22	0.398	8.48	2.83	3,228	0.086	0.265	
Off-Dock Line Haul, in Railyard ^d	0.36	0.33	0.36	12.13	0.091	1.93	0.65	736	0.020	0.060	
Line Haul, in SCAQMD ^e	4.70	4.32	4.70	156.83	1.172	25.00	8.35	30,985	0.827	2.545	
Total Locomotive Emissions	7.16	6.59	7.16	243.66	1.675	39.90	13.14	36,655	0.976	2.998	

Alternative 5: 2012

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.16	0.15	0.16	7.07	0.002	0.87	0.42	317	0.008	0.024	
On-Dock Line Haul, while in Port ^c	1.65	1.52	1.65	57.91	0.042	10.71	2.87	4,074	0.109	0.335	
Off-Dock Line Haul, in Railyard ^d	0.47	0.44	0.47	16.67	0.012	3.08	0.83	1,173	0.031	0.096	
Line Haul, in SCAQMD ^e	5.10	4.69	5.10	179.00	0.129	33.10	8.87	41,014	1.095	3.369	
Total Locomotive Emissions	7.67	7.06	7.67	272.78	0.197	51.16	13.73	47,889	1.276	3.921	

Alternative 5: 2015

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.69	0.002	0.87	0.39	317	0.008	0.024	
On-Dock Line Haul, while in Port ^c	2.09	1.93	2.09	79.40	0.06	16.39	3.53	6,235	0.166	0.512	
Off-Dock Line Haul, in Railyard ^d	0.56	0.51	0.56	21.17	0.02	4.37	0.94	1,663	0.044	0.137	
Line Haul, in SCAQMD ^e	6.36	5.85	6.36	241.37	0.195	49.82	10.72	61,735	1.648	5.071	
Total Locomotive Emissions	9.46	8.70	9.46	360.77	0.290	74.85	16.32	71,262	1.900	5.841	

Alternative 5: 2020

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.13	0.12	0.13	5.82	0.00	0.87	0.33	317.08	0.01	0.02	
On-Dock Line Haul, while in Port ^c	1.53	1.40	1.53	65.67	0.07	17.66	2.40	6,719	0.179	0.552	
Off-Dock Line Haul, in Railyard ^d	0.41	0.37	0.41	17.51	0.02	4.71	0.64	1,792	0.048	0.147	
Line Haul, in SCAQMD ^e	4.64	4.27	4.64	199.64	0.210	53.69	7.30	66,535	1.776	5.465	
Total Locomotive Emissions	6.99	6.44	6.99	300.77	0.311	80.33	11.41	76,675	2.045	6.286	

Alternative 5: 2025

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.92	0.004	1.28	0.37	470	0.012	0.035	
On-Dock Line Haul, while in Port ^c	1.01	0.93	1.01	46.66	0.07	16.79	1.65	6,387	0.170	0.525	
Off-Dock Line Haul, in Railyard ^d	0.36	0.33	0.36	16.50	0.02	5.94	0.58	2,259	0.060	0.186	
Line Haul, in SCAQMD ^e	3.28	3.02	3.28	151.59	0.213	54.54	5.35	67,587	1.804	5.551	
Total Locomotive Emissions	5.08	4.68	5.08	233.79	0.317	81.95	8.70	78,015	2.080	6.394	

Alternative 5: 2027

Locomotive Description	Annual Locomotive Emissions, tpy								CO ₂	N ₂ O	CH ₄
	PM ₁₀	PM _{2.5}	DPM	NO _x	SO _x	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.96	0.004	1.40	0.37	514	0.013	0.038	
On-Dock Line Haul, while in Port ^c	0.88	0.81	0.88	40.99	0.07	16.79	1.46	6,387	0.171	0.525	
Off-Dock Line Haul, in Railyard ^d	0.34	0.32	0.34	15.99	0.03	6.55	0.57	2,491	0.067	0.205	
Line Haul, in SCAQMD ^e	2.94	2.71	2.94	136.73	0.219	56.00	4.86	69,402	1.853	5.700	
Total Locomotive Emissions	4.62	4.25	4.62	212.78	0.326	84.15	8.00	80,106	2.136	6.566	

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Railroad Locomotive Emissions

Table 1.4-14 Alternative 5 Peak Daily Locomotive Emissions

CEQA Baseline Emissions

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.06	18.67	4.08
Off-Port Switchers ^b	1.16	1.07	1.16	51.25	0.02	5.89	3.09
On-Dock Line Haul, while in Port ^c	11.13	10.24	11.13	371.71	2.78	59.26	19.80
Off-Dock Line Haul, in Railyard ^d	2.97	2.73	2.97	99.12	0.74	15.80	5.28
Line Haul, in SCAQMD ^e	33.83	31.13	33.83	1,130.01	8.44	180.15	60.18
Total Locomotive Emissions	50.70	46.67	50.70	1,718.52	12.04	279.78	92.42

Alternative 5: 2012

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.87	0.80	0.87	38.73	0.013	4.75	2.28
On-Dock Line Haul, while in Port ^c	10.95	10.08	10.95	384.62	0.28	71.11	19.06
Off-Dock Line Haul, in Railyard ^d	2.43	2.24	2.43	85.47	0.06	15.80	4.24
Line Haul, in SCAQMD ^e	32.12	29.55	32.12	1,128.23	0.815	208.60	55.91
Total Locomotive Emissions	47.99	44.17	47.99	1,703.47	1.232	318.93	85.56

Alternative 5: 2015

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.82	0.75	0.82	36.68	0.013	4.75	2.16
On-Dock Line Haul, while in Port ^c	13.12	12.07	13.12	497.70	0.40	102.72	22.10
Off-Dock Line Haul, in Railyard ^d	3.03	2.78	3.03	114.85	0.09	23.70	5.10
Line Haul, in SCAQMD ^e	38.75	35.65	38.75	1,470.12	1.185	303.41	65.28
Total Locomotive Emissions	57.32	52.76	57.32	2,185.77	1.756	453.25	98.72

Alternative 5: 2020

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.70	0.64	0.70	31.90	0.013	4.75	1.80
On-Dock Line Haul, while in Port ^c	9.56	8.79	9.56	411.33	0.43	110.62	15.03
Off-Dock Line Haul, in Railyard ^d	2.05	1.88	2.05	88.14	0.09	23.70	3.22
Line Haul, in SCAQMD ^e	27.85	25.62	27.85	1,198.74	1.259	322.38	43.81
Total Locomotive Emissions	41.76	38.44	41.76	1,796.55	1.861	480.12	67.94

Alternative 5: 2025

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.81	0.74	0.81	37.94	0.019	7.04	2.03
On-Dock Line Haul, while in Port ^c	6.65	6.12	6.65	307.46	0.43	110.62	10.86
Off-Dock Line Haul, in Railyard ^d	1.90	1.75	1.90	87.85	0.12	31.61	3.10
Line Haul, in SCAQMD ^e	20.51	18.87	20.51	948.74	1.333	341.34	33.50
Total Locomotive Emissions	31.48	28.98	31.48	1,448.41	1.973	509.27	53.57

Alternative 5: 2027

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.83	0.76	0.83	38.16	0.021	7.69	2.03
On-Dock Line Haul, while in Port ^c	5.82	5.35	5.82	270.07	0.43	110.62	9.60
Off-Dock Line Haul, in Railyard ^d	2.08	1.91	2.08	96.45	0.15	39.51	3.43
Line Haul, in SCAQMD ^e	18.95	17.43	18.95	879.65	1.407	360.30	31.28
Total Locomotive Emissions	29.28	26.96	29.28	1,350.75	2.079	536.79	50.42

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Railroad Locomotive Emissions

Table 1.4-15 Alternative 6 Annual Locomotive Emissions

CEQA Baseline Emissions

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.21	0.20	0.21	9.35	0.003	1.08	0.56	394	0.010	0.029	
On-Dock Line Haul, while in Port ^c	1.59	1.47	1.59	53.22	0.398	8.48	2.83	3,228	0.086	0.265	
Off-Dock Line Haul, in Railyard ^d	0.36	0.33	0.36	12.13	0.091	1.93	0.65	736	0.020	0.060	
Line Haul, in SCAQMD ^e	4.70	4.32	4.70	156.83	1.172	25.00	8.35	30,985	0.827	2.545	
Total Locomotive Emissions	7.16	6.59	7.16	243.66	1.675	39.90	13.14	36,655	0.976	2.998	

Alternative 6: 2012

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.16	0.15	0.16	7.07	0.002	0.87	0.42	317	0.008	0.024	
On-Dock Line Haul, while in Port ^c	1.65	1.52	1.65	57.91	0.042	10.71	2.87	4,074	0.109	0.335	
Off-Dock Line Haul, in Railyard ^d	0.47	0.44	0.47	16.67	0.012	3.08	0.83	1,173	0.031	0.096	
Line Haul, in SCAQMD ^e	5.10	4.69	5.10	179.00	0.129	33.10	8.87	41,014	1.095	3.369	
Total Locomotive Emissions	7.67	7.06	7.67	272.78	0.197	51.16	13.73	47,889	1.276	3.921	

Alternative 6: 2015

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.69	0.002	0.87	0.39	317	0.008	0.024	
On-Dock Line Haul, while in Port ^c	2.09	1.93	2.09	79.40	0.06	16.39	3.53	6,235	0.166	0.512	
Off-Dock Line Haul, in Railyard ^d	0.56	0.51	0.56	21.17	0.02	4.37	0.94	1,663	0.044	0.137	
Line Haul, in SCAQMD ^e	6.36	5.85	6.36	241.37	0.195	49.82	10.72	61,735	1.648	5.071	
Total Locomotive Emissions	9.46	8.70	9.46	360.77	0.290	74.85	16.32	71,262	1.900	5.841	

Alternative 6: 2020

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.13	0.12	0.13	5.82	0.00	0.87	0.33	317.08	0.01	0.02	
On-Dock Line Haul, while in Port ^c	1.53	1.40	1.53	65.67	0.07	17.66	2.40	6,719	0.179	0.552	
Off-Dock Line Haul, in Railyard ^d	0.41	0.37	0.41	17.51	0.02	4.71	0.64	1,792	0.048	0.147	
Line Haul, in SCAQMD ^e	4.64	4.27	4.64	199.64	0.210	53.69	7.30	66,535	1.776	5.465	
Total Locomotive Emissions	6.99	6.44	6.99	300.77	0.311	80.33	11.41	76,675	2.045	6.286	

Alternative 6: 2025

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.92	0.004	1.28	0.37	470	0.012	0.035	
On-Dock Line Haul, while in Port ^c	1.06	0.98	1.06	49.12	0.07	17.67	1.73	6,724	0.179	0.552	
Off-Dock Line Haul, in Railyard ^d	0.30	0.28	0.30	14.03	0.02	5.05	0.50	1,921	0.051	0.158	
Line Haul, in SCAQMD ^e	3.28	3.02	3.28	151.57	0.213	54.53	5.35	67,581	1.804	5.551	
Total Locomotive Emissions	5.08	4.68	5.08	233.77	0.317	81.95	8.70	78,008	2.080	6.394	

Alternative 6: 2027

Locomotive Description	Annual Locomotive Emissions, tpy								CO2	N2O	CH4
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC				
On-Port Switchers ^a	0.29	0.27	0.29	12.12	0.012	3.41	0.74	1,312	0.033	0.098	
Off-Port Switchers ^b	0.15	0.14	0.15	6.96	0.004	1.40	0.37	514	0.013	0.038	
On-Dock Line Haul, while in Port ^c	0.95	0.88	0.95	44.31	0.07	18.15	1.58	6,905	0.184	0.567	
Off-Dock Line Haul, in Railyard ^d	0.27	0.25	0.27	12.66	0.02	5.19	0.45	1,973	0.053	0.162	
Line Haul, in SCAQMD ^e	2.94	2.71	2.94	136.72	0.219	56.00	4.86	69,396	1.852	5.700	
Total Locomotive Emissions	4.62	4.25	4.62	212.77	0.325	84.14	8.00	80,099	2.136	6.565	

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Railroad Locomotive Emissions

Table 1.4-16 Alternative 6 Peak Daily Locomotive Emissions

CEQA Baseline Emissions

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.06	18.67	4.08
Off-Port Switchers ^b	1.16	1.07	1.16	51.25	0.02	5.89	3.09
On-Dock Line Haul, while in Port ^c	11.13	10.24	11.13	371.71	2.78	59.26	19.80
Off-Dock Line Haul, in Railyard ^d	2.97	2.73	2.97	99.12	0.74	15.80	5.28
Line Haul, in SCAQMD ^e	33.83	31.13	33.83	1,130.01	8.44	180.15	60.18
Total Locomotive Emissions	50.70	46.67	50.70	1,718.52	12.04	279.78	92.42

Alternative 6: 2012

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.87	0.80	0.87	38.73	0.013	4.75	2.28
On-Dock Line Haul, while in Port ^c	10.95	10.08	10.95	384.62	0.28	71.11	19.06
Off-Dock Line Haul, in Railyard ^d	2.43	2.24	2.43	85.47	0.06	15.80	4.24
Line Haul, in SCAQMD ^e	32.12	29.55	32.12	1,128.23	0.815	208.60	55.91
Total Locomotive Emissions	47.99	44.17	47.99	1,703.47	1.232	318.93	85.56

Alternative 6: 2015

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.82	0.75	0.82	36.68	0.013	4.75	2.16
On-Dock Line Haul, while in Port ^c	13.12	12.07	13.12	497.70	0.40	102.72	22.10
Off-Dock Line Haul, in Railyard ^d	3.03	2.78	3.03	114.85	0.09	23.70	5.10
Line Haul, in SCAQMD ^e	38.75	35.65	38.75	1,470.12	1.185	303.41	65.28
Total Locomotive Emissions	57.32	52.76	57.32	2,185.77	1.756	453.25	98.72

Alternative 6: 2020

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.70	0.64	0.70	31.90	0.013	4.75	1.80
On-Dock Line Haul, while in Port ^c	9.56	8.79	9.56	411.33	0.43	110.62	15.03
Off-Dock Line Haul, in Railyard ^d	2.05	1.88	2.05	88.14	0.09	23.70	3.22
Line Haul, in SCAQMD ^e	27.85	25.62	27.85	1,198.74	1.259	322.38	43.81
Total Locomotive Emissions	41.76	38.44	41.76	1,796.55	1.861	480.12	67.94

Alternative 6: 2025

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.81	0.74	0.81	37.94	0.019	7.04	2.03
On-Dock Line Haul, while in Port ^c	7.12	6.55	7.12	329.42	0.46	118.52	11.63
Off-Dock Line Haul, in Railyard ^d	1.90	1.75	1.90	87.85	0.12	31.61	3.10
Line Haul, in SCAQMD ^e	21.65	19.92	21.65	1,001.45	1.407	360.30	35.36
Total Locomotive Emissions	33.09	30.47	33.09	1,523.08	2.077	536.14	56.21

Alternative 6: 2027

Locomotive Description	Peak Daily Locomotive Emissions, lbs/day						
	PM10	PM2.5	DPM	NOx	SOx	CO	VOC
On-Port Switchers ^a	1.61	1.50	1.61	66.42	0.064	18.67	4.08
Off-Port Switchers ^b	0.83	0.76	0.83	38.16	0.021	7.69	2.03
On-Dock Line Haul, while in Port ^c	6.23	5.73	6.23	289.36	0.46	118.52	10.29
Off-Dock Line Haul, in Railyard ^d	1.66	1.53	1.66	77.16	0.12	31.61	2.74
Line Haul, in SCAQMD ^e	18.95	17.43	18.95	879.65	1.407	360.30	31.28
Total Locomotive Emissions	29.28	26.96	29.28	1,350.75	2.079	536.79	50.42

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Railroad Locomotive Emissions

Table 1.4-15 Alternative 6 Annual Locomotive Emissions

Notes:

- a. Assumes:
 1. Two (2) switch engines are operating on the APL terminal each day.
 2. Each engine operates 12 hours/day, 365 days per year.
 3. Average rated power is **2,028** HP per engine.
 4. Average load factor of **0.10** per engine.
- b. Assumes:
 1. Two (2) switch engines are operating on the APL trains each day.
 - 2a. Each engine operates 3.6 hours/day in CEQA Baseline (=10.6%TEUs_Offdock/35.3%TEUs_Ondock*12 hrs/day), 365 days per year on APL trains.
 - 2b. Each engine operates 2.9 hours/day in 2012, 2015, and 2020 (=10%TEUs_Offdock/35%TEUs_Ondock*12 hrs/day), 365 days/year on APL trains.
 - 2c. Each engine operates 4.3 hours/day in 2025 (=11.8%TEUs_Offdock/33.2%TEUs_Ondock*12 hrs/day), 365 days per year on APL trains.
 - 2d. Each engine operates 4.7 hours/day in 2027 (=12.6%TEUs_Offdock/32.4%TEUs_Ondock*12 hrs/day), 365 days per year on APL trains.
 3. Average rated power is **2,028** HP per engine.
 4. Average load factor of **0.10** per engine.
 5. 70% of APL Off-Port switching occurs at ICTF and 30% at Hobart.
- c. Assumes: (Source: Starcrest Consulting Group, *Port of Los Angeles Inventory of Air Emissions - 2008*, [Technical Report ADP#050520-525](#), Revised Dec. 2009.)
 1. Average of 4,000 rated HP per locomotive.
 2. Average load factor of 0.10 while in Port, assumed to be same as switch engine load factor while in Port.
 3. Average of 3.5 hours per round trip.
- d. Same assumptions for line haul engines in off-dock railyard regarding HP, LF, hours per trip as on-dock line haul train assumptions.
- e. Assumes: (Source: Starcrest Consulting Group, *Port of Los Angeles Inventory of Air Emissions - 2008*, [Technical Report ADP#050520-525](#), Revised Dec. 2009.)
 1. Average of 4,000 rated HP per locomotive.
 2. Total distance traveled = 21 miles (Alameda Corridor) + 84 miles (Central LA to Basin Boundary) = 105 miles per one-way trip for criteria pollutants.
 3. Total distance traveled = 21 miles (Alameda Corridor) + 321 miles (Central LA to State Boundary) = 342 miles per one-way trip for GHGs.
 4. Average load factor of 0.28 per locomotive while traveling through the South Coast Air Basin.
 5. Average speed of 35 mph while traveling through the South Coast Air Basin (CDM assumption).

Mitigation

Beginning January 1, 2015, all yard locomotives at the Rail Yard shall be equipped with a diesel particulate filter (DPF).

Table 1.4-17 Railroad Locomotive Emission Factors

Switching Emission Factors for On-Dock (PHL) Locomotives

Locomotive Description	No. of Units	Size hp	On-Dock Switching Emission Factors, g/bhp-hr										
			PM10	PM2.5	DPM	NOx	SOx ^b	CO	HC	VOC	CO2	N2O	CH4
Tier 2 Locomotives	16	2000	0.19	0.17	0.19	7.30	0.006	1.83	0.510	0.513	670	0.017	0.050
Genset Locomotives	6	2100	0.05	0.05	0.05	3.37	0.006	1.51	0.040	0.040	670	0.017	0.050
Weighted Avg (by No. of Units) ^a	22	2,027	0.15	0.14	0.15	6.19	0.006	1.74	0.38	0.38	670	0.017	0.050

Source: Port of Los Angeles, 2010. "The Port of Los Angeles Inventory of Air Emissions 2009," prepared by Starcrest Consulting Group LLC, June.

a. Weighted average emission factors assumed to represent Baseline period (01July2008-31June2009) emission factors for on-dock switching.

b. Assumes ultra-low sulfur diesel (ULSD, 15 ppm S) used exclusively.

Switching Emission Factors for Off-Port Switchers

Locomotive Description	Off-Port Switching Emission Factors, g/bhp-hr										
	PM10	PM2.5	DPM	NOx	SOx ^b	CO	HC	VOC	CO2	N2O	CH4
Off-Port Switchers ^a	0.36	0.33	0.36	15.92	0.005	1.83	0.954	0.959	670	0.017	0.050
Off-Port Switchers - CY 2012	0.34	0.31	0.34	14.93	0.005	1.83	0.875	0.879	670	0.017	0.050
Off-Port Switchers - CY 2015	0.32	0.29	0.32	14.14	0.005	1.83	0.829	0.833	670	0.017	0.050
Off-Port Switchers - CY 2020	0.27	0.25	0.27	12.30	0.005	1.83	0.691	0.694	670	0.017	0.050
Off-Port Switchers - CY 2025	0.21	0.19	0.21	9.87	0.005	1.83	0.526	0.529	670	0.017	0.050
Off-Port Switchers - CY 2027	0.20	0.18	0.20	9.08	0.005	1.83	0.480	0.483	670	0.017	0.050

Sources: Port of Los Angeles, 2009, "The Port of Los Angeles Inventory of Air Emissions for Calendar Year 2008 - Revised," prepared by Starcrest Consulting Group LLC, December; and U.S. Environmental Protection Agency, 2009, "Technical Highlights: Emission Factors for Locomotives,"

EPA-420-F-09-025, April.

CY = Calendar year.

a. These emission factors assumed to represent Baseline period (01July2008-31June2009) emission factors for off-Port switching.

b. Assumes ultra-low sulfur diesel (ULSD, 15 ppm S) used exclusively.

Line Haul Locomotive Emission Factors

Locomotive Description	Line Haul Emission Factors, g/bhp-hr										
	PM10	PM2.5	DPM	NOx	SOx ^b	CO	HC	VOC	CO2	N2O	CH4
Line Haul ^a	0.24	0.22	0.24	8.03	0.06	1.28	0.425	0.428	487	0.013	0.040
Line Haul - CY 2012	0.20	0.18	0.20	6.92	0.005	1.28	0.341	0.343	487	0.013	0.040
Line Haul - CY 2015	0.16	0.15	0.16	6.20	0.005	1.28	0.274	0.275	487	0.013	0.040
Line Haul - CY 2020	0.11	0.10	0.11	4.76	0.005	1.28	0.173	0.174	487	0.013	0.040
Line Haul - CY 2025	0.08	0.07	0.08	3.56	0.005	1.28	0.125	0.126	487	0.013	0.040
Line Haul - CY 2027	0.07	0.06	0.07	3.13	0.005	1.28	0.111	0.111	487	0.013	0.040

Sources: Port of Los Angeles, 2009, "The Port of Los Angeles Inventory of Air Emissions for Calendar Year 2008 - Revised," prepared by Starcrest Consulting Group LLC, December; and U.S. Environmental Protection Agency, 2009, "Technical Highlights: Emission Factors for Locomotives,"

EPA-420-F-09-025, April.

CY = Calendar year.

a. These emission factors assumed to represent Baseline (01July2008-31June2009) period emission factors for line haul locomotives.

b. Assumes 50% ultra-low sulfur diesel (ULSD, 15 ppm S) used and 50% out-of-state diesel (350 ppm S) used in Baseline period (01July2008-31June2009); and 100% ULSD used in 2012 and later.

Fuel Unit Conversion Factor

Locomotive Description	Conversion Factors (bhp-hr/gal)
Large Line Haul & Passenger	20.8
Small Line Haul	18.2
Switching	15.2

Source: U.S. Environmental Protection Agency, 2009, "Technical Highlights: Emission Factors for Locomotives,"

EPA-420-F-09-025, April.

Locomotive Load Factors

Locomotive Description	Load Factors
Large Line Haul & Passenger	0.275
Small Line Haul	0.275
Switching	0.100

Source: U.S. Environmental Protection Agency, 2008, "Regulatory Impact Analysis: Control of Emissions of Air Pollution from Locomotive Engines and Marine Compression Ignition Engines less than 30 Liters per Cylinder,"

EPA-420-R-08-001a, May.

Table 1.4-18 Train TEU Capacity - 8,000 ft Train

8,000ft Train	
Teu Factor	1.68
# of Stacks	24
FEU	240
% of FEU that is 20ft	19%
# of 20ft	91.2
# of 40ft	194.4
TEU Volume	480
97% Utilization	466
93% utilization	446

Provided by APL/Eagle Marine (email from J. Cutler, 7/1/2010, 10:14 am).

Table 1.4-19 Train TEU Capacity - 10,000 ft Train

10,000ft Train	
Teu Factor	1.68
# of Stacks	30
FEU	300
% of FEU that is 20ft	19%
# of 20ft	114
# of 40ft	243
TEU Volume	600
97% Utilization	582
93% utilization	558

Provided by APL/Eagle Marine (email from J. Cutler, 7/1/2010, 10:14 am).

Table 1.4-20 Assumed Average Train TEU Capacities

	Off-dock⁽¹⁾	On-Dock EB⁽²⁾	On-Dock WB⁽³⁾
TEUs per Train	494	466	446
Locomotives per Train ⁽¹⁾	4	4	4

Notes:

⁽¹⁾ From "The Port of Los Angeles Inventory of Air Emissions for Calendar Year 2009," Prepared for the Port of Los Angeles, by Starcrest Consulting Group, LLC, Technical Report ADP#050520-525, June 2010. TEUs per train based on 26 double-stacked rail cars at 95% capacity utilization.

⁽²⁾ Provided by APL/Eagle Marine (email from J. Cutler, 7/1/2010, 10:14 am). Based on APL calculation of 480 TEUs per 8,000 ft train, with 97% capacity utilization for eastbound (EB) trains leaving the APL terminal.

⁽³⁾ Provided by APL/Eagle Marine (email from J. Cutler, 7/1/2010, 10:14 am). Based on APL calculation of 480 TEUs per 8,000 ft train, with 93% capacity utilization for westbound (WB) trains entering the APL terminal.

Table 1.4-21 Locomotive Counts

		CEQA Baseline	NEPA Baseline					Proposed Project				
		(July 2008- June 2009)	2012 ¹	2015	2020	2025	2027	2012	2015	2020	2025	2027
Annual TEUs		1,128,080	1,906,000	1,948,201	2,033,536	2,118,871	2,153,000	1,906,000	2,702,000	2,912,000	3,122,000	3,206,000
Peak Month TEUs		118,538	173,446	177,286	185,052	192,817	195,923	173,446	245,882	264,992	284,102	291,746
TEU splits												
EB On Dock %		18.0%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	16.8%	16.4%
EB Off Dock %		5.4%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	6.0%	6.4%
WB On Dock %		17.3%	17.2%	17.2%	17.2%	17.2%	17.2%	17.2%	17.2%	17.2%	16.4%	16.0%
WB Off Dock %		5.2%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	5.8%	6.2%
% Total TEUs moved by rail		45.9%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Annual Rail TEUs												
EB On dock TEUs		203,088	339,950	347,477	362,697	377,917	384,005	339,950	481,923	519,378	525,006	524,850
EB Off dock TEUs		195,124	327,150	334,393	349,040	363,687	369,545	327,150	463,777	499,822	512,831	512,987
WB On dock TEUs		398,212	667,100	681,870	711,738	741,605	753,550	667,100	945,700	1,019,200	1,037,837	1,037,837
Total On APL Dock TEUs		398,212	667,100	681,870	711,738	741,605	753,550	667,100	945,700	1,019,200	1,037,837	1,037,837
EB Off Dock TEUs		60,984	97,206	99,358	103,710	108,062	109,803	97,206	137,802	148,512	187,202	206,480
WB Off Dock TEUs		58,592	93,394	95,462	99,643	103,825	105,497	93,394	132,398	142,688	179,861	198,383
Total Off Dock TEUs		119,576	190,600	194,820	203,354	211,887	215,300	190,600	270,200	291,200	367,063	404,863
TEUs by Rail (on and off dock)		517,789	857,700	876,690	915,091	953,492	968,850	857,700	1,215,900	1,310,400	1,404,900	1,442,700
% Total TEUs moved by rail		45.9%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Total EB TEUs		264,072	437,156	446,835	466,408	485,980	493,808	437,156	619,725	667,890	712,208	731,330
Total WB TEUs		253,716	420,544	429,855	448,684	467,512	475,042	420,544	596,175	642,510	692,692	711,370
Train TEU Capacities & Lengths												
On dock TEUs - EB		284	377	382	392	402	406	377	466	466	504	504
On dock TEUs - WB		272	361	366	376	385	389	361	446	446	483	483
Off Dock TEUs - EB		504	504	504	504	504	504	504	504	504	504	504
Off Dock TEUs - WB		484	484	484	484	484	484	484	484	484	484	484
Annual Trains												
EB On Dock												
8,000' Trains		715	902	910	925	940	946	902	1,035	1,116	752	752
10,000' Trains		-	-	-	-	-	-	-	-	-	301	301
WB On Dock												
8,000' Trains		717	905	913	929	944	949	905	1,039	1,120	766	766
10,000' Trains		-	-	-	-	-	-	-	-	-	306	306
Total On APL Dock Trains		1,432	1,807	1,823	1,854	1,884	1,895	1,807	2,074	2,235	2,125	2,125
EB Off Dock												
8,000' Trains		87	139	142	148	155	157	139	197	213	268	296
10,000' Trains		35	56	57	59	62	63	56	79	85	107	118
WB Off Dock												
8,000' Trains		88	139	143	149	155	158	139	198	213	269	296
10,000' Trains		35	56	57	60	62	63	56	79	85	107	119
Total Off Dock Trains		245	390	399	416	434	441	390	553	596	751	829
Total Trains Moving APL TEUs		1,676	2,197	2,221	2,270	2,317	2,336	2,197	2,627	2,831	2,876	2,953
Total EB Trains		837	1,097	1,109	1,133	1,157	1,166	1,097	1,311	1,413	1,428	1,466
Total WB Trains		839	1,100	1,113	1,137	1,161	1,170	1,100	1,316	1,418	1,448	1,487

Table 1.4-21 Locomotive Counts

		Alt 1 No Project					Alt 2 No Federal Action/NEPA Baseline				
		2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Annual TEUs		1,906,000	1,948,201	2,033,536	2,118,871	2,153,000	1,906,000	1,948,201	2,033,536	2,118,871	2,153,000
Peak Month TEUs		173,446	177,286	185,052	192,817	195,923	173,446	177,286	185,052	192,817	195,923
TEU splits											
EB On Dock %		17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%
EB Off Dock %		5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%
WB On Dock %		17.2%	17.2%	17.2%	17.2%	17.2%	17.2%	17.2%	17.2%	17.2%	17.2%
WB Off Dock %		4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%
	% Total TEUs moved by rail	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Annual Rail TEUs											
EB On dock TEUs		339,950	347,477	362,697	377,917	384,005	339,950	347,477	362,697	377,917	384,005
WB On dock TEUs		327,150	334,393	349,040	363,687	369,545	327,150	334,393	349,040	363,687	369,545
	Total On APL Dock TEUs	667,100	681,870	711,738	741,605	753,550	667,100	681,870	711,738	741,605	753,550
EB Off Dock TEUs		97,206	99,358	103,710	108,062	109,803	97,206	99,358	103,710	108,062	109,803
WB Off Dock TEUs		93,394	95,462	99,643	103,825	105,497	93,394	95,462	99,643	103,825	105,497
	Total Off Dock TEUs	190,600	194,820	203,354	211,887	215,300	190,600	194,820	203,354	211,887	215,300
	TEUs by Rail (on and off dock)	857,700	876,690	915,091	953,492	968,850	857,700	876,690	915,091	953,492	968,850
	% Total TEUs moved by rail	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
	Total EB TEUs	437,156	446,835	466,408	485,980	493,808	437,156	446,835	466,408	485,980	493,808
	Total WB TEUs	420,544	429,855	448,684	467,512	475,042	420,544	429,855	448,684	467,512	475,042
Train TEU Capacities & Lengths											
	On dock TEUs - EB	377	382	392	402	406	377	382	392	402	406
	On dock TEUs - WB	361	366	376	385	389	361	366	376	385	389
	Off Dock TEUs - EB	504	504	504	504	504	504	504	504	504	504
	Off Dock TEUs - WB	484	484	484	484	484	484	484	484	484	484
Annual Trains											
EB On Dock	8,000' Trains	902	910	925	940	946	902	910	925	940	946
	10,000' Trains	-	-	-	-	-	-	-	-	-	-
WB On Dock	8,000' Trains	905	913	929	944	949	905	913	929	944	949
	10,000' Trains	-	-	-	-	-	-	-	-	-	-
	Total On APL Dock Trains	1,807	1,823	1,854	1,884	1,895	1,807	1,823	1,854	1,884	1,895
EB Off Dock	8,000' Trains	139	142	148	155	157	139	142	148	155	157
	10,000' Trains	56	57	59	62	63	56	57	59	62	63
WB Off Dock	8,000' Trains	139	143	149	155	158	139	143	149	155	158
	10,000' Trains	56	57	60	62	63	56	57	60	62	63
	Total Off Dock Trains	390	399	416	434	441	390	399	416	434	441
	Total Trains Moving APL TEUs	2,197	2,221	2,270	2,317	2,336	2,197	2,221	2,270	2,317	2,336
	Total EB Trains	1,097	1,109	1,133	1,157	1,166	1,097	1,109	1,133	1,157	1,166
	Total WB Trains	1,100	1,113	1,137	1,161	1,170	1,100	1,113	1,137	1,161	1,170

Table 1.4-21 Locomotive Counts

		Alternative 3 – Reduced Project: Four New Cranes					Alternative 4 – Reduced Project: No New Wharf				
		2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Annual TEUs		1,906,000	2,102,000	2,302,417	2,502,833	2,583,000	1,906,000	2,263,000	2,479,667	2,696,333	2,783,000
Peak Month TEUs		173,446	191,282	209,520	227,758	235,053	173,446	205,933	225,650	245,366	253,253
TEU splits											
EB On Dock %		17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%
EB Off Dock %		5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%
WB On Dock %		17.2%	17.2%	17.2%	17.2%	17.2%	17.2%	17.2%	17.2%	17.2%	17.2%
WB Off Dock %		4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%
	% Total TEUs moved by rail	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Annual Rail TEUs											
EB On dock TEUs		339,950	374,908	410,654	446,400	460,698	339,950	403,624	442,268	480,912	496,370
WB On dock TEUs		327,150	360,792	395,192	429,592	443,352	327,150	388,426	425,615	462,804	477,680
	Total On APL Dock TEUs	667,100	735,700	805,846	875,992	904,050	667,100	792,050	867,883	943,717	974,050
EB Off Dock TEUs		97,206	107,202	117,423	127,645	131,733	97,206	115,413	126,463	137,513	141,933
WB Off Dock TEUs		93,394	102,998	112,818	122,639	126,567	93,394	110,887	121,504	132,120	136,367
	Total Off Dock TEUs	190,600	210,200	230,242	250,283	258,300	190,600	226,300	247,967	269,633	278,300
	TEUs by Rail (on and off dock)	857,700	945,900	1,036,088	1,126,275	1,162,350	857,700	1,018,350	1,115,850	1,213,350	1,252,350
	% Total TEUs moved by rail	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
	Total EB TEUs	437,156	482,110	528,077	574,045	592,431	437,156	519,037	568,731	618,425	638,303
	Total WB TEUs	420,544	463,790	508,010	552,230	569,919	420,544	499,313	547,119	594,925	614,047
Train TEU Capacities & Lengths											
	On dock TEUs - EB	377	400	424	449	458	377	420	446	472	482
	On dock TEUs - WB	361	384	407	430	439	361	403	428	453	462
	Off Dock TEUs - EB	504	504	504	504	504	504	504	504	504	504
	Off Dock TEUs - WB	484	484	484	484	484	484	484	484	484	484
Annual Trains											
EB On Dock	8,000' Trains	902	937	969	994	1,006	902	961	992	689	711
	10,000' Trains	-	-	-	-	-	-	-	-	275	284
WB On Dock	8,000' Trains	905	941	972	998	1,010	905	965	995	691	713
	10,000' Trains	-	-	-	-	-	-	-	-	276	285
	Total On APL Dock Trains	1,807	1,878	1,941	1,992	2,016	1,807	1,926	1,987	1,932	1,994
EB Off Dock	8,000' Trains	139	153	168	183	189	139	165	181	197	203
	10,000' Trains	56	61	67	73	75	56	66	72	79	81
WB Off Dock	8,000' Trains	139	154	168	183	189	139	166	181	197	204
	10,000' Trains	56	62	67	73	76	56	66	73	79	81
	Total Off Dock Trains	390	430	471	512	529	390	463	508	552	570
	Total Trains Moving APL TEUs	2,197	2,308	2,412	2,504	2,544	2,197	2,389	2,495	2,484	2,563
	Total EB Trains	1,097	1,152	1,204	1,250	1,270	1,097	1,192	1,245	1,240	1,280
	Total WB Trains	1,100	1,156	1,208	1,254	1,274	1,100	1,196	1,249	1,244	1,284

Table 1.4-21 Locomotive Counts

		Alternative 5 – Reduced Project: No Space Assignments					Alternative 6 – Proposed Project with Expanded On-dock Rail Yard				
		2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Annual TEUs		1,906,000	2,702,000	2,912,000	3,122,000	3,206,000	1,906,000	2,702,000	2,912,000	3,122,000	3,206,000
Peak Month TEUs		173,446	245,882	264,992	284,102	291,746	173,446	245,882	264,992	284,102	291,746
TEU splits											
EB On Dock %		17.8%	17.8%	17.8%	16.8%	16.4%	17.8%	17.8%	17.8%	17.8%	17.8%
EB Off Dock %		5.1%	5.1%	5.1%	6.0%	6.4%	5.1%	5.1%	5.1%	5.1%	5.1%
WB On Dock %		17.2%	17.2%	17.2%	16.4%	16.0%	17.2%	17.2%	17.2%	17.2%	17.2%
WB Off Dock %		4.9%	4.9%	4.9%	5.8%	6.2%	4.9%	4.9%	4.9%	4.9%	4.9%
	% Total TEUs moved by rail	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Annual Rail TEUs											
EB On dock TEUs		339,950	481,923	519,378	525,006	524,850	339,950	481,923	519,378	556,833	571,815
WB On dock TEUs		327,150	463,777	499,822	512,831	512,987	327,150	463,777	499,822	535,867	550,285
	Total On APL Dock TEUs	667,100	945,700	1,019,200	1,037,837	1,037,837	667,100	945,700	1,019,200	1,092,700	1,122,100
EB Off Dock TEUs		97,206	137,802	148,512	187,202	206,480	97,206	137,802	148,512	159,222	163,506
WB Off Dock TEUs		93,394	132,398	142,688	179,861	198,383	93,394	132,398	142,688	152,978	157,094
	Total Off Dock TEUs	190,600	270,200	291,200	367,063	404,863	190,600	270,200	291,200	312,200	320,600
	TEUs by Rail (on and off dock)	857,700	1,215,900	1,310,400	1,404,900	1,442,700	857,700	1,215,900	1,310,400	1,404,900	1,442,700
	% Total TEUs moved by rail	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
	Total EB TEUs	437,156	619,725	667,890	712,208	731,330	437,156	619,725	667,890	716,055	735,321
	Total WB TEUs	420,544	596,175	642,510	692,692	711,370	420,544	596,175	642,510	688,845	707,379
Train TEU Capacities & Lengths											
	On dock TEUs - EB	377	466	466	504	504	377	466	466	504	504
	On dock TEUs - WB	361	446	446	483	483	361	446	446	484	484
	Off Dock TEUs - EB	504	504	504	504	504	504	504	504	504	504
	Off Dock TEUs - WB	484	484	484	484	484	484	484	484	484	484
Annual Trains											
EB On Dock	8,000' Trains	902	1,035	1,116	752	752	902	1,035	1,116	797	819
	10,000' Trains	-	-	-	301	301	-	-	-	319	328
WB On Dock	8,000' Trains	905	1,039	1,120	766	766	905	1,039	1,120	800	822
	10,000' Trains	-	-	-	306	306	-	-	-	320	329
	Total On APL Dock Trains	1,807	2,074	2,235	2,125	2,125	1,807	2,074	2,235	2,237	2,297
EB Off Dock	8,000' Trains	139	197	213	268	296	139	197	213	228	234
	10,000' Trains	56	79	85	107	118	56	79	85	91	94
WB Off Dock	8,000' Trains	139	198	213	269	296	139	198	213	228	235
	10,000' Trains	56	79	85	107	119	56	79	85	91	94
	Total Off Dock Trains	390	553	596	751	829	390	553	596	639	656
	Total Trains Moving APL TEUs	2,197	2,627	2,831	2,876	2,953	2,197	2,627	2,831	2,876	2,953
	Total EB Trains	1,097	1,311	1,413	1,428	1,466	1,097	1,311	1,413	1,435	1,474
	Total WB Trains	1,100	1,316	1,418	1,448	1,487	1,100	1,316	1,418	1,440	1,479

Table 1.4-21 Locomotive Counts

		CEQA Baseline	NEPA Baseline					Proposed Project				
		(July 2008- June 2009)	2012 ¹	2015	2020	2025	2027	2012	2015	2020	2025	2027
Peak Weekday Trains												
EB On Dock	8,000' Trains	2.46	2.69	2.71	2.76	2.81	2.82	2.69	3.09	3.33	2.24	2.24
	Whole	2	2	2	2	2	2	2	3	3	2	2
	Partial	0.46	0.69	0.71	0.76	0.81	0.82	0.69	0.09	0.33	0.24	0.24
	Size of Partial 8 K ft (TEUs)	132	261	273	298	324	334	261	41	153	123	122
	10,000' Trains	-	-	-	-	-	-	-	-	-	0.90	0.90
	Whole	-	-	-	-	-	-	-	-	-	-	-
	Partial	-	-	-	-	-	-	-	-	-	0.90	0.90
	Size of Partial 10 K ft (TEUs)	-	-	-	-	-	-	-	-	-	538	538
	Sum of Partial (TEUs)	132	261	273	298	324	334	261	41	153	661	661
	Total 8,000' Trains	3	3	3	3	3	3	3	3	3	3	3
	Total 10,000' Trains	-	-	-	-	-	-	-	-	-	1	1
	Total EB On Dock Trains	3	3	3	3	3	3	3	3	3	4	4
WB On Dock	8,000' Trains	2.47	2.70	2.72	2.77	2.82	2.83	2.70	3.10	3.34	2.29	2.29
	Whole	2	2	2	2	2	2	2	3	3	2	2
	Partial	0.47	0.70	0.72	0.77	0.82	0.83	0.70	0.10	0.34	0.29	0.29
	Size of Partial 8 K ft (TEUs)	128	253	265	290	315	324	253	45	152	138	138
	10,000' Trains	-	-	-	-	-	-	-	-	-	0.91	0.91
	Whole	-	-	-	-	-	-	-	-	-	-	-
	Partial	-	-	-	-	-	-	-	-	-	0.91	0.91
	Size of Partial 10 K ft (TEUs)	-	-	-	-	-	-	-	-	-	549	549
	Sum of Partial (TEUs)	128	253	265	290	315	324	253	45	152	687	687
	Total 8,000' Trains	3	3	3	3	3	3	3	3	3	3	3
	Total 10,000' Trains	-	-	-	-	-	-	-	-	-	1	1
	Total WB On Dock Trains	3	3	3	3	3	3	3	3	3	4	4
Total APL On Dock Trains	6	6	6	6	6	6	6	6	6	8	8	
EB Off Dock	8,000' Trains	0.30	0.42	0.42	0.44	0.46	0.47	0.42	0.59	0.63	0.80	0.88
	10,000' Trains	0.12	0.17	0.17	0.18	0.18	0.19	0.17	0.24	0.25	0.32	0.35
	Total EB Off Dock TEUs	212	293	300	313	326	331	293	416	448	565	623
WB Off Dock	8,000' Trains	0.30	0.42	0.43	0.44	0.46	0.47	0.42	0.59	0.64	0.80	0.88
	10,000' Trains	0.12	0.17	0.17	0.18	0.19	0.19	0.17	0.24	0.25	0.32	0.35
	Total WB Off Dock Trains	204	282	288	301	313	318	282	400	431	543	599
Total Daily APL Off Dock TEUs	417	575	588	614	639	650	575	815	879	1,108	1,222	

Table 1.4-21 Locomotive Counts

		Alt 1 No Project					Alt 2 No Federal Action/NEPA Baseline				
		2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Peak Weekday Trains											
EB On Dock	8,000' Trains	2.69	2.71	2.76	2.81	2.82	2.69	2.71	2.76	2.81	2.82
	Whole	2	2	2	2	2	2	2	2	2	2
	Partial	0.69	0.71	0.76	0.81	0.82	0.69	0.71	0.76	0.81	0.82
	Size of Partial 8 K ft (TEUs)	261	273	298	324	334	261	273	298	324	334
	10,000' Trains	-	-	-	-	-	-	-	-	-	-
	Whole	-	-	-	-	-	-	-	-	-	-
	Partial	-	-	-	-	-	-	-	-	-	-
	Size of Partial 10 K ft (TEUs)	-	-	-	-	-	-	-	-	-	-
	Sum of Partial (TEUs)	261	273	298	324	334	261	273	298	324	334
	Total 8,000' Trains	3	3	3	3	3	3	3	3	3	3
	Total 10,000' Trains	-	-	-	-	-	-	-	-	-	-
Total EB On Dock Trains	3	3	3	3	3	3	3	3	3	3	
WB On Dock	8,000' Trains	2.70	2.72	2.77	2.82	2.83	2.70	2.72	2.77	2.82	2.83
	Whole	2	2	2	2	2	2	2	2	2	2
	Partial	0.70	0.72	0.77	0.82	0.83	0.70	0.72	0.77	0.82	0.83
	Size of Partial 8 K ft (TEUs)	253	265	290	315	324	253	265	290	315	324
	10,000' Trains	-	-	-	-	-	-	-	-	-	-
	Whole	-	-	-	-	-	-	-	-	-	-
	Partial	-	-	-	-	-	-	-	-	-	-
	Size of Partial 10 K ft (TEUs)	-	-	-	-	-	-	-	-	-	-
	Sum of Partial (TEUs)	253	265	290	315	324	253	265	290	315	324
	Total 8,000' Trains	3	3	3	3	3	3	3	3	3	3
	Total 10,000' Trains	-	-	-	-	-	-	-	-	-	-
Total WB On Dock Trains	3	3	3	3	3	3	3	3	3	3	
Total APL On Dock Trains	6	6	6	6	6	6	6	6	6	6	
EB Off Dock	8,000' Trains	0.42	0.42	0.44	0.46	0.47	0.42	0.42	0.44	0.46	0.47
	10,000' Trains	0.17	0.17	0.18	0.18	0.19	0.17	0.17	0.18	0.18	0.19
	Total EB Off Dock TEUs	293	300	313	326	331	293	300	313	326	331
WB Off Dock	8,000' Trains	0.42	0.43	0.44	0.46	0.47	0.42	0.43	0.44	0.46	0.47
	10,000' Trains	0.17	0.17	0.18	0.19	0.19	0.17	0.17	0.18	0.19	0.19
	Total WB Off Dock Trains	282	288	301	313	318	282	288	301	313	318
Total Daily APL Off Dock TEUs	575	588	614	639	650	575	588	614	639	650	

Table 1.4-21 Locomotive Counts

		Alternative 3 – Reduced Project: Four New Cranes					Alternative 4 – Reduced Project: No New Wharf					
		2012	2015	2020	2025	2027	2012	2015	2020	2025	2027	
Peak Weekday Trains												
EB On Dock		8,000' Trains	2.69	2.80	2.89	2.97	3.00	2.69	2.87	2.96	2.05	2.12
		Whole	2	2	2	2	3	2	2	2	2	2
		Partial	0.69	0.80	0.89	0.97	0.00	0.69	0.87	0.96	0.05	0.12
		Size of Partial 8 K ft (TEUs)	261	319	378	434	1	261	365	428	26	58
		10,000' Trains	-	-	-	-	-	-	-	-	0.82	0.85
		Whole	-	-	-	-	-	-	-	-	-	-
		Partial	-	-	-	-	-	-	-	-	0.82	0.85
		Size of Partial 10 K ft (TEUs)	-	-	-	-	-	-	-	-	493	509
		Sum of Partial (TEUs)	261	319	378	434	1	261	365	428	519	567
		Total 8,000' Trains	3	3	3	3	3	3	3	3	2	2
		Total 10,000' Trains	-	-	-	-	-	-	-	-	1	1
		Total EB On Dock Trains	3	3	3	3	3	3	3	3	3	3
WB On Dock		8,000' Trains	2.70	2.81	2.90	2.98	3.01	2.70	2.88	2.97	2.06	2.13
		Whole	2	2	2	2	3	2	2	2	2	2
		Partial	0.70	0.81	0.90	0.98	0.01	0.70	0.88	0.97	0.06	0.13
		Size of Partial 8 K ft (TEUs)	253	310	366	421	6	253	354	415	28	60
		10,000' Trains	-	-	-	-	-	-	-	-	0.83	0.85
		Whole	-	-	-	-	-	-	-	-	-	-
		Partial	-	-	-	-	-	-	-	-	0.83	0.85
		Size of Partial 10 K ft (TEUs)	-	-	-	-	-	-	-	-	495	511
		Sum of Partial (TEUs)	253	310	366	421	6	253	354	415	523	571
		Total 8,000' Trains	3	3	3	3	3	3	3	3	2	2
		Total 10,000' Trains	-	-	-	-	-	-	-	-	1	1
		Total WB On Dock Trains	3	3	3	3	3	3	3	3	3	3
		Total APL On Dock Trains	6	6	6	6	6	6	6	6	6	6
EB Off Dock		8,000' Trains	0.42	0.46	0.50	0.55	0.56	0.42	0.49	0.54	0.59	0.61
		10,000' Trains	0.17	0.18	0.20	0.22	0.23	0.17	0.20	0.22	0.24	0.24
		Total EB Off Dock TEUs	293	323	354	385	397	293	348	382	415	428
WB Off Dock		8,000' Trains	0.42	0.46	0.50	0.55	0.56	0.42	0.49	0.54	0.59	0.61
		10,000' Trains	0.17	0.18	0.20	0.22	0.23	0.17	0.20	0.22	0.24	0.24
		Total WB Off Dock Trains	282	311	340	370	382	282	335	367	399	411
		Total Daily APL Off Dock TEUs	575	634	695	755	779	575	683	748	814	840

Table 1.4-21 Locomotive Counts

		Alternative 5 – Reduced Project: No Space Assignments					Alternative 6 – Proposed Project with Expanded On-dock Rail Yard				
		2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Peak Weekday Trains											
EB On Dock											
	8,000' Trains	2.69	3.09	3.33	2.24	2.24	2.69	3.09	3.33	2.38	2.44
	Whole	2	3	3	2	2	2	3	3	2	2
	Partial	0.69	0.09	0.33	0.24	0.24	0.69	0.09	0.33	0.38	0.44
	Size of Partial 8 K ft (TEUs)	261	41	153	123	122	261	41	153	191	224
	10,000' Trains	-	-	-	0.90	0.90	-	-	-	0.95	0.98
	Whole	-	-	-	-	-	-	-	-	-	-
	Partial	-	-	-	0.90	0.90	-	-	-	0.95	0.98
	Size of Partial 10 K ft (TEUs)	-	-	-	538	538	-	-	-	571	586
	Sum of Partial (TEUs)	261	41	153	661	661	261	41	153	762	810
	Total 8,000' Trains	3	3	3	3	3	3	3	3	3	3
	Total 10,000' Trains	-	-	-	1	1	-	-	-	1	1
	Total EB On Dock Trains	3	3	3	4	4	3	3	3	4	4
WB On Dock											
	8,000' Trains	2.70	3.10	3.34	2.29	2.29	2.70	3.10	3.34	2.39	2.45
	Whole	2	3	3	2	2	2	3	3	2	2
	Partial	0.70	0.10	0.34	0.29	0.29	0.70	0.10	0.34	0.39	0.45
	Size of Partial 8 K ft (TEUs)	253	45	152	138	138	253	45	152	188	219
	10,000' Trains	-	-	-	0.91	0.91	-	-	-	0.96	0.98
	Whole	-	-	-	-	-	-	-	-	-	-
	Partial	-	-	-	0.91	0.91	-	-	-	0.96	0.98
	Size of Partial 10 K ft (TEUs)	-	-	-	549	549	-	-	-	573	589
	Sum of Partial (TEUs)	253	45	152	687	687	253	45	152	761	807
	Total 8,000' Trains	3	3	3	3	3	3	3	3	3	3
	Total 10,000' Trains	-	-	-	1	1	-	-	-	1	1
	Total WB On Dock Trains	3	3	3	4	4	3	3	3	4	4
Total APL On Dock Trains		6	6	6	8	8	6	6	6	8	8
EB Off Dock											
	8,000' Trains	0.42	0.59	0.63	0.80	0.88	0.42	0.59	0.63	0.68	0.70
	10,000' Trains	0.17	0.24	0.25	0.32	0.35	0.17	0.24	0.25	0.27	0.28
	Total EB Off Dock TEUs	293	416	448	565	623	293	416	448	480	493
WB Off Dock											
	8,000' Trains	0.42	0.59	0.64	0.80	0.88	0.42	0.59	0.64	0.68	0.70
	10,000' Trains	0.17	0.24	0.25	0.32	0.35	0.17	0.24	0.25	0.27	0.28
	Total WB Off Dock Trains	282	400	431	543	599	282	400	431	462	474
Total Daily APL Off Dock TEUs		575	815	879	1,108	1,222	575	815	879	942	967

Table 1.4-21 Locomotive Counts

CEQA Baseline (July 2008- June 2009)	NEPA Baseline					Proposed Project				
	2012 ¹	2015	2020	2025	2027	2012	2015	2020	2025	2027
Total Weekday Locomotives (both Directions)										
<u>On-Dock Daily Locomotive Counts:</u>										
On-Dock Daily EB Whole Trains	2	2	2	2	2	2	3	3	3	3
On-Dock Daily WB Whole Trains	2	2	2	2	2	2	3	3	3	3
On-Dock Daily EB Partial Train Size (TEUs)	132	308	321	354	386	396	308	129	172	184
On-Dock Daily WB Partial Train Size (TEUs)	128	300	312	342	372	385	300	128	171	207
Locomotives per On-Dock EB Whole Train	3	3	3	4	4	4	3	4	4	4
Locomotives per On-Dock WB Whole Train	3	3	3	3	3	3	3	4	4	4
Locomotives per On-Dock EB Partial Train	2	3	3	3	3	4	3	1	2	2
Locomotives per On-Dock WB Partial Train	1	3	3	3	3	3	3	1	2	2
Total On-Dock Locomotives per Day	15	18	18	20	20	21	18	26	28	28
<u>Off-Dock Daily Locomotive Counts:</u>										
Off-Dock Daily EB Train Size (TEUs)	212	293	300	313	326	331	293	416	448	565
Off-Dock Daily WB Train Size (TEUs)	204	282	288	301	313	318	282	400	431	543
Locomotives per Off-Dock EB Whole Train	2	2	2	2	3	3	2	3	3	4
Locomotives per Off-Dock WB Whole Train	2	2	2	2	2	2	2	3	3	4
Total Off-Dock Locomotives per Day	4	4	4	4	5	5	4	6	6	8
TOTAL LOCOMOTIVES PER DAY	19	22	22	24	25	26	22	32	34	36
Total Annual Locomotives (both Directions)										
<u>Annual On-Dock Locomotive Counts:</u>										
Annual On-Dock EB Locomotives	2,145	2,705	2,729	3,701	3,760	3,783	2,705	4,140	4,462	4,210
Annual On-Dock WB Locomotives	2,150	2,715	2,739	2,786	2,831	2,848	2,715	4,156	4,479	4,289
Total On-Dock Locomotives per Year	4,295	5,420	5,468	6,487	6,591	6,631	5,420	8,296	8,941	8,499
Annual Off-Dock EB Locomotives	489	779	797	832	866	880	779	1,105	1,191	1,501
Annual Off-Dock WB Locomotives	490	781	798	833	868	882	781	1,107	1,193	1,659
Total Off-Dock Locomotives per Year	979	1,561	1,595	1,665	1,735	1,763	1,561	2,212	2,384	3,151
TOTAL LOCOMOTIVES PER YEAR	5,274	6,981	7,063	8,152	8,326	8,394	6,981	10,508	11,325	11,650

Table 1.4-21 Locomotive Counts

	Alt 1 No Project					Alt 2 No Federal Action/NEPA Baseline				
	2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Total Weekday Locomotives (both Directions)										
<u>On-Dock Daily Locomotive Counts:</u>										
On-Dock Daily EB Whole Trains	2	2	2	2	2	2	2	2	2	2
On-Dock Daily WB Whole Trains	2	2	2	2	2	2	2	2	2	2
On-Dock Daily EB Partial Train Size (TEUs)	308	321	354	386	396	308	321	354	386	396
On-Dock Daily WB Partial Train Size (TEUs)	300	312	342	372	385	300	312	342	372	385
Locomotives per On-Dock EB Whole Train	3	3	4	4	4	3	3	4	4	4
Locomotives per On-Dock WB Whole Train	3	3	3	3	3	3	3	3	3	3
Locomotives per On-Dock EB Partial Train	3	3	3	3	4	3	3	3	3	4
Locomotives per On-Dock WB Partial Train	3	3	3	3	3	3	3	3	3	3
Total On-Dock Locomotives per Day	18	18	20	20	21	18	18	20	20	21
<u>Off-Dock Daily Locomotive Counts:</u>										
Off-Dock Daily EB Train Size (TEUs)	293	300	313	326	331	293	300	313	326	331
Off-Dock Daily WB Train Size (TEUs)	282	288	301	313	318	282	288	301	313	318
Locomotives per Off-Dock EB Whole Train	2	2	2	3	3	2	2	2	3	3
Locomotives per Off-Dock WB Whole Train	2	2	2	2	2	2	2	2	2	2
Total Off-Dock Locomotives per Day	4	4	4	5	5	4	4	4	5	5
TOTAL LOCOMOTIVES PER DAY	22	22	24	25	26	22	22	24	25	26
Total Annual Locomotives (both Directions)										
<u>Annual On-Dock Locomotive Counts:</u>										
Annual On-Dock EB Locomotives	2,705	2,729	3,701	3,760	3,783	2,705	2,729	3,701	3,760	3,783
Annual On-Dock WB Locomotives	2,715	2,739	2,786	2,831	2,848	2,715	2,739	2,786	2,831	2,848
Total On-Dock Locomotives per Year	5,420	5,468	6,487	6,591	6,631	5,420	5,468	6,487	6,591	6,631
Annual Off-Dock EB Locomotives	779	797	832	866	880	779	797	832	866	880
Annual Off-Dock WB Locomotives	781	798	833	868	882	781	798	833	868	882
Total Off-Dock Locomotives per Year	1,561	1,595	1,665	1,735	1,763	1,561	1,595	1,665	1,735	1,763
TOTAL LOCOMOTIVES PER YEAR	6,981	7,063	8,152	8,326	8,394	6,981	7,063	8,152	8,326	8,394

Table 1.4-21 Locomotive Counts

	Alternative 3 – Reduced Project: Four New Cranes					Alternative 4 – Reduced Project: No New Wharf				
	2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Total Weekday Locomotives (both Directions)										
<u>On-Dock Daily Locomotive Counts:</u>										
On-Dock Daily EB Whole Trains	2	2	3	3	3	2	3	3	3	3
On-Dock Daily WB Whole Trains	2	2	3	3	3	2	3	3	3	3
On-Dock Daily EB Partial Train Size (TEUs)	308	378	27	77	97	308	18	74	127	151
On-Dock Daily WB Partial Train Size (TEUs)	300	367	32	81	100	300	24	75	127	149
Locomotives per On-Dock EB Whole Train	3	4	4	4	4	3	4	4	4	4
Locomotives per On-Dock WB Whole Train	3	3	4	4	4	3	4	4	4	4
Locomotives per On-Dock EB Partial Train	3	3	1	1	1	3	1	1	1	2
Locomotives per On-Dock WB Partial Train	3	3	1	1	1	3	1	1	1	2
Total On-Dock Locomotives per Day	18	20	26	26	26	18	26	26	26	28
<u>Off-Dock Daily Locomotive Counts:</u>										
Off-Dock Daily EB Train Size (TEUs)	293	323	354	385	397	293	348	382	415	428
Off-Dock Daily WB Train Size (TEUs)	282	311	340	370	382	282	335	367	399	411
Locomotives per Off-Dock EB Whole Train	2	2	3	3	3	2	3	3	3	3
Locomotives per Off-Dock WB Whole Train	2	2	3	3	3	2	3	3	3	3
Total Off-Dock Locomotives per Day	4	4	6	6	6	4	6	6	6	6
TOTAL LOCOMOTIVES PER DAY	22	24	32	32	32	22	32	32	32	34
Total Annual Locomotives (both Directions)										
<u>Annual On-Dock Locomotive Counts:</u>										
Annual On-Dock EB Locomotives	2,705	3,749	3,874	3,977	4,024	2,705	3,844	3,967	3,856	3,980
Annual On-Dock WB Locomotives	2,715	2,822	3,889	3,992	4,039	2,715	3,858	3,981	3,871	3,995
Total On-Dock Locomotives per Year	5,420	6,571	7,763	7,969	8,062	5,420	7,702	7,948	7,727	7,975
Annual Off-Dock EB Locomotives	779	860	942	1,023	1,056	779	925	1,014	1,103	1,138
Annual Off-Dock WB Locomotives	781	861	944	1,026	1,059	781	927	1,016	1,105	1,140
Total Off-Dock Locomotives per Year	1,561	1,721	1,885	2,049	2,115	1,561	1,853	2,030	2,208	2,279
TOTAL LOCOMOTIVES PER YEAR	6,981	8,292	9,648	10,018	10,177	6,981	9,555	9,978	9,934	10,254

Table 1.4-21 Locomotive Counts

	Alternative 5 – Reduced Project: No Space Assignments					Alternative 6 – Proposed Project with Expanded On-dock Rail Yard				
	2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Total Weekday Locomotives (both Directions)										
<u>On-Dock Daily Locomotive Counts:</u>										
On-Dock Daily EB Whole Trains	2	3	3	3	3	2	3	3	3	3
On-Dock Daily WB Whole Trains	2	3	3	3	3	2	3	3	3	3
On-Dock Daily EB Partial Train Size (TEUs)	308	129	172	183	182	308	129	172	285	334
On-Dock Daily WB Partial Train Size (TEUs)	300	128	171	208	209	300	128	171	283	330
Locomotives per On-Dock EB Whole Train	3	4	4	4	4	3	4	4	4	4
Locomotives per On-Dock WB Whole Train	3	4	4	4	4	3	4	4	4	4
Locomotives per On-Dock EB Partial Train	3	1	2	2	2	3	1	2	3	3
Locomotives per On-Dock WB Partial Train	3	1	2	2	2	3	1	2	3	3
Total On-Dock Locomotives per Day	18	26	28	28	28	18	26	28	30	30
<u>Off-Dock Daily Locomotive Counts:</u>										
Off-Dock Daily EB Train Size (TEUs)	293	416	448	565	623	293	416	448	480	493
Off-Dock Daily WB Train Size (TEUs)	282	400	431	543	599	282	400	431	462	474
Locomotives per Off-Dock EB Whole Train	2	3	3	4	5	2	3	3	4	4
Locomotives per Off-Dock WB Whole Train	2	3	3	4	5	2	3	3	4	4
Total Off-Dock Locomotives per Day	4	6	6	8	10	4	6	6	8	8
TOTAL LOCOMOTIVES PER DAY	22	32	34	36	38	22	32	34	38	38
Total Annual Locomotives (both Directions)										
<u>Annual On-Dock Locomotive Counts:</u>										
Annual On-Dock EB Locomotives	2,705	4,140	4,462	4,210	4,208	2,705	4,140	4,462	4,465	4,585
Annual On-Dock WB Locomotives	2,715	4,156	4,479	4,289	4,290	2,715	4,156	4,479	4,482	4,602
Total On-Dock Locomotives per Year	5,420	8,296	8,941	8,499	8,499	5,420	8,296	8,941	8,946	9,187
Annual Off-Dock EB Locomotives	779	1,105	1,191	1,501	1,656	779	1,105	1,191	1,277	1,311
Annual Off-Dock WB Locomotives	781	1,107	1,193	1,504	1,659	781	1,107	1,193	1,279	1,314
Total Off-Dock Locomotives per Year	1,561	2,212	2,384	3,005	3,315	1,561	2,212	2,384	2,556	2,625
TOTAL LOCOMOTIVES PER YEAR	6,981	10,508	11,325	11,504	11,813	6,981	10,508	11,325	11,503	11,812

Table 1.5-1 Worker Vehicle Trip Emissions

	CO (lbs/day)	ROG (lbs/day)	NOx (lbs/day)	SOx (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	CO (tpy)	ROG (tpy)	NOx (tpy)	SOx (tpy)	PM10 (tpy)	PM2.5 (tpy)	CO2 (tpy)	CH4 (tpy)	N2O (tpy)
Baseline	367	35	32	0	43	9	26.07	2.48	2.28	0.03	3.04	0.61	3,137	0.27	0.36
Proposed Project															
2012	296	29	24	0	47	10	37.91	3.68	3.11	0.06	6.01	1.23	5,886	0.38	0.63
2015	347	35	27	1	69	14	47.47	4.81	3.73	0.09	9.47	1.94	8,400	0.47	0.64
2020	263	29	19	1	76	16	34.95	3.89	2.59	0.10	10.06	2.08	7,300	0.36	0.34
2025	204	24	14	1	81	17	27.12	3.20	1.92	0.11	10.82	2.24	7,203	0.29	0.41
2027	188	22	13	1	84	17	25.44	3.02	1.77	0.11	11.30	2.34	7,326	0.28	0.38
NEPA/ Alt1/ Alt2															
2012	296	29	24	0	47	10	37.91	3.68	3.11	0.06	6.01	1.23	5,886	0.38	0.63
2015	241	24	19	0	48	10	31.51	3.19	2.48	0.06	6.29	1.29	5,577	0.32	0.42
2020	173	19	13	0	50	10	23.27	2.59	1.72	0.07	6.70	1.38	4,861	0.24	0.22
2025	130	15	9	1	52	11	18.18	2.14	1.28	0.07	7.26	1.50	4,828	0.20	0.27
2027	118	14	8	1	52	11	16.09	1.91	1.12	0.07	7.15	1.48	4,634	0.17	0.24
Alt3															
2012	296	29	24	0	47	10	37.91	3.68	3.11	0.06	6.01	1.23	5,886	0.38	0.63
2015	257	26	20	1	51	11	31.95	3.24	2.51	0.06	6.38	1.31	5,655	0.32	0.43
2020	194	22	14	1	56	12	25.58	2.85	1.89	0.07	7.36	1.52	5,343	0.26	0.25
2025	151	18	11	1	60	12	21.15	2.49	1.49	0.08	8.44	1.75	5,618	0.23	0.32
2027	144	17	10	1	64	13	20.38	2.42	1.42	0.09	9.06	1.87	5,870	0.22	0.30
Alt4															
2012	296	29	24	0	47	10	37.91	3.68	3.11	0.06	6.01	1.23	5,886	0.38	0.63
2015	288	29	23	1	57	12	37.36	3.78	2.94	0.07	7.45	1.53	6,612	0.37	0.50
2020	222	25	16	1	64	13	30.68	3.42	2.27	0.09	8.83	1.82	6,408	0.32	0.29
2025	181	21	13	1	72	15	25.76	3.04	1.82	0.10	10.28	2.13	6,842	0.28	0.39
2027	168	20	12	1	75	15	22.51	2.67	1.56	0.10	10.00	2.07	6,484	0.24	0.33
Alt5															
2012	296	29	24	0	47	10	37.91	3.68	3.11	0.06	6.01	1.23	5,886	0.38	0.63
2015	340	34	27	1	68	14	49.07	4.97	3.86	0.10	9.79	2.01	8,685	0.49	0.66
2020	263	29	19	1	76	16	35.43	3.94	2.62	0.10	10.20	2.11	7,400	0.36	0.34
2025	207	24	15	1	83	17	27.51	3.24	1.94	0.11	10.98	2.27	7,306	0.30	0.41
2027	192	23	13	1	85	18	26.00	3.09	1.81	0.11	11.55	2.39	7,487	0.28	0.38
Alt6															
2012	296	29	24	0	47	10	37.91	3.68	3.11	0.06	6.01	1.23	5,886	0.38	0.63
2015	347	35	27	1	69	14	47.51	4.81	3.74	0.09	9.48	1.94	8,407	0.48	0.64
2020	263	29	19	1	76	16	34.99	3.90	2.59	0.10	10.07	2.08	7,307	0.36	0.34
2025	206	24	15	1	82	17	27.50	3.24	1.94	0.11	10.98	2.27	7,303	0.30	0.41
2027	191	23	13	1	85	18	25.65	3.05	1.78	0.11	11.40	2.36	7,388	0.28	0.38

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Operational Emissions - Rail Locomotives**

December 2011

Table 1.5-2 Proposed Project and CEQA Baseline Employee Trips

	Employee Round-Trips		Round trip Miles	CO (lbs/day)	ROG (lbs/day)	NOX (lbs/day)	SOX (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO (tpy)	ROG (tpy)	NOX (tpy)	SOX (tpy)	PM10 (tpy)	PM2.5 (tpy)	CO2 (tpy)	CH4 (tpy)	N2O (tpy)
	Peak Day	Annual																			
CEQA Baseline¹	1557	221,196	31	366.92	34.87	32.05	0.43	42.84	8.62	44,155	3.75	5.03	26.07	2.48	2.28	0.03	3.04	0.61	3,137	0.27	0.36
2012	1692	433,927	31	295.58	28.66	24.27	0.47	46.89	9.55	45,888	2.97	4.94	37.91	3.68	3.11	0.06	6.01	1.23	5,886	0.38	0.63
2015	2490	682,121	31	346.55	35.09	27.26	0.68	69.15	14.18	61,331	3.47	4.66	47.47	4.81	3.73	0.09	9.47	1.94	8,400	0.47	0.64
2020	2725	723,340	31	263.32	29.32	19.49	0.74	75.80	15.64	54,996	2.71	2.52	34.95	3.89	2.59	0.10	10.06	2.08	7,300	0.36	0.34
2025	2960	786,839	31	204.01	24.06	14.41	0.80	81.43	16.83	54,186	2.20	3.07	27.12	3.20	1.92	0.11	10.82	2.24	7,203	0.29	0.41
2027	3052	826,342	31	187.93	22.32	13.06	0.81	83.50	17.26	54,123	2.04	2.78	25.44	3.02	1.77	0.11	11.30	2.34	7,326	0.28	0.38

Table 1.5-3 Alternatives 1 and 2 (NEPA Baseline) Employee Trips

	Employee Round-Trips		Round trip Miles	CO (lbs/day)	ROG (lbs/day)	NOX (lbs/day)	SOX (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO (tpy)	ROG (tpy)	NOX (tpy)	SOX (tpy)	PM10 (tpy)	PM2.5 (tpy)	CO2 (tpy)	CH4 (tpy)	N2O (tpy)
	Peak Day	Annual																			
2012	1692	433,927	31	295.58	28.66	24.27	0.47	46.89	9.55	45,888	2.97	4.94	37.91	3.68	3.11	0.06	6.01	1.23	5,886	0.38	0.63
2015	1731	452,837	31	240.91	24.39	18.95	0.47	48.07	9.86	42,635	2.41	3.24	31.51	3.19	2.48	0.06	6.29	1.29	5,577	0.32	0.42
2020	1794	481,667	31	173.38	19.30	12.83	0.49	49.91	10.30	36,212	1.79	1.66	23.27	2.59	1.72	0.07	6.70	1.38	4,861	0.24	0.22
2025	1859	521,279	31	129.63	15.29	9.16	0.51	51.74	10.70	34,429	1.40	1.95	18.18	2.14	1.28	0.07	7.26	1.50	4,828	0.20	0.27
2027	1884	513,632	31	118.00	14.02	8.20	0.51	52.43	10.84	33,985	1.28	1.74	16.09	1.91	1.12	0.07	7.15	1.48	4,634	0.17	0.24

Table 1.5-4 Alternative 3 Employee Trips

	Employee Round-Trips		Round trip Miles	CO (lbs/day)	ROG (lbs/day)	NOX (lbs/day)	SOX (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO (tpy)	ROG (tpy)	NOX (tpy)	SOX (tpy)	PM10 (tpy)	PM2.5 (tpy)	CO2 (tpy)	CH4 (tpy)	N2O (tpy)
	Peak Day	Annual																			
2012	1692	433,927	31	295.58	28.66	24.27	0.47	46.89	9.55	45,888	2.97	4.94	37.91	3.68	3.11	0.06	6.01	1.23	5,886	0.38	0.63
2015	1850	459,212	31	257.40	26.06	20.25	0.51	51.36	10.53	45,554	2.57	3.46	31.95	3.24	2.51	0.06	6.38	1.31	5,655	0.32	0.43
2020	2009	529,464	31	194.16	21.62	14.37	0.55	55.89	11.54	40,553	2.00	1.86	25.58	2.85	1.89	0.07	7.36	1.52	5,343	0.26	0.25
2025	2169	606,513	31	151.29	17.84	10.69	0.59	60.39	12.48	40,182	1.63	2.28	21.15	2.49	1.49	0.08	8.44	1.75	5,618	0.23	0.32
2027	2295	650,651	31	143.76	17.08	9.99	0.62	63.88	13.20	41,402	1.56	2.13	20.38	2.42	1.42	0.09	9.06	1.87	5,870	0.22	0.30

Table 1.5-5 Alternative 4 Employee Trips

	Employee Round-Trips		Round trip Miles	CO (lbs/day)	ROG (lbs/day)	NOX (lbs/day)	SOX (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO (tpy)	ROG (tpy)	NOX (tpy)	SOX (tpy)	PM10 (tpy)	PM2.5 (tpy)	CO2 (tpy)	CH4 (tpy)	N2O (tpy)
	Peak Day	Annual																			
2012	1692	433,927	31	295.58	28.66	24.27	0.47	46.89	9.55	45,888	2.97	4.94	37.91	3.68	3.11	0.06	6.01	1.23	5,886	0.38	0.63
2015	2070	536,888	31	288.02	29.17	22.66	0.57	57.47	11.78	50,973	2.88	3.88	37.36	3.78	2.94	0.07	7.45	1.53	6,612	0.37	0.50
2020	2301	634,932	31	222.33	24.75	16.46	0.63	64.00	13.21	46,436	2.29	2.13	30.68	3.42	2.27	0.09	8.83	1.82	6,408	0.32	0.29
2025	2594	738,725	31	180.90	21.34	12.78	0.71	72.20	14.93	48,046	1.95	2.72	25.76	3.04	1.82	0.10	10.28	2.13	6,842	0.28	0.39
2027	2688	718,767	31	168.38	20.00	11.70	0.73	74.82	15.46	48,493	1.83	2.49	22.51	2.67	1.56	0.10	10.00	2.07	6,484	0.24	0.33

Table 1.5-6 Alternative 5 Employee Trips

	Employee Round-Trips		Round trip Miles	CO (lbs/day)	ROG (lbs/day)	NOX (lbs/day)	SOX (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO (tpy)	ROG (tpy)	NOX (tpy)	SOX (tpy)	PM10 (tpy)	PM2.5 (tpy)	CO2 (tpy)	CH4 (tpy)	N2O (tpy)
	Peak Day	Annual																			
2012	1692	433,927	31	295.58	28.66	24.27	0.47	46.89	9.55	45,888	2.97	4.94	37.91	3.68	3.11	0.06	6.01	1.23	5,886	0.38	0.63
2015	2440	705,233	31	339.59	34.39	26.71	0.67	67.76	13.89	60,100	3.40	4.57	49.07	4.97	3.86	0.10	9.79	2.01	8,685	0.49	0.66
2020	2724	733,235	31	263.22	29.30	19.48	0.74	75.77	15.64	54,976	2.71	2.52	35.43	3.94	2.62	0.10	10.20	2.11	7,400	0.36	0.34
2025	3007	798,159	31	207.29	24.45	14.64	0.81	82.74	17.10	55,055	2.23	3.12	27.51	3.24	1.94	0.11	10.98	2.27	7,306	0.30	0.41
2027	3121	844,482	31	192.14	22.83	13.35	0.83	85.38	17.64	55,338	2.09	2.84	26.00	3.09	1.81	0.11	11.55	2.39	7,487	0.28	0.38

Table 1.5-7 Alternative 6 Employee Trips

	Employee Round-Trips		Round trip Miles	CO (lbs/day)	ROG (lbs/day)	NOX (lbs/day)	SOX (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO (tpy)	ROG (tpy)	NOX (tpy)	SOX (tpy)	PM10 (tpy)	PM2.5 (tpy)	CO2 (tpy)	CH4 (tpy)	N2O (tpy)
	Peak Day	Annual																			
2012	1692	433,927	31	295.58	28.66	24.27	0.47	46.89	9.55	45,888	2.97	4.94	37.91	3.68	3.11	0.06	6.01	1.23	5,886	0.38	0.63
2015	2490	682,683	31	346.55	35.09	27.26	0.68	69.15	14.18	61,331	3.47	4.66	47.51	4.81	3.74	0.09	9.48	1.94	8,407	0.48	0.64
2020	2725	724,040	31	263.32	29.32	19.49	0.74	75.80	15.64	54,996	2.71	2.52	34.99	3.90	2.59	0.10	10.07	2.08	7,307	0.36	0.34
2025	2960	788,532	31	206.42	24.35	14.58	0.81	82.39	17.03	54,826	2.22	3.11	27.50	3.24	1.94	0.11	10.98	2.27	7,303	0.30	0.41
2027	3052	818,954	31	191.22	22.72	13.29	0.83	84.97	17.56	55,071	2.08	2.83	25.65	3.05	1.78	0.11	11.40	2.36	7,388	0.28	0.38

Assumptions:

All trips are assumed to be light-duty, gasoline automobiles.
EMFAC is run for Los Angeles County for all model years available.
Each employee trip is either an arrival or a departure. Therefore total employees=trips/2.
The baseline worker inventory uses 2008 emission factors for all worker trips.

365 days/yr
2000 lbs/ton

Table 1.5-8 Emission Factors for Worker Vehicles

EMFAC2007 for Los Angeles County

Analysis Year	CO	ROG	Nox	SOx	PM10 ²	PM2.5 ²	CO2	CO2 ³	CH4	N2O ¹
LDA-CAT	lbs/mi	lbs/mi	lbs/mi	lbs/mi	lbs/mi	lbs/mi	lbs/mi	lbs/mi	lbs/mi	lbs/mi
2008	0.00760	0.00072	0.00066	0.00001	0.00089	0.00018	0.91508	0.91508	0.00008	0.00010
2012	0.00561	0.00054	0.00046	0.00001	0.00089	0.00018	0.91372	0.87157	0.00006	0.00009
2015	0.00447	0.00045	0.00035	0.00001	0.00089	0.00018	0.91085	0.79132	0.00004	0.00006
2020	0.00310	0.00035	0.00023	0.00001	0.00089	0.00018	0.90930	0.64849	0.00003	0.00003
2025	0.00224	0.00026	0.00016	0.00001	0.00089	0.00018	0.90814	0.59515	0.00002	0.00003
2027	0.00201	0.00024	0.00014	0.00001	0.00089	0.00018	0.90648	0.57968	0.00002	0.00003

¹ N2O Emission factors from the CCAR GRP, v3.1

² Includes paved road dust.

³ Includes reductions from Pavley I and the LCFS determined using the CARB EMFAC Post-processor.

Table 1.5-9 Default CH4 and N2O Emission Factors for Highway Vehicles by Model Year

Vehicle Types/ Model Years		N2O (g/mile)	CH4 (g/mile)	N2O (lb/mile)	CH4 (lb/mile)
<i>Passenger Cars - Gasoline</i>					
Model Years	1984-1993	0.0647	0.0704	0.00014	0.00016
Model Year	1994	0.0560	0.0531	0.00012	0.00012
Model Year	1995	0.0473	0.0358	0.00010	0.00008
Model Year	1996	0.0426	0.0272	0.00009	0.00006
Model Year	1997	0.0422	0.0268	0.00009	0.00006
Model Year	1998	0.0393	0.0249	0.00009	0.00005
Model Year	1999	0.0337	0.0216	0.00007	0.00005
Model Year	2000	0.0273	0.0178	0.00006	0.00004
Model Year	2001	0.0158	0.0110	0.00003	0.00002
Model Year	2002	0.0153	0.0107	0.00003	0.00002
Model Year	2003	0.0135	0.0114	0.00003	0.00003
Model Year	2004	0.0083	0.0145	0.00002	0.00003
Model Year	2005	0.0079	0.0147	0.00002	0.00003
Model Year	2006	0.0057	0.0161	0.00001	0.00004
Model Year	2007	0.0041	0.0170	0.00001	0.00004
Model Year	2008	0.0038	0.0172	0.00001	0.00004

Source: TCR GRP, 1.1, May 2008

Table 1.6-1 CHE Inventory Characteristics

	Ave_HP	Load Factor
Electric Wharf Crane		
Forklift	110	0.2
RMG cranes	Electric	
Rub-trd Gantry Crane	600	0.20
Side pick	227	0.24
Top handler	332	0.24
Yard tractor	230	0.16

Source: APL May 2010.

Table 1.6-2 CHE Inventory Hours

Annual		CEQA Baseline (April 2008- March 2009)	NEPA Baseline					Proposed Project				
			2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Yard Equipment Hours (hrs/Yr)	Average HP/Load Factor	Total Annual Hours by type	Total Annual Hours by type					Total Annual Hours by type				
<i>Electric Wharf Crane</i>	NA	29,718	46,176	47,247	49,033	50,818	51,532	46,176	64,325	69,113	73,901	75,816
<i>Forklift (Diesel)</i>	110 / 0.2	5,960	6,807	6,874	6,986	7,097	7,142	6,807	7,696	7,931	8,165	8,259
<i>RMG cranes</i>	NA / 0.2	9,453	18,720	18,720	18,720	18,720	18,720	18,720	23,305	24,515	25,724	26,208
<i>Rub-trd Gantry Crane</i>	600 / 0.2	0	640	672	725	779	800	640	13,175	16,482	19,789	21,112
<i>Side pick</i>	227 / 0.24	1,530	5,148	5,990	7,394	8,798	9,360	5,148	9,176	10,238	11,301	8,684
<i>Top handler</i>	332 / 0.24	13,767	24,778	25,724	27,302	28,879	29,510	24,778	43,484	48,419	53,354	31,538
<i>Yard tractor</i>	230 / 0.16	291,100	571,350	#####	#####	#####	#####	#####	#####	#####	#####	#####

Peak Hours		CEQA Baseline (April 2008- March 2009)	NEPA Baseline					Proposed Project				
			2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Yard Equipment Hours (hrs/peak_day)	Average HP/Load Factor	Peak Day Hours by type	Peak Day Hours by type					Peak Day Hours by type				
<i>Electric Wharf Crane</i>	NA	176.0	176	176	176	176	176	176	256	288	320	320
<i>Forklift</i>	110 / 0.2	5.4	24	24	25	25	25	24	27	28	29	29
<i>RMG cranes</i>	NA / 0.2	54.0	54	54	54	63	72	54	81	90	90	90
<i>Rub-trd Gantry Crane</i>	600 / 0.2	0.0	56	56	64	64	64	56	94	126	142	158
<i>Side pick</i>	227 / 0.24	14.5	23	23	23	23	23	23	23	31	31	31
<i>Top handler</i>	332 / 0.24	128.0	180	180	188	202	208	180	211	242	250	266
<i>Yard Tractor</i>	230 / 0.16	2,104.0	2,117	2,117	2,117	2,060	2,153	2,117	2,764	3,032	3,240	3,240

Alternative Fuel	Average HP/Load Factor ^o	Propane Consumption, gal	Propane Consumption, gal			Propane Consumption, gal						
<i>Forklift (Propane)</i>	81 / 0.3, Annual fuel ->	4,827	5,499	5,553	5,644	5,734	5,770	5,499	6,217	6,407	6,596	6,672
<i>Forklift (Propane)</i>	81 / 0.3, Peak day fuel ->	17	20	20	20	20	21	20	22	23	23	24

Table 1.6-2 CHE Inventory Hours

Annual	Alt 1 No Project					Alt 2 No Federal Action					Alternative 3 – Reduced Project: Four New Cranes				
	2012	2015	2020	2025	2027	2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Yard Equipment Hours (hrs/Yr)	Total Annual Hours by type					Total Annual Hours by type					Total Annual Hours by type				
<i>Electric Wharf Crane</i>	46,176	47,247	49,033	50,818	51,532	46,176	47,247	49,033	50,818	51,532	46,176	50,391	54,702	59,012	60,736
<i>Forklift (Diesel)</i>	6,807	6,874	6,986	7,097	7,142	6,807	6,874	6,986	7,097	7,142	6,807	6,981	7,158	7,336	7,407
<i>RMG cranes</i>	18,720	18,720	18,720	18,720	18,720	18,720	18,720	18,720	18,720	18,720	18,720	19,804	20,912	22,021	22,464
<i>Rub-trd Gantry Crane</i>	640	672	725	779	800	640	672	725	779	800	640	3,984	7,404	10,824	12,192
<i>Side pick</i>	5,148	5,990	7,394	8,798	9,360	5,148	5,990	7,394	8,798	9,360	5,148	6,955	8,802	10,649	11,388
<i>Top handler</i>	24,778	25,724	27,302	28,879	29,510	24,778	25,724	27,302	28,879	29,510	24,778	31,696	38,769	45,843	48,672
<i>Yard tractor</i>	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####

Peak Hours	Alt 1 No Project					Alt 2 No Federal Action					Alternative 3 – Reduced Project: Four New Cranes				
	2012	2015	2020	2025	2027	2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Yard Equipment Hours (hrs/peak_day)	Peak Day Hours by type					Peak Day Hours by type					Peak Day Hours by type				
<i>Electric Wharf Crane</i>	176	176	176	176	176	176	176	176	176	176	176	224	224	224	224
<i>Forklift</i>	24	24	25	25	25	24	24	25	25	25	24	25	25	26	26
<i>RMG cranes</i>	54	54	54	63	72	54	54	54	63	72	54	63	72	81	81
<i>Rub-trd Gantry Crane</i>	56	56	64	64	64	56	56	64	64	64	56	64	80	96	112
<i>Side pick</i>	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
<i>Top handler</i>	180	180	188	202	208	180	180	188	202	208	180	226	233	234	247
<i>Yard Tractor</i>	2,117	2,117	2,117	2,060	2,153	2,117	2,117	2,117	2,060	2,153	2,117	2,372	2,432	2,479	2,505

Alternative Fuel	Propane Consumption, gal					Propane Consumption, gal					Propane Consumption, gal				
<i>Forklift (Propane)</i>	5,499	5,553	5,644	5,734	5,770	5,499	5,553	5,644	5,734	5,770	5,499	5,639	5,783	5,927	5,984
<i>Forklift (Propane)</i>	20	20	20	20	21	20	20	20	20	21	20	20	21	21	21

Table 1.6-2 CHE Inventory Hours

Annual	Alternative 4 – Reduced Project: No New Wharf					Alternative 5 – Reduced Project: No Space Assignments					Alternative 6 – Proposed Project with Expanded On-dock Rail Yard				
	2012	2015	2020	2025	2027	2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Yard Equipment Hours (hrs/Yr)	Total Annual Hours by type					Total Annual Hours by type					Total Annual Hours by type				
<i>Electric Wharf Crane</i>	46,176	53,966	58,693	63,421	65,312	46,176	62,524	68,062	73,601	75,816	46,176	64,325	69,113	73,901	75,816
<i>Forklift (Diesel)</i>	6,807	7,134	7,332	7,531	7,610	6,807	7,608	7,879	8,150	8,259	6,807	7,696	7,931	8,165	8,259
<i>RMG cranes</i>	18,720	20,816	22,087	23,359	23,868	18,720	22,850	24,249	25,648	26,208	18,720	23,305	24,515	25,875	27,144
<i>Rub-trd Gantry Crane</i>	640	11,970	18,846	25,722	28,472	640	20,037	26,608	33,179	35,808	640	13,959	17,473	20,986	22,392
<i>Side pick</i>	5,148	7,551	9,009	10,467	11,050	5,148	8,776	10,005	11,234	11,726	5,148	9,176	10,238	11,301	11,726
<i>Top handler</i>	24,778	34,134	39,812	45,491	47,762	24,778	46,173	53,422	60,671	63,570	24,778	43,484	48,419	53,354	55,328
<i>Yard tractor</i>	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####

Peak Hours	Alternative 4 – Reduced Project: No New Wharf					Alternative 5 – Reduced Project: No Space Assignments					Alternative 6 – Proposed Project with Expanded On-dock Rail Yard				
	2012	2015	2020	2025	2027	2012	2015	2020	2025	2027	2012	2015	2020	2025	2027
Yard Equipment Hours (hrs/peak_day)	Peak Day Hours by type					Peak Day Hours by type					Peak Day Hours by type				
<i>Electric Wharf Crane</i>	176	224	224	240	272	176	224	288	320	320	176	256	288	320	320
<i>Forklift</i>	24	25	26	27	27	24	27	28	29	29	24	27	28	29	29
<i>RMG cranes</i>	54	72	81	81	90	54	81	90	90	90	54	81	90	90	99
<i>Rub-trd Gantry Crane</i>	56	100	121	142	163	56	110	126	168	168	56	94	126	142	158
<i>Side pick</i>	23	23	23	23	23	23	23	31	31	39	23	23	31	31	31
<i>Top handler</i>	180	210	234	247	255	180	247	263	299	314	180	211	242	250	266
<i>Yard Tractor</i>	2,117	2,477	2,535	2,677	2,956	2,117	2,573	3,049	3,344	3,377	2,117	2,764	3,032	3,240	3,300

Alternative Fuel	Propane Consumption, gal					Propane Consumption, gal					Propane Consumption, gal				
<i>Forklift (Propane)</i>	5,499	5,763	5,924	6,084	6,148	5,499	6,146	6,365	6,584	6,672	5,499	6,217	6,407	6,596	6,672
<i>Forklift (Propane)</i>	20	21	21	22	22	20	22	23	23	24	20	22	23	23	24

Table 1.6-3 Estimated APL CHE Usage - CEQA Baseline (2008)

Equipment	Ave_hp	LF	Annual 2008 Usage	Peak_Day Usage	Fuel Type
	Hp		(hp-hr/yr)	(hp-hr/day)	
<i>Baseline (2008)</i>					
Forklift	110	0.2	131,120	120	Diesel
RTG	600	0.20	0	0	Diesel
Side pick	227	0.24	83,354	790	Diesel
Top pick	332	0.24	1,096,955	10,199	Diesel
Yard tractor	230	0.16	10,712,480	77,427	Diesel
Other					Diesel
Alternative Fuel					
LPG Forklift	81	0.3	172,292	614	Propane

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Cargo Handling Equipment Emissions**

December 2011

Table 1.6-4 Estimated APL CHE Annual Usage - Proposed Project and Alternatives

Equipment	Ave_hp	LF	Annual CHE Usage (hp-hr/yr)						
			Project	Alt1	Alt2	Alt3	Alt4	Alt5	Alt6
<i>Project Year 2012</i>									
Forklift	110	0.20	149,754	149,754	149,754	149,754	149,754	149,754	149,754
RTG	600	0.20	76,800	76,800	76,800	76,800	76,800	76,800	76,800
Side pick	227	0.24	280,463	280,463	280,463	280,463	280,463	280,463	280,463
Top pick	332	0.24	1,974,311	1,974,311	1,974,311	1,974,311	1,974,311	1,974,311	1,974,311
Yard tractor	230	0.16	21,025,680	21,025,680	21,025,680	21,025,680	21,025,680	21,025,680	21,025,680
LPG Forklift	81	0.3	196,278	196,278	196,278	196,278	196,278	196,278	196,278
<i>Project Year 2015</i>									
Forklift	110	0.20	169,314	151,228	151,228	153,576	156,945	167,372	169,314
RTG	600	0.20	1,581,020	80,640	80,640	478,134	1,436,347	2,404,381	1,675,070
Side pick	227	0.24	499,895	326,358	326,358	378,884	411,353	478,118	499,895
Top pick	332	0.24	3,464,805	2,049,722	2,049,722	2,525,506	2,719,804	3,679,087	3,464,805
Yard tractor	230	0.16	28,880,837	21,414,148	21,414,148	22,919,844	24,863,267	28,736,608	28,880,837
LPG Forklift	81	0.3	221,915	198,213	198,213	201,290	205,708	219,370	221,915
<i>Project Year 2020</i>									
Forklift	110	0.20	174,474	153,685	153,685	157,483	161,310	173,341	174,474
RTG	600	0.20	1,977,861	87,040	87,040	888,511	2,261,469	3,192,955	2,096,724
Side pick	227	0.24	557,786	402,849	402,849	479,523	490,791	545,082	557,786
Top pick	332	0.24	3,858,026	2,175,406	2,175,406	3,089,122	3,172,251	4,256,658	3,858,026
Yard tractor	230	0.16	30,953,178	22,061,596	22,061,596	24,856,692	27,192,335	31,349,039	30,953,178
LPG Forklift	81	0.3	228,678	201,437	201,437	206,415	211,431	227,194	228,678
<i>Project Year 2025</i>									
Forklift	110	0.20	179,634	156,141	156,141	161,391	165,674	179,310	179,634
RTG	600	0.20	2,374,703	93,440	93,440	1,298,889	3,086,591	3,981,530	2,518,378
Side pick	227	0.24	615,676	479,341	479,341	580,163	570,229	612,047	615,676
Top pick	332	0.24	4,251,247	2,301,090	2,301,090	3,652,739	3,624,697	4,834,229	4,251,247
Yard tractor	230	0.16	33,025,518	22,709,043	22,709,043	26,793,539	29,521,403	33,961,469	33,025,518
LPG Forklift	81	0.3	235,441	204,662	204,662	211,540	217,154	235,017	235,441
<i>Project Year 2027</i>									
Forklift	110	0.20	181,698	157,124	157,124	162,954	167,420	181,698	181,698
RTG	600	0.20	2,533,440	96,000	96,000	1,463,040	3,416,640	4,296,960	2,687,040
Side pick	227	0.24	473,104	509,933	509,933	620,418	602,004	638,832	638,832
Top pick	332	0.24	2,512,948	2,351,357	2,351,357	3,878,185	3,805,676	5,065,258	4,408,535
Yard tractor	230	0.16	33,854,454	22,967,984	22,967,984	27,568,278	30,453,030	35,006,442	34,084,086
LPG Forklift	81	0.3	238,147	205,951	205,951	213,590	219,443	238,147	238,147

Table 1.6-5 Estimated APL CHE Pi (continued)

Equipment	Ave_hp	LF	Peak_Day CHE Usage (hp-hr/day)						
			Project	Alt1	Alt2	Alt3	Alt4	Alt5	Alt6
<i>Project Year 2012</i>									
Forklift	110	0.20	533	533	533	533	533	533	533
RTG	600	0.20	6,720	6,720	6,720	6,720	6,720	6,720	6,720
Side pick	227	0.24	1,226	1,226	1,226	1,226	1,226	1,226	1,226
Top pick	332	0.24	14,342	14,342	14,342	14,342	14,342	14,342	14,342
Yard tractor	230	0.16	77,906	77,906	77,906	77,906	77,906	77,906	77,906
LPG Forklift	81	0.3	699	699	699	699	699	699	699
<i>Project Year 2015</i>									
Forklift	110	0.20	603	539	539	547	559	596	603
RTG	600	0.20	11,280	6,720	6,720	7,680	12,000	13,200	11,280
Side pick	227	0.24	1,226	1,226	1,226	1,226	1,226	1,226	1,226
Top pick	332	0.24	(contin	14,342	14,342	17,968	16,693	19,681	16,773
Yard tractor	230	0.16	101,715	77,906	77,906	87,290	91,154	94,668	101,715
LPG Forklift	81	0.3	790	706	706	717	733	781	790
<i>Project Year 2020</i>									
Forklift	110	0.20	621	547	547	561	575	617	621
RTG	600	0.20	15,120	7,680	7,680	9,600	14,520	15,120	15,120
Side pick	227	0.24	1,662	1,226	1,226	1,226	1,226	1,662	1,662
Top pick	332	0.24	19,283	14,940	14,940	18,565	18,645	20,916	19,283
Yard tractor	230	0.16	111,578	77,906	77,906	89,498	93,297	112,185	111,578
LPG Forklift	81	0.3	814	717	717	735	753	809	814
<i>Project Year 2025</i>									
Forklift	110	0.20	640	556	556	575	590	639	640
RTG	600	0.20	17,040	7,680	7,680	11,520	17,040	20,160	17,040
Side pick	227	0.24	1,662	1,226	1,226	1,226	1,226	1,662	1,662
Top pick	332	0.24	19,920	16,056	16,056	18,645	19,681	23,824	19,920
Yard tractor	230	0.16	119,232	75,808	75,808	91,227	98,495	123,059	119,232
LPG Forklift	81	0.3	839	729	729	753	773	837	839
<i>Project Year 2027</i>									
Forklift	110	0.20	647	560	560	580	596	647	647
RTG	600	0.20	18,960	7,680	7,680	13,440	19,560	20,160	18,960
Side pick	227	0.24	1,662	1,226	1,226	1,226	1,226	2,097	1,662
Top pick	332	0.24	21,155	16,573	16,573	19,681	20,318	24,980	21,155
Yard tractor	230	0.16	119,232	79,212	79,212	92,184	108,772	124,255	121,440
LPG Forklift	81	0.3	848	734	734	761	782	848	848

Table 1.6-6 CHE Emission Factors

	EF ID	HC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr
Unmitigated	FL120_U_2008	1.05	3.68	7.94	0.01	0.78	0.72
	FL120_U_2012	1.12	3.82	8.20	0.01	0.85	0.79
	FL120_U_2015	1.14	3.86	8.26	0.01	0.88	0.81
	FL120_U_2020	0.10	3.17	0.31	0.01	0.01	0.01
	FL120_U_2025	0.10	3.32	0.32	0.01	0.01	0.01
	FL120_U_2027	0.11	3.39	0.33	0.01	0.01	0.01
	RTG750_U_2008	0.57	1.96	7.69	0.01	0.32	0.30
	RTG750_U_2012	0.61	2.03	7.94	0.01	0.35	0.32
	RTG750_U_2015	0.63	2.09	8.13	0.01	0.37	0.34
	RTG750_U_2020	0.08	0.96	0.31	0.01	0.01	0.01
	RTG750_U_2025	0.08	1.01	0.32	0.01	0.01	0.01
	RTG750_U_2027	0.08	1.03	0.33	0.01	0.01	0.01
	SP250_U_2008	0.43	1.79	6.57	0.01	0.27	0.25
	SP250_U_2012	0.46	1.85	6.79	0.01	0.30	0.27
	SP250_U_2015	0.48	1.90	6.96	0.01	0.32	0.29
	SP250_U_2020	0.07	0.96	0.31	0.01	0.01	0.01
	SP250_U_2025	0.08	1.00	0.32	0.01	0.01	0.01
	SP250_U_2027	0.08	1.02	0.33	0.01	0.01	0.01
	TH500_U_2008	0.26	0.99	5.66	0.01	0.16	0.15
	TH500_U_2012	0.29	1.05	5.94	0.01	0.18	0.17
	TH500_U_2015	0.31	1.09	6.14	0.01	0.20	0.18
	TH500_U_2020	0.08	0.98	0.32	0.01	0.01	0.01
	TH500_U_2025	0.09	1.05	0.34	0.01	0.01	0.01
	TH500_U_2027	0.09	1.08	0.34	0.01	0.01	0.01
	YTD250_U_2008	0.13	0.94	4.53	0.01	0.12	0.11
	YTD250_U_2012	0.14	0.99	4.73	0.01	0.13	0.12
	YTD250_U_2015	0.15	1.02	4.89	0.01	0.14	0.13
	YTD250_U_2020	0.08	0.97	0.31	0.01	0.01	0.01
YTD250_U_2025	0.08	1.03	0.33	0.01	0.01	0.01	
YTD250_U_2027	0.09	1.05	0.34	0.01	0.01	0.01	
Mitigated	FL120_M_2008	1.05	3.68	7.94	0.01	0.78	0.72
	FL120_M_2012	1.12	3.82	8.20	0.01	0.85	0.79
	FL120_M_2015	1.14	3.86	8.26	0.01	0.88	0.81
	FL120_M_2020	0.10	3.17	0.31	0.01	0.01	0.01
	FL120_M_2025	0.10	3.32	0.32	0.01	0.01	0.01
	FL120_M_2027	0.11	3.39	0.33	0.01	0.01	0.01
	RTG750_M_2008	0.57	1.96	7.69	0.01	0.32	0.30
	RTG750_M_2012	0.61	2.03	7.94	0.01	0.35	0.32
	RTG750_M_2015	0.63	2.09	8.13	0.01	0.37	0.34
	RTG750_M_2020	0.08	0.96	0.31	0.01	0.01	0.01
	RTG750_M_2025	0.08	1.01	0.32	0.01	0.01	0.01
	RTG750_M_2027	0.08	1.03	0.33	0.01	0.01	0.01
	SP250_M_2008	0.43	1.79	6.57	0.01	0.27	0.25
	SP250_M_2012	0.46	1.85	6.79	0.01	0.30	0.27
	SP250_M_2015	0.48	1.90	6.96	0.01	0.32	0.29
	SP250_M_2020	0.07	0.96	0.31	0.01	0.01	0.01
	SP250_M_2025	0.08	1.00	0.32	0.01	0.01	0.01
	SP250_M_2027	0.08	1.02	0.33	0.01	0.01	0.01
	TH500_M_2008	0.26	0.99	5.66	0.01	0.16	0.15
	TH500_M_2012	0.29	1.05	5.94	0.01	0.18	0.17
	TH500_M_2015	0.31	1.09	6.14	0.01	0.20	0.18
	TH500_M_2020	0.08	0.98	0.32	0.01	0.01	0.01
	TH500_M_2025	0.09	1.05	0.34	0.01	0.01	0.01
	TH500_M_2027	0.09	1.08	0.34	0.01	0.01	0.01
	YTD250_M_2008	0.13	0.94	4.53	0.01	0.12	0.11
	YTD250_M_2012	0.14	0.99	4.73	0.01	0.13	0.12
	YTD250_M_2015	0.07	0.93	0.30	0.01	0.01	0.01
	YTD250_M_2020	0.08	0.99	0.32	0.01	0.01	0.01
YTD250_M_2025	0.09	1.05	0.34	0.01	0.01	0.01	
YTD250_M_2027	0.07	0.93	0.30	0.01	0.01	0.01	
<i>LPG Emission Factors Estimated from the 2009 POLA EI</i>							
	EF ID	HC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr
LPG	FLP120_M_2008	0.88	20.28	2.88	-	0.03	0.03
	FLP120_M_2012	0.88	20.28	2.88	-	0.03	0.03
	FLP120_M_2015	0.88	20.28	2.88	-	0.03	0.03
	FLP120_M_2020	0.88	20.28	2.88	-	0.03	0.03
	FLP120_M_2025	0.88	20.28	2.88	-	0.03	0.03
	FLP120_M_2027	0.88	20.28	2.88	-	0.03	0.03

*LPG emission factor estimates are only available for the baseline, therefore all study years use the same emission factors.

Table 1.6-7 APL Annual Equipment Emissions Without Mitigation - CEQA Baseline 2008

<i>Equipment</i>	Annual Usage (hp-hr/yr)	<i>EF ID</i>	<i>Annual Emissions (tons/year)</i>					
			<i>VOC</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>
<i>Year 2008 Baseline</i>								
Forklift	131,120	FL120_U	0.15	0.53	1.15	0.00	0.11	0.10
RTG	0	RTG750_U	0.00	0.00	0.00	0.00	0.00	0.00
Side pick	83,354	SP250_U	0.04	0.16	0.60	0.00	0.02	0.02
Top pick	1,096,955	TH500_U	0.32	1.20	6.84	0.01	0.20	0.18
Yard tractor	10,712,480	YTD250_U	1.55	11.08	53.44	0.08	1.37	1.26
LPG Forklift	172,292	FLP120_M	0.17	3.85	0.55	0.00	0.01	0.01
	12,023,909							
<i>Subtotal - Forklift</i>			0.32	4.38	1.69	0.00	0.12	0.11
<i>Subtotal - Other CHE</i>			1.91	12.44	60.89	0.09	1.59	1.46
Total			2.23	16.83	62.59	0.09	1.71	1.57

Table 1.6-8 Peak Daily Terminal Equipment Emissions - CEQA Baseline

<i>Equipment</i>	Peak_Day Usage (hp-hr/day)	<i>EF ID</i>	<i>Daily Emissions (lb/day)</i>					
			<i>VOC</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>
<i>Year 2008 Baseline</i>								
Forklift	120	FL120_U	0.28	0.97	2.10	0.00	0.21	0.19
RTG	0	RTG750_U	0.00	0.00	0.00	0.00	0.00	0.00
Side pick	790	SP250_U	0.76	3.11	11.45	0.01	0.47	0.44
Top pick	10,199	TH500_U	5.92	22.34	127.27	0.16	3.65	3.36
Yard tractor	77,427	YTD250_U	22.44	160.14	772.55	1.19	19.79	18.21
LPG Forklift	614	FLP120_M	1.20	27.44	3.89	0.00	0.04	0.04
<i>Subtotal - Forklift</i>			1.47	28.41	5.99	0.00	0.25	0.23
<i>Subtotal - Other CHE</i>			29.12	185.58	911.27	1.36	23.92	22.00
Total			30.59	213.99	917.26	1.37	24.17	22.24

(continued)

<i>Project Study Year</i>	<i>Tons per Year</i>					
	<i>VOC</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>
Year 2008 Baseline	2.23	16.83	62.59	0.09	1.71	1.57

Table 1.6-10 Summary of APL Peak Daily CHE Emissions - CEQA Baseline

<i>Project Study Year</i>	<i>Pounds per Day</i>					
	<i>VOC</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>
Year 2008 Baseline	30.59	213.99	917.26	1.37	24.17	22.24

Table 1.6-11 Summary of Average Daily CHE Emissions for the Berths 301-305 Terminal - CEQA Baseline

<i>Project Study Year</i>	<i>Pounds per Day</i>					
	<i>VOC</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>
Year 2008 Baseline	12.22	92.20	342.94	0.51	9.37	8.62

(continued)

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Cargo Handling Equipment Emissions**

December 2011

Table 1.6-12 Annual CHE Emissions Without Mitigation - Proposed Project

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)					
			VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>								
Forklift 110 hp	149,754	FL120_U	0.18	0.63	1.35	0.00	0.14	0.13
RTG 600hp	76,800	RTG750_U	0.05	0.17	0.67	0.00	0.03	0.03
Side pick 227hp	280,463	SP250_U	0.14	0.57	2.10	0.00	0.09	0.08
Top pick 332hp	1,974,311	TH500_U	0.63	2.29	12.92	0.02	0.40	0.37
Yard tractor 230hp	21,025,680	YTD250_U	3.32	22.88	109.71	0.16	3.06	2.82
LPG Forklift	196,278	FLP120_M	0.19	4.39	0.62	-	0.01	0.01
Total	23,703,286		4.5	30.9	127.4	0.2	3.7	3.4
<i>Project Year 2015</i>								
Forklift 110 hp	169,314	FL120_U	0.21	0.72	1.54	0.00	0.16	0.15
RTG 600hp	1,581,020	RTG750_U	1.11	3.64	14.17	0.01	0.65	0.60
Side pick 227hp	499,895	SP250_U	0.27	1.05	3.83	0.00	0.17	0.16
Top pick 332hp	3,464,805	TH500_U	1.17	4.18	23.46	0.03	0.77	0.71
Yard tractor 230hp	28,880,837	YTD250_U	4.84	32.60	155.65	0.22	4.59	4.22
LPG Forklift	221,915	FLP120_M	0.22	4.96	0.70	-	0.01	0.01
Total	34,817,785		7.8	47.1	199.4	0.3	6.4	5.8
<i>Project Year 2020</i>								
Forklift 110 hp	174,474	FL120_U	0.02	0.61	0.06	0.00	0.00	0.00
RTG 600hp	1,977,861	RTG750_U	0.16	2.09	0.68	0.02	0.02	0.02
Side pick 227hp	557,786	SP250_U	0.05	0.59	0.19	0.00	0.01	0.01
Top pick 332hp	3,858,026	TH500_U	0.33	4.16	1.34	0.03	0.05	0.05
Yard tractor 230hp	30,953,178	YTD250_U	2.61	33.06	10.71	0.24	0.39	0.36
LPG Forklift	228,678	FLP120_M	0.22	5.11	0.73	-	0.01	0.01
Total	37,750,003		3.4	45.6	13.7	0.3	0.48	0.4
<i>Project Year 2025</i>								
Forklift 110 hp	179,634	FL120_U	0.02	0.66	0.06	0.00	0.00	0.00
RTG 600hp	2,374,703	RTG750_U	0.21	2.63	0.85	0.02	0.03	0.03
Side pick 227hp	615,676	SP250_U	0.05	0.68	0.22	0.00	0.01	0.01
Top pick 332hp	4,251,247	TH500_U	0.41	4.92	1.57	0.03	0.06	0.06
Yard tractor 230hp	33,025,518	YTD250_U	3.08	37.51	12.07	0.25	0.48	0.45
LPG Forklift	235,441	FLP120_M	0.23	5.26	0.75	-	0.01	0.01
Total	40,682,220		4.0	51.7	15.5	0.3	0.60	0.6
<i>Project Year 2027</i>								
Forklift 110 hp	181,698	FL120_U	0.02	0.68	0.07	0.00	0.00	0.00
RTG 600hp	2,533,440	RTG750_U	0.23	2.86	0.92	0.02	0.04	0.03
Side pick 227hp	473,104	SP250_U	0.04	0.53	0.17	0.00	0.01	0.01
Top pick 332hp	2,512,948	TH500_U	0.25	2.99	0.95	0.02	0.04	0.04
Yard tractor 230hp	33,854,454	YTD250_U	3.28	39.37	12.63	0.26	0.52	0.48
LPG Forklift	238,147	FLP120_M	0.23	5.32	0.76	-	0.01	0.01
Total	39,793,791		4.1	51.8	15.5	0.3	0.62	0.6

Table 1.6-13 Peak Daily CHE Emissions Without Mitigation - Proposed Project

Equipment	Peakday Usage (hp-hr/peakday)	Daily Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>							
Forklift 110 hp	533	1.32	4.49	9.64	0.01	1.00	0.92
RTG 600hp	6,720	8.99	30.10	117.63	0.10	5.21	4.79
Side pick 227hp	1,226	1.25	5.01	18.36	0.02	0.80	0.74
Top pick 332hp	14,342	9.10	33.23	187.71	0.22	5.83	5.36
Yard tractor 230hp	77,906	24.61	169.55	812.98	1.20	22.69	20.87
LPG Forklift	699	1.36	31.26	4.44	-	0.05	0.05
Total	101,426	46.6	273.6	1,150.7	1.6	35.6	32.7
<i>Project Year 2015</i>							
Forklift 110 hp	603	1.51	5.13	10.98	0.01	1.16	1.07
RTG 600hp	11,280	15.78	51.93	202.15	0.17	9.30	8.55
Side pick 227hp	1,226	1.30	5.14	18.80	0.02	0.85	0.79
Top pick 332hp	(continued)	#####	#VALUE!	#VALUE!	#####	#VALUE!	#VALUE!
Yard tractor 230hp	101,715	34.12	229.62	1,096.35	1.57	32.33	29.75
LPG Forklift	790	1.54	35.34	5.02	-	0.05	0.05
Total	115,614	#####	#VALUE!	#VALUE!	#####	#VALUE!	#VALUE!
<i>Project Year 2020</i>							
Forklift 110 hp	621	0.13	4.35	0.43	0.01	0.02	0.01
RTG 600hp	15,120	2.50	31.95	10.35	0.23	0.37	0.34
Side pick 227hp	1,662	0.27	3.51	1.14	0.03	0.04	0.04
Top pick 332hp	19,283	3.30	41.55	13.42	0.30	0.50	0.46
Yard tractor 230hp	111,578	18.83	238.38	77.24	1.72	2.82	2.60
LPG Forklift	814	1.59	36.42	5.17	-	0.06	0.06
Total	149,078	26.6	356.1	107.7	2.3	3.8	3.5
<i>Project Year 2025</i>							
Forklift 110 hp	640	0.15	4.69	0.46	0.01	0.02	0.02
RTG 600hp	17,040	3.06	37.80	12.16	0.26	0.47	0.43
Side pick 227hp	1,662	0.30	3.67	1.19	0.03	0.05	0.04
Top pick 332hp	19,920	3.83	46.08	14.73	0.31	0.60	0.56
Yard tractor 230hp	119,232	22.26	270.85	87.14	1.84	3.50	3.22
LPG Forklift	839	1.63	37.50	5.32	-	0.06	0.06
Total	159,332	31.2	400.6	121.0	2.4	4.7	4.3
<i>Project Year 2027</i>							
Forklift 110 hp	647	0.15	4.83	0.47	0.01	0.02	0.02
RTG 600hp	18,960	3.52	42.86	13.75	0.29	0.55	0.50
Side pick 227hp	1,662	0.31	3.74	1.20	0.03	0.05	0.04
Top pick 332hp	21,155	4.25	50.28	16.01	0.33	0.68	0.63
Yard tractor 230hp	119,232	23.12	277.30	88.98	1.84	3.69	3.39
LPG Forklift	848	1.65	37.93	5.38	-	0.06	0.06
Total	162,504	33.0	416.9	125.8	2.5	5.0	4.6

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Cargo Handling Equipment Emissions**

December 2011

Table 1.6-14 Annual CHE Emission (continued)

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)					
			VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>								
Forklift 110 hp	149,754	FL120_M	0.18	0.63	1.35	0.00	0.14	0.13
RTG 600hp	76,800	RTG750_M	0.05	0.17	0.67	0.00	0.03	0.03
Side pick 227hp	280,463	SP250_M	0.14	0.57	2.10	0.00	0.09	0.08
Top pick 332hp	1,974,311	TH500_M	0.63	2.29	12.92	0.02	0.40	0.37
Yard tractor 230hp	21,025,680	YTD250_M	3.32	22.88	109.71	0.16	3.06	2.82
LPG Forklift	196,278	FLP120_M	0.19	4.39	0.62	-	0.01	0.01
Total	23,703,286		4.5	30.9	127.4	0.2	3.7	3.4
<i>Project Year 2015</i>								
Forklift 110 hp	169,314	FL120_M	0.21	0.72	1.54	0.00	0.16	0.15
RTG 600hp	1,581,020	RTG750_M	1.11	3.64	14.17	0.01	0.65	0.60
Side pick 227hp	(continued)	SP250_M	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Top pick 332hp	3,464,805	TH500_M	1.17	4.18	23.46	0.03	0.77	0.71
Yard tractor 230hp	28,880,837	YTD250_M	2.28	29.68	9.66	0.22	0.33	0.30
LPG Forklift	221,915	FLP120_M	0.22	4.96	0.70	-	0.01	0.01
Total	34,317,890		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
<i>Project Year 2020</i>								
Forklift 110 hp	174,474	FL120_M	0.02	0.61	0.06	0.00	0.00	0.00
RTG 600hp	1,977,861	RTG750_M	0.16	2.09	0.68	0.02	0.02	0.02
Side pick 227hp	557,786	SP250_M	0.05	0.59	0.19	0.00	0.01	0.01
Top pick 332hp	3,858,026	TH500_M	0.33	4.16	1.34	0.03	0.05	0.05
Yard tractor 230hp	30,953,178	YTD250_M	2.72	33.90	10.95	0.24	0.42	0.38
LPG Forklift	228,678	FLP120_M	0.22	5.11	0.73	-	0.01	0.01
Total	37,750,003		3.5	46.5	13.9	0.3	0.51	0.5
<i>Project Year 2025</i>								
Forklift 110 hp	179,634	FL120_M	0.02	0.66	0.06	0.00	0.00	0.00
RTG 600hp	2,374,703	RTG750_M	0.21	2.63	0.85	0.02	0.03	0.03
Side pick 227hp	615,676	SP250_M	0.05	0.68	0.22	0.00	0.01	0.01
Top pick 332hp	4,251,247	TH500_M	0.41	4.92	1.57	0.03	0.06	0.06
Yard tractor 230hp	33,025,518	YTD250_M	3.20	38.40	12.32	0.25	0.51	0.47
LPG Forklift	235,441	FLP120_M	0.23	5.26	0.75	-	0.01	0.01
Total	40,682,220		4.1	52.6	15.8	0.3	0.63	0.6
<i>Project Year 2027</i>								
Forklift 110 hp	181,698	FL120_M	0.02	0.68	0.07	0.00	0.00	0.00
RTG 600hp	2,533,440	RTG750_M	0.23	2.86	0.92	0.02	0.04	0.03
Side pick 227hp	473,104	SP250_M	0.04	0.53	0.17	0.00	0.01	0.01
Top pick 332hp	2,512,948	TH500_M	0.25	2.99	0.95	0.02	0.04	0.04
Yard tractor 230hp	33,854,454	YTD250_M	2.67	34.79	11.33	0.26	0.39	0.36
LPG Forklift	238,147	FLP120_M	0.23	5.32	0.76	-	0.01	0.01
Total	39,793,791		3.5	47.2	14.2	0.3	0.48	0.4

Table 1.6-15 Peak Daily CHE Emissions With Mitigation - Proposed Project

Equipment	Peakday Usage (hp-hr/peakday)	Daily Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>							
Forklift 110 hp	533	1.32	4.49	9.64	0.01	1.00	0.92
RTG 600hp	6,720	8.99	30.10	117.63	0.10	5.21	4.79
Side pick 227hp	1,226	1.25	5.01	18.36	0.02	0.80	0.74
Top pick 332hp	14,342	9.10	33.23	187.71	0.22	5.83	5.36
Yard tractor 230hp	77,906	24.61	169.55	812.98	1.20	22.69	20.87
LPG Forklift	699	1.36	31.26	4.44	-	0.05	0.05
Total	101,426	46.6	273.6	1,150.7	1.6	35.6	32.7
<i>Project Year 2015</i>							
Forklift 110 hp	603	1.51	5.13	10.98	0.01	1.16	1.07
RTG 600hp	11,280	15.78	51.93	202.15	0.17	9.30	8.55
Side pick 227hp	1,226	1.30	5.14	18.80	0.02	0.85	0.79
Top pick 332hp	(continued)	#####	#VALUE!	#VALUE!	#####	#VALUE!	#VALUE!
Yard tractor 230hp	101,715	16.06	209.06	68.06	1.57	2.32	2.14
LPG Forklift	790	1.54	35.34	5.02	-	0.05	0.05
Total	115,614	#####	#VALUE!	#VALUE!	#####	#VALUE!	#VALUE!
<i>Project Year 2020</i>							
Forklift 110 hp	621	0.13	4.35	0.43	0.01	0.02	0.01
RTG 600hp	15,120	2.50	31.95	10.35	0.23	0.37	0.34
Side pick 227hp	1,662	0.27	3.51	1.14	0.03	0.04	0.04
Top pick 332hp	19,283	3.30	41.55	13.42	0.30	0.50	0.46
Yard tractor 230hp	111,578	19.63	244.41	78.96	1.72	3.00	2.76
LPG Forklift	814	1.59	36.42	5.17	-	0.06	0.06
Total	149,078	27.4	362.2	109.5	2.3	4.0	3.7
<i>Project Year 2025</i>							
Forklift 110 hp	640	0.15	4.69	0.46	0.01	0.02	0.02
RTG 600hp	17,040	3.06	37.80	12.16	0.26	0.47	0.43
Side pick 227hp	1,662	0.30	3.67	1.19	0.03	0.05	0.04
Top pick 332hp	19,920	3.83	46.08	14.73	0.31	0.60	0.56
Yard tractor 230hp	119,232	23.12	277.30	88.98	1.84	3.69	3.39
LPG Forklift	839	1.63	37.50	5.32	-	0.06	0.06
Total	159,332	32.1	407.0	122.8	2.4	4.9	4.5
<i>Project Year 2027</i>							
Forklift 110 hp	647	0.15	4.83	0.47	0.01	0.02	0.02
RTG 600hp	18,960	3.52	42.86	13.75	0.29	0.55	0.50
Side pick 227hp	1,662	0.31	3.74	1.20	0.03	0.05	0.04
Top pick 332hp	21,155	4.25	50.28	16.01	0.33	0.68	0.63
Yard tractor 230hp	119,232	18.83	245.06	79.78	1.84	2.73	2.51
LPG Forklift	848	1.65	37.93	5.38	-	0.06	0.06
Total	162,504	28.7	384.7	116.6	2.5	4.1	3.8

Table 1.6-16 CHE Emission Summaries - Proposed Project

Summary of Annual CHE Emissions - Project without Mitigation

Project Study Year	Tons per Year					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	5	31	127	0	4	3
Year 2015	8	47	199	0	6	6
Year 2020	3	46	14	0	0	0
Year 2025	4	52	16	0	1	1
Year 2027	4	52	15	0	1	1

Summary of Annual CHE Emissions - Project with Mitigation

Project Study Year	Tons per Year					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	4.5	30.9	127.4	0.2	3.7	3.4
Year 2015	#####	#####	#####	####	#####	#####
Year 2020	3.5	46.5	13.9	0.3	0.5	0.5
Year 2025	4.1	52.6	15.8	0.3	0.6	0.6
Year 2027	3.5	47.2	14.2	0.3	0.5	0.4

Summary of Peak Daily CHE Emissions - Project without Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	47	274	1,151	2	36	33
Year 2015	#####	#####	#####	####	#####	#VALUE!
Year 2020	27	356	108	2	4	4
Year 2025	31	401	121	2	5	4
Year 2027	33	417	126	2	5	5

Summary of Peak daily CHE Emissions - Project with Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	47	274	1,151	2	36	33
Year 2015	#####	#####	#####	####	#####	#####
Year 2020	27	362	109	2	4	4
Year 2025	32	407	123	2	5	4
Year 2027	29	385	117	2	4	4

Summary of Average Daily CHE Emissions - Project without Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	25	169	698	1	20	19
Year 2015	43	258	1,092	1	35	32
Year 2020	19	250	75	2	3	2
Year 2025	22	283	85	2	3	3
Year 2027	22	284	85	2	3	3

Summary of Average Daily CHE Emissions - Project with Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2005	25	169	698	1	20	19
Year 2010	#####	#####	#####	####	#####	#####
Year 2015	19	255	76	2	3	3
Year 2030	23	288	86	2	3	3
Year 2045	19	258	78	2	3	2

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Cargo Handling Equipment Emissions**

December 2011

Table 1.6-17 Annual CHE Emissions Without Mitigation - Alternatives 1 and 2

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)					
			VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>								
Forklift 110 hp	149,754	FL120_U	0.18	0.63	1.35	0.00	0.14	0.13
RTG 600hp	76,800	RTG750_U	0.05	0.17	0.67	0.00	0.03	0.03
Side pick 227hp	280,463	SP250_U	0.14	0.57	2.10	0.00	0.09	0.08
Top pick 332hp	1,974,311	TH500_U	0.63	2.29	12.92	0.02	0.40	0.37
Yard tractor 230hp	21,025,680	YTD250_U	3.32	22.88	109.71	0.16	3.06	2.82
LPG Forklift	196,278	FLP120_M	0.19	4.39	0.62	-	0.01	0.01
Total			4.5	30.9	127.4	0.2	3.7	3.4
<i>Project Year 2015</i>								
Forklift 110 hp	151,228	FL120_U	0.19	0.64	1.38	0.00	0.15	0.13
RTG 600hp	80,640	RTG750_U	0.06	0.19	0.72	0.00	0.03	0.03
Side pick 227hp	326,358	SP250_U	0.17	0.68	2.50	0.00	0.11	0.10
Top pick 332hp	2,049,722	TH500_U	0.69	2.47	13.88	0.02	0.45	0.42
Yard tractor 230hp	21,414,148	YTD250_U	3.59	24.17	115.41	0.17	3.40	3.13
LPG Forklift	198,213	FLP120_M	0.19	4.43	0.63	-	0.01	0.01
Total			4.9	32.6	134.5	0.2	4.2	3.8
<i>Project Year 2020</i>								
Forklift 110 hp	153,685	FL120_U	0.02	0.54	0.05	0.00	0.00	0.00
RTG 600hp	87,040	RTG750_U	0.01	0.09	0.03	0.00	0.00	0.00
Side pick 227hp	402,849	SP250_U	0.03	0.42	0.14	0.00	0.00	0.00
Top pick 332hp	2,175,406	TH500_U	0.19	2.34	0.76	0.02	0.03	0.03
Yard tractor 230hp	22,061,596	YTD250_U	1.86	23.57	7.64	0.17	0.28	0.26
LPG Forklift	201,437	FLP120_M	0.20	4.50	0.64	-	0.01	0.01
Total			2.3	31.5	9.3	0.2	0.3	0.3
<i>Project Year 2025</i>								
Forklift 110 hp	156,141	FL120_U	0.02	0.57	0.06	0.00	0.00	0.00
RTG 600hp	93,440	RTG750_U	0.01	0.10	0.03	0.00	0.00	0.00
Side pick 227hp	479,341	SP250_U	0.04	0.53	0.17	0.00	0.01	0.01
Top pick 332hp	2,301,090	TH500_U	0.22	2.66	0.85	0.02	0.03	0.03
Yard tractor 230hp	22,709,043	YTD250_U	2.12	25.79	8.30	0.18	0.33	0.31
LPG Forklift	204,662	FLP120_M	0.20	4.58	0.65	-	0.01	0.01
Total			2.6	34.2	10.1	0.2	0.4	0.4
<i>Project Year 2027</i>								
Forklift 110 hp	157,124	FL120_U	0.02	0.59	0.06	0.00	0.00	0.00
RTG 600hp	96,000	RTG750_U	0.01	0.11	0.03	0.00	0.00	0.00
Side pick 227hp	509,933	SP250_U	0.05	0.57	0.18	0.00	0.01	0.01
Top pick 332hp	2,351,357	TH500_U	0.24	2.79	0.89	0.02	0.04	0.03
Yard tractor 230hp	22,967,984	YTD250_U	2.23	26.71	8.57	0.18	0.36	0.33
LPG Forklift	205,951	FLP120_M	0.20	4.60	0.65	-	0.01	0.01
Total			2.7	35.4	10.4	0.2	0.4	0.4

Table 1.6-18 Peak Daily CHE Emissions Without Mitigation - Alternatives 1 and 2

Equipment	Peakday Usage (hp-hr/peakday)	Daily Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>							
Forklift 110 hp	533	1.32	4.49	9.64	0.01	1.00	0.92
RTG 600hp	6,720	8.99	30.10	117.63	0.10	5.21	4.79
Side pick 227hp	1,226	1.25	5.01	18.36	0.02	0.80	0.74
Top pick 332hp	14,342	9.10	33.23	187.71	0.22	5.83	5.36
Yard tractor 230hp	77,906	24.61	169.55	812.98	1.20	22.69	20.87
LPG Forklift	699	1.36	31.26	4.44	-	0.05	0.05
Total		46.6	273.6	1,150.7	1.6	35.6	32.7
<i>Project Year 2015</i>							
Forklift 110 hp	539	1.35	4.58	9.81	0.01	1.04	0.96
RTG 600hp	6,720	9.40	30.93	120.43	0.10	5.54	5.10
Side pick 227hp	1,226	1.30	5.14	18.80	0.02	0.85	0.79
Top pick 332hp	14,342	9.68	34.59	194.26	0.22	6.35	5.84
Yard tractor 230hp	77,906	26.13	175.87	839.71	1.20	24.77	22.78
LPG Forklift	706	1.38	31.57	4.48	-	0.05	0.05
Total		49.2	282.7	1,187.5	1.6	38.6	35.5
<i>Project Year 2020</i>							
Forklift 110 hp	547	0.12	3.83	0.37	0.01	0.01	0.01
RTG 600hp	7,680	1.27	16.23	5.26	0.12	0.19	0.17
Side pick 227hp	1,226	0.20	2.59	0.84	0.02	0.03	0.03
Top pick 332hp	14,940	2.56	32.20	10.40	0.23	0.38	0.35
Yard tractor 230hp	77,906	13.14	166.44	53.93	1.20	1.97	1.81
LPG Forklift	717	1.40	32.08	4.55	-	0.05	0.05
Total		18.7	253.4	75.4	1.6	2.6	2.4
<i>Project Year 2025</i>							
Forklift 110 hp	556	0.13	4.08	0.40	0.01	0.02	0.01
RTG 600hp	7,680	1.38	17.04	5.48	0.12	0.21	0.19
Side pick 227hp	1,226	0.22	2.71	0.87	0.02	0.03	0.03
Top pick 332hp	16,056	3.09	37.14	11.87	0.25	0.49	0.45
Yard tractor 230hp	75,808	14.16	172.21	55.40	1.17	2.22	2.04
LPG Forklift	729	1.42	32.59	4.63	-	0.05	0.05
Total		20.4	265.8	78.7	1.6	3.0	2.8
<i>Project Year 2027</i>							
Forklift 110 hp	560	0.13	4.18	0.41	0.01	0.02	0.01
RTG 600hp	7,680	1.42	17.36	5.57	0.12	0.22	0.20
Side pick 227hp	1,226	0.23	2.76	0.89	0.02	0.04	0.03
Top pick 332hp	16,573	3.33	39.39	12.54	0.26	0.53	0.49
Yard tractor 230hp	79,212	15.36	184.23	59.11	1.22	2.45	2.25
LPG Forklift	734	1.43	32.80	4.66	-	0.05	0.05
Total		21.9	280.7	83.2	1.6	3.3	3.0

Port of Los Angeles
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Cargo Handling Equipment Emissions

December 2011

Table 1.6-19 Annual CHE Emission (continued)

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)					
			VOC	CO	NOx	SOx	PM10	PM2.5
Project Year 2012								
Forklift 110 hp	149,754	FL120_M	0.18	0.63	1.35	0.00	0.14	0.13
RTG 600hp	76,800	RTG750_M	0.05	0.17	0.67	0.00	0.03	0.03
Side pick 227hp	280,463	SP250_M	0.14	0.57	2.10	0.00	0.09	0.08
Top pick 332hp	1,974,311	TH500_M	0.63	2.29	12.92	0.02	0.40	0.37
Yard tractor 230hp	21,025,680	YTD250_M	3.32	22.88	109.71	0.16	3.06	2.82
LPG Forklift	196,278	FLP120_M	0.19	4.39	0.62	-	0.01	0.01
Total			4.5	30.9	127.4	0.2	3.7	3.4
Project Year 2015								
Forklift 110 hp	151,228	FL120_M	0.19	0.64	1.38	0.00	0.15	0.13
RTG 600hp	80,640	RTG750_M	0.06	0.19	0.72	0.00	0.03	0.03
Side pick 227hp	(continued)	SP250_M	#VALUE!	#VALUE!	#VALUE!	#####	#VALUE!	#VALUE!
Top pick 332hp	2,049,722	TH500_M	0.69	2.47	13.88	0.02	0.45	0.42
Yard tractor 230hp	21,414,148	YTD250_M	1.69	22.01	7.16	0.17	0.24	0.23
LPG Forklift	198,213	FLP120_M	0.19	4.43	0.63	-	0.01	0.01
Total			#VALUE!	#VALUE!	#VALUE!	#####	#VALUE!	#VALUE!
Project Year 2020								
Forklift 110 hp	153,685	FL120_M	0.02	0.54	0.05	0.00	0.00	0.00
RTG 600hp	87,040	RTG750_M	0.01	0.09	0.03	0.00	0.00	0.00
Side pick 227hp	402,849	SP250_M	0.03	0.42	0.14	0.00	0.00	0.00
Top pick 332hp	2,175,406	TH500_M	0.19	2.34	0.76	0.02	0.03	0.03
Yard tractor 230hp	22,061,596	YTD250_M	1.94	24.16	7.81	0.17	0.30	0.27
LPG Forklift	201,437	FLP120_M	0.20	4.50	0.64	-	0.01	0.01
Total			2.4	32.1	9.4	0.2	0.3	0.3
Project Year 2025								
Forklift 110 hp	156,141	FL120_M	0.02	0.57	0.06	0.00	0.00	0.00
RTG 600hp	93,440	RTG750_M	0.01	0.10	0.03	0.00	0.00	0.00
Side pick 227hp	479,341	SP250_M	0.04	0.53	0.17	0.00	0.01	0.01
Top pick 332hp	2,301,090	TH500_M	0.22	2.66	0.85	0.02	0.03	0.03
Yard tractor 230hp	22,709,043	YTD250_M	2.20	26.41	8.47	0.18	0.35	0.32
LPG Forklift	204,662	FLP120_M	0.20	4.58	0.65	-	0.01	0.01
Total			2.7	34.9	10.2	0.2	0.4	0.4
Project Year 2027								
Forklift 110 hp	157,124	FL120_M	0.02	0.59	0.06	0.00	0.00	0.00
RTG 600hp	96,000	RTG750_M	0.01	0.11	0.03	0.00	0.00	0.00
Side pick 227hp	509,933	SP250_M	0.05	0.57	0.18	0.00	0.01	0.01
Top pick 332hp	2,351,357	TH500_M	0.24	2.79	0.89	0.02	0.04	0.03
Yard tractor 230hp	22,967,984	YTD250_M	1.81	23.60	7.68	0.18	0.26	0.24
LPG Forklift	205,951	FLP120_M	0.20	4.60	0.65	-	0.01	0.01
Total			2.3	32.3	9.5	0.2	0.3	0.3

Table 1.6-20 Peak Daily CHE Emissions With Mitigation - Alternative 2

Equipment	Peakday Usage (hp-hr/peakday)	Daily Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
Project Year 2012							
Forklift 110 hp	533	1.32	4.49	9.64	0.01	1.00	0.92
RTG 600hp	6,720	8.99	30.10	117.63	0.10	5.21	4.79
Side pick 227hp	1,226	1.25	5.01	18.36	0.02	0.80	0.74
Top pick 332hp	14,342	9.10	33.23	187.71	0.22	5.83	5.36
Yard tractor 230hp	77,906	24.61	169.55	812.98	1.20	22.69	20.87
LPG Forklift	699	1.36	31.26	4.44	-	0.05	0.05
Total		46.6	273.6	1,150.7	1.6	35.6	32.7
Project Year 2015							
Forklift 110 hp	539	1.35	4.58	9.81	0.01	1.04	0.96
RTG 600hp	6,720	9.40	30.93	120.43	0.10	5.54	5.10
Side pick 227hp	1,226	1.30	5.14	18.80	0.02	0.85	0.79
Top pick 332hp	14,342	9.68	34.59	194.26	0.22	6.35	5.84
Yard tractor 230hp	77,906	12.30	160.12	52.13	1.20	1.78	1.64
LPG Forklift	706	1.38	31.57	4.48	-	0.05	0.05
Total		35.4	266.9	399.9	1.6	15.6	14.4
Project Year 2020							
Forklift 110 hp	547	0.12	3.83	0.37	0.01	0.01	0.01
RTG 600hp	7,680	1.27	16.23	5.26	0.12	0.19	0.17
Side pick 227hp	1,226	0.20	2.59	0.84	0.02	0.03	0.03
Top pick 332hp	14,940	2.56	32.20	10.40	0.23	0.38	0.35
Yard tractor 230hp	77,906	13.71	170.65	55.13	1.20	2.10	1.93
LPG Forklift	717	1.40	32.08	4.55	-	0.05	0.05
Total		19.3	257.6	76.6	1.6	2.8	2.5
Project Year 2025							
Forklift 110 hp	556	0.13	4.08	0.40	0.01	0.02	0.01
RTG 600hp	7,680	1.38	17.04	5.48	0.12	0.21	0.19
Side pick 227hp	1,226	0.22	2.71	0.87	0.02	0.03	0.03
Top pick 332hp	16,056	3.09	37.14	11.87	0.25	0.49	0.45
Yard tractor 230hp	75,808	14.70	176.31	56.57	1.17	2.35	2.16
LPG Forklift	729	1.42	32.59	4.63	-	0.05	0.05
Total		20.9	269.9	79.8	1.6	3.1	2.9
Project Year 2027							
Forklift 110 hp	560	0.13	4.18	0.41	0.01	0.02	0.01
RTG 600hp	7,680	1.42	17.36	5.57	0.12	0.22	0.20
Side pick 227hp	1,226	0.23	2.76	0.89	0.02	0.04	0.03
Top pick 332hp	16,573	3.33	39.39	12.54	0.26	0.53	0.49
Yard tractor 230hp	79,212	12.51	162.80	53.00	1.22	1.81	1.67
LPG Forklift	734	1.43	32.80	4.66	-	0.05	0.05
Total		19.1	259.3	77.1	1.6	2.7	2.5

Table 1.6-21 CHE Emission Summaries - Alternatives 1 & 2

Summary of Annual CHE Emissions - Alts 1 & 2 without Mitigation

Project Study Year	Tons per Year					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	4.5	30.9	127.4	0.2	3.7	3.4
Year 2015	4.9	32.6	134.5	0.2	4.2	3.8
Year 2020	2.3	31.5	9.3	0.2	0.3	0.3
Year 2025	2.6	34.2	10.1	0.2	0.4	0.4
Year 2027	2.7	35.4	10.4	0.2	0.4	0.4

Summary of Annual CHE Emissions - Alt 2 with Mitigation

Project Study Year	Tons per Year					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	4.5	30.9	127.4	0.2	3.7	3.4
Year 2015	#####	#####	#####	#####	#####	#####
Year 2020	2.4	32.1	9.4	0.2	0.3	0.3
Year 2025	2.7	34.9	10.2	0.2	0.4	0.4
Year 2027	2.3	32.3	9.5	0.2	0.3	0.3

Summary of Peak Daily CHE Emissions - Alts 1 & 2 without Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	47	274	1,151	2	36	33
Year 2015	49	283	1,187	2	39	36
Year 2020	19	253	75	2	3	2
Year 2025	20	266	79	2	3	3
Year 2027	22	281	83	2	3	3

Summary of Peak Daily CHE Emissions - Alt 2 with Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	47	274	1,151	2	36	33
Year 2015	35	267	400	2	16	14
Year 2020	19	258	77	2	3	3
Year 2025	21	270	80	2	3	3
Year 2027	19	259	77	2	3	2

Summary of Average Daily CHE Emissions - Alts 1 & 2 without Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	25	169	698	1	20	19
Year 2015	27	179	737	1	23	21
Year 2020	13	172	51	1	2	2
Year 2025	14	188	55	1	2	2
Year 2027	15	194	57	1	2	2

Summary of Average Daily CHE Emissions - Alt 2 with Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	25	169	698	1	20	19
Year 2015	#####	#####	#####	#####	#####	#####
Year 2020	13	176	52	1	2	2
Year 2025	15	191	56	1	2	2
Year 2027	13	177	52	1	2	2

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Cargo Handling Equipment Emissions**

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Table 1.6-22 Annual CHE Emissions Without Mitigation - Alternative 3

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)					
			VOC	CO	NOx	SOx	PM10	PM2.5
<i>project Year 2012</i>								
Forklift 110 hp	149,754	FL120_U	0.18	0.63	1.35	0.00	0.14	0.13
RTG 600hp	76,800	RTG750_U	0.05	0.17	0.67	0.00	0.03	0.03
Side pick 227hp	280,463	SP250_U	0.14	0.57	2.10	0.00	0.09	0.08
Top pick 332hp	1,974,311	TH500_U	0.63	2.29	12.92	0.02	0.40	0.37
Yard tractor 230hp	21,025,680	YTD250_U	3.32	22.88	109.71	0.16	3.06	2.82
LPG Forklift	196,278	FLP120_M	0.19	4.39	0.62	-	0.01	0.01
Total			4.5	30.9	127.4	0.2	3.7	3.4
<i>project Year 2015</i>								
Forklift 110 hp	153,576	FL120_U	0.19	0.65	1.40	0.00	0.15	0.14
RTG 600hp	478,134	RTG750_U	0.33	1.10	4.28	0.00	0.20	0.18
Side pick 227hp	378,884	SP250_U	0.20	0.80	2.91	0.00	0.13	0.12
Top pick 332hp	2,525,506	TH500_U	0.85	3.05	17.10	0.02	0.56	0.51
Yard tractor 230hp	22,919,844	YTD250_U	3.84	25.87	123.52	0.18	3.64	3.35
LPG Forklift	201,290	FLP120_M	0.20	4.50	0.64	-	0.01	0.01
Total			5.6	36.0	149.9	0.2	4.7	4.3
<i>project Year 2020</i>								
Forklift 110 hp	157,483	FL120_U	0.02	0.55	0.05	0.00	0.00	0.00
RTG 600hp	888,511	RTG750_U	0.07	0.94	0.30	0.01	0.01	0.01
Side pick 227hp	479,523	SP250_U	0.04	0.51	0.16	0.00	0.01	0.01
Top pick 332hp	3,089,122	TH500_U	0.26	3.33	1.08	0.02	0.04	0.04
Yard tractor 230hp	24,856,692	YTD250_U	2.10	26.55	8.60	0.19	0.31	0.29
LPG Forklift	206,415	FLP120_M	0.20	4.61	0.65	-	0.01	0.01
Total			2.7	36.5	10.9	0.2	0.4	0.3
<i>project Year 2025</i>								
Forklift 110 hp	161,391	FL120_U	0.02	0.59	0.06	0.00	0.00	0.00
RTG 600hp	1,298,889	RTG750_U	0.12	1.44	0.46	0.01	0.02	0.02
Side pick 227hp	580,163	SP250_U	0.05	0.64	0.21	0.00	0.01	0.01
Top pick 332hp	3,652,739	TH500_U	0.35	4.23	1.35	0.03	0.06	0.05
Yard tractor 230hp	26,793,539	YTD250_U	2.50	30.43	9.79	0.21	0.39	0.36
LPG Forklift	211,540	FLP120_M	0.21	4.73	0.67	-	0.01	0.01
Total			3.2	42.1	12.5	0.3	0.5	0.4
<i>project Year 2027</i>								
Forklift 110 hp	162,954	FL120_U	0.02	0.61	0.06	0.00	0.00	0.00
RTG 600hp	1,463,040	RTG750_U	0.14	1.65	0.53	0.01	0.02	0.02
Side pick 227hp	620,418	SP250_U	0.06	0.70	0.22	0.00	0.01	0.01
Top pick 332hp	3,878,185	TH500_U	0.39	4.61	1.47	0.03	0.06	0.06
Yard tractor 230hp	27,568,278	YTD250_U	2.67	32.06	10.29	0.21	0.43	0.39
LPG Forklift	213,590	FLP120_M	0.21	4.78	0.68	-	0.01	0.01
Total			3.5	44.4	13.2	0.3	0.5	0.5

Table 1.6-23 Peak Daily CHE Emissions Without Mitigation - Alternative 3

Equipment	Peakday Usage (hp-hr/peakday)	Daily Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>							
Forklift 110 hp	533	1.32	4.49	9.64	0.01	1.00	0.92
RTG 600hp	6,720	8.99	30.10	117.63	0.10	5.21	4.79
Side pick 227hp	1,226	1.25	5.01	18.36	0.02	0.80	0.74
Top pick 332hp	14,342	9.10	33.23	187.71	0.22	5.83	5.36
Yard tractor 230hp	77,906	24.61	169.55	812.98	1.20	22.69	20.87
LPG Forklift	699	1.36	31.26	4.44	-	0.05	0.05
Total		46.6	273.6	1,150.7	1.6	35.6	32.7
<i>Project Year 2015</i>							
Forklift 110 hp	547	1.37	4.66	9.96	0.01	1.06	0.97
RTG 600hp	7,680	10.74	35.35	137.64	0.12	6.33	5.82
Side pick 227hp	1,226	1.30	5.14	18.80	0.02	0.85	0.79
Top pick 332hp	17,968	12.13	43.34	243.36	0.28	7.96	7.32
Yard tractor 230hp	87,290	29.28	197.06	940.86	1.35	27.75	25.53
LPG Forklift	717	1.40	32.06	4.55	-	0.05	0.05
Total		56.2	317.6	1,355.2	1.8	44.0	40.5
<i>Project Year 2020</i>							
Forklift 110 hp	561	0.12	3.92	0.38	0.01	0.01	0.01
RTG 600hp	9,600	1.59	20.28	6.57	0.15	0.24	0.22
Side pick 227hp	1,226	0.20	2.59	0.84	0.02	0.03	0.03
Top pick 332hp	18,565	3.18	40.01	12.92	0.29	0.48	0.44
Yard tractor 230hp	89,498	15.10	191.21	61.96	1.38	2.26	2.08
LPG Forklift	735	1.43	32.87	4.67	-	0.05	0.05
Total		21.6	290.9	87.3	1.8	3.1	2.8
<i>Project Year 2025</i>							
Forklift 110 hp	575	0.13	4.21	0.41	0.01	0.02	0.01
RTG 600hp	11,520	2.07	25.56	8.22	0.18	0.32	0.29
Side pick 227hp	1,226	0.22	2.71	0.87	0.02	0.03	0.03
Top pick 332hp	18,645	3.59	43.14	13.79	0.29	0.57	0.52
Yard tractor 230hp	91,227	17.04	207.24	66.67	1.41	2.67	2.46
LPG Forklift	753	1.47	33.69	4.78	-	0.05	0.05
Total		24.5	316.5	94.7	1.9	3.7	3.4
<i>Project Year 2027</i>							
Forklift 110 hp	580	0.14	4.33	0.42	0.01	0.02	0.02
RTG 600hp	13,440	2.49	30.38	9.74	0.21	0.39	0.36
Side pick 227hp	1,226	0.23	2.76	0.89	0.02	0.04	0.03
Top pick 332hp	19,681	3.96	46.78	14.90	0.30	0.63	0.58
Yard tractor 230hp	92,184	17.88	214.40	68.79	1.42	2.85	2.62
LPG Forklift	761	1.48	34.02	4.83	-	0.05	0.05
Total		26.2	332.7	99.6	2.0	4.0	3.7

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Table 1.6-24 Annual CHE Emissions (continued)

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)					
			VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>								
Forklift 110 hp	149,754	FL120_M	0.18	0.63	1.35	0.00	0.14	0.13
RTG 600hp	76,800	RTG750_M	0.05	0.17	0.67	0.00	0.03	0.03
Side pick 227hp	280,463	SP250_M	0.14	0.57	2.10	0.00	0.09	0.08
Top pick 332hp	1,974,311	TH500_M	0.63	2.29	12.92	0.02	0.40	0.37
Yard tractor 230hp	21,025,680	YTD250_M	3.32	22.88	109.71	0.16	3.06	2.82
LPG Forklift	196,278	FLP120_M	0.19	4.39	0.62	-	0.01	0.01
Total			4.5	30.9	127.4	0.2	3.7	3.4
<i>Project Year 2015</i>								
Forklift 110 hp	153,576	FL120_M	0.19	0.65	1.40	0.00	0.15	0.14
RTG 600hp	478,134	RTG750_M	0.33	1.10	4.28	0.00	0.20	0.18
Side pick 227hp	(continued)	SP250_M	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Top pick 332hp	2,525,506	TH500_M	0.85	3.05	17.10	0.02	0.56	0.51
Yard tractor 230hp	22,919,844	YTD250_M	1.81	23.55	7.67	0.18	0.26	0.24
LPG Forklift	201,290	FLP120_M	0.20	4.50	0.64	-	0.01	0.01
Total			#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
<i>Project Year 2020</i>								
Forklift 110 hp	157,483	FL120_M	0.02	0.55	0.05	0.00	0.00	0.00
RTG 600hp	888,511	RTG750_M	0.07	0.94	0.30	0.01	0.01	0.01
Side pick 227hp	479,523	SP250_M	0.04	0.51	0.16	0.00	0.01	0.01
Top pick 332hp	3,089,122	TH500_M	0.26	3.33	1.08	0.02	0.04	0.04
Yard tractor 230hp	24,856,692	YTD250_M	2.19	27.22	8.80	0.19	0.33	0.31
LPG Forklift	206,415	FLP120_M	0.20	4.61	0.65	-	0.01	0.01
Total			2.8	37.2	11.0	0.2	0.4	0.4
<i>Project Year 2025</i>								
Forklift 110 hp	161,391	FL120_M	0.02	0.59	0.06	0.00	0.00	0.00
RTG 600hp	1,298,889	RTG750_M	0.12	1.44	0.46	0.01	0.02	0.02
Side pick 227hp	580,163	SP250_M	0.05	0.64	0.21	0.00	0.01	0.01
Top pick 332hp	3,652,739	TH500_M	0.35	4.23	1.35	0.03	0.06	0.05
Yard tractor 230hp	26,793,539	YTD250_M	2.60	31.16	10.00	0.21	0.41	0.38
LPG Forklift	211,540	FLP120_M	0.21	4.73	0.67	-	0.01	0.01
Total			3.3	42.8	12.7	0.3	0.5	0.5
<i>Project Year 2027</i>								
Forklift 110 hp	162,954	FL120_M	0.02	0.61	0.06	0.00	0.00	0.00
RTG 600hp	1,463,040	RTG750_M	0.14	1.65	0.53	0.01	0.02	0.02
Side pick 227hp	620,418	SP250_M	0.06	0.70	0.22	0.00	0.01	0.01
Top pick 332hp	3,878,185	TH500_M	0.39	4.61	1.47	0.03	0.06	0.06
Yard tractor 230hp	27,568,278	YTD250_M	2.18	28.33	9.22	0.21	0.32	0.29
LPG Forklift	213,590	FLP120_M	0.21	4.78	0.68	-	0.01	0.01
Total			3.0	40.7	12.2	0.3	0.4	0.4

Table 1.6-25 Peak Daily CHE Emissions With Mitigation - Alternative 3

Equipment	Peakday Usage (hp-hr/peakday)	Daily Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>							
Forklift 110 hp	533	1.32	4.49	9.64	0.01	1.00	0.92
RTG 600hp	6,720	8.99	30.10	117.63	0.10	5.21	4.79
Side pick 227hp	1,226	1.25	5.01	18.36	0.02	0.80	0.74
Top pick 332hp	14,342	9.10	33.23	187.71	0.22	5.83	5.36
Yard tractor 230hp	77,906	24.61	169.55	812.98	1.20	22.69	20.87
LPG Forklift	699	1.36	31.26	4.44	-	0.05	0.05
Total		46.6	273.6	1,150.7	1.6	35.6	32.7
<i>Project Year 2015</i>							
Forklift 110 hp	547	1.37	4.66	9.96	0.01	1.06	0.97
RTG 600hp	7,680	10.74	35.35	137.64	0.12	6.33	5.82
Side pick 227hp	1,226	1.30	5.14	18.80	0.02	0.85	0.79
Top pick 332hp	17,968	12.13	43.34	243.36	0.28	7.96	7.32
Yard tractor 230hp	87,290	13.79	179.41	58.41	1.35	1.99	1.84
LPG Forklift	717	1.40	32.06	4.55	-	0.05	0.05
Total		40.7	300.0	472.7	1.8	18.2	16.8
<i>Project Year 2020</i>							
Forklift 110 hp	561	0.12	3.92	0.38	0.01	0.01	0.01
RTG 600hp	9,600	1.59	20.28	6.57	0.15	0.24	0.22
Side pick 227hp	1,226	0.20	2.59	0.84	0.02	0.03	0.03
Top pick 332hp	18,565	3.18	40.01	12.92	0.29	0.48	0.44
Yard tractor 230hp	89,498	15.75	196.05	63.34	1.38	2.41	2.21
LPG Forklift	735	1.43	32.87	4.67	-	0.05	0.05
Total		22.3	295.7	88.7	1.8	3.2	3.0
<i>Project Year 2025</i>							
Forklift 110 hp	575	0.13	4.21	0.41	0.01	0.02	0.01
RTG 600hp	11,520	2.07	25.56	8.22	0.18	0.32	0.29
Side pick 227hp	1,226	0.22	2.71	0.87	0.02	0.03	0.03
Top pick 332hp	18,645	3.59	43.14	13.79	0.29	0.57	0.52
Yard tractor 230hp	91,227	17.69	212.17	68.08	1.41	2.82	2.60
LPG Forklift	753	1.47	33.69	4.78	-	0.05	0.05
Total		25.2	321.5	96.2	1.9	3.8	3.5
<i>Project Year 2027</i>							
Forklift 110 hp	580	0.14	4.33	0.42	0.01	0.02	0.02
RTG 600hp	13,440	2.49	30.38	9.74	0.21	0.39	0.36
Side pick 227hp	1,226	0.23	2.76	0.89	0.02	0.04	0.03
Top pick 332hp	19,681	3.96	46.78	14.90	0.30	0.63	0.58
Yard tractor 230hp	92,184	14.56	189.47	61.68	1.42	2.11	1.94
LPG Forklift	761	1.48	34.02	4.83	-	0.05	0.05
Total		22.9	307.7	92.5	2.0	3.2	3.0

Table 1.6-26 CHE Emission Summaries - Alternative 3

Summary of Annual CHE Emissions - Alt 3 without Mitigation

Project Study	Tons per Year					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	4.5	30.9	127.4	0.2	3.7	3.4
Year 2015	5.6	36.0	149.9	0.2	4.7	4.3
Year 2020	2.7	36.5	10.9	0.2	0.4	0.3
Year 2025	3.2	42.1	12.5	0.3	0.5	0.4
Year 2027	3.5	44.4	13.2	0.3	0.5	0.5

Summary of Annual CHE Emissions - Alt 3 with Mitigation

Project Study	Tons per Year					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	5	31	127	0	3.7	3.4
Year 2015	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Year 2020	3	37	11	0	0.4	0.4
Year 2025	3	43	13	0	0.5	0.5
Year 2027	3	41	12	0	0.4	0.4

Summary of Peak Daily CHE Emissions - Alt 3 without Mitigation

Project Study	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	47	274	1,151	2	36	33
Year 2015	56	318	1,355	2	44	40
Year 2020	22	291	87	2	3	3
Year 2025	25	317	95	2	4	3
Year 2027	26	333	100	2	4	4

Summary of Peak Daily CHE Emissions - Alt 3 with Mitigation

Project Study	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	47	274	1,151	2	35.6	32.7
Year 2015	41	300	473	2	18.2	16.8
Year 2020	22	296	89	2	3.2	3.0
Year 2025	25	321	96	2	3.8	3.5
Year 2027	23	308	92	2	3.2	3.0

Summary of Average Daily CHE Emissions - Alt 3 without Mitigation

Project Study	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	25	169	698	1	20	19
Year 2015	31	197	821	1	26	24
Year 2020	15	200	59	1	2	2
Year 2025	18	230	69	1	3	2
Year 2027	19	243	73	1	3	3

Summary of Average Daily CHE Emissions - Alt 3 with Mitigation

Project Study	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	25	169	698	1	20.4	18.8
Year 2015	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Year 2020	15	204	61	1	2.2	2.0
Year 2025	18	234	70	1	2.8	2.6
Year 2027	16	223	67	1	2.3	2.1

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Cargo Handling Equipment Emissions**

December 2011

Table 1.6-27 Annual CHE Emissions Without Mitigation - Alternative 4

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)					
			VOC	CO	NOx	SOx	PM10	PM2.5
<i>project Year 2012</i>								
Forklift 110 hp	149,754	FL120_U	0.18	0.63	1.35	0.00	0.14	0.13
RTG 600hp	76,800	RTG750_U	0.05	0.17	0.67	0.00	0.03	0.03
Side pick 227hp	280,463	SP250_U	0.14	0.57	2.10	0.00	0.09	0.08
Top pick 332hp	1,974,311	TH500_U	0.63	2.29	12.92	0.02	0.40	0.37
Yard tractor 230hp	21,025,680	YTD250_U	3.32	22.88	109.71	0.16	3.06	2.82
LPG Forklift	196,278	FLP120_M	0.19	4.39	0.62	-	0.01	0.01
Total			4.5	30.9	127.4	0.2	3.7	3.4
<i>project Year 2015</i>								
Forklift 110 hp	156,945	FL120_U	0.20	0.67	1.43	0.00	0.15	0.14
RTG 600hp	1,436,347	RTG750_U	1.00	3.31	12.87	0.01	0.59	0.54
Side pick 227hp	411,353	SP250_U	0.22	0.86	3.16	0.00	0.14	0.13
Top pick 332hp	2,719,804	TH500_U	0.92	3.28	18.42	0.02	0.60	0.55
Yard tractor 230hp	24,863,267	YTD250_U	4.17	28.06	134.00	0.19	3.95	3.64
LPG Forklift	205,708	FLP120_M	0.20	4.60	0.65	-	0.01	0.01
Total			6.7	40.8	170.5	0.2	5.4	5.0
<i>project Year 2020</i>								
Forklift 110 hp	161,310	FL120_U	0.02	0.56	0.06	0.00	0.00	0.00
RTG 600hp	2,261,469	RTG750_U	0.19	2.39	0.77	0.02	0.03	0.03
Side pick 227hp	490,791	SP250_U	0.04	0.52	0.17	0.00	0.01	0.01
Top pick 332hp	3,172,251	TH500_U	0.27	3.42	1.10	0.02	0.04	0.04
Yard tractor 230hp	27,192,335	YTD250_U	2.29	29.05	9.41	0.21	0.34	0.32
LPG Forklift	211,431	FLP120_M	0.21	4.73	0.67	-	0.01	0.01
Total			3.0	40.7	12.2	0.3	0.4	0.4
<i>project Year 2025</i>								
Forklift 110 hp	165,674	FL120_U	0.02	0.61	0.06	0.00	0.00	0.00
RTG 600hp	3,086,591	RTG750_U	0.28	3.42	1.10	0.02	0.04	0.04
Side pick 227hp	570,229	SP250_U	0.05	0.63	0.20	0.00	0.01	0.01
Top pick 332hp	3,624,697	TH500_U	0.35	4.19	1.34	0.03	0.06	0.05
Yard tractor 230hp	29,521,403	YTD250_U	2.76	33.53	10.79	0.23	0.43	0.40
LPG Forklift	217,154	FLP120_M	0.21	4.86	0.69	-	0.01	0.01
Total			3.7	47.2	14.2	0.3	0.5	0.5
<i>project Year 2027</i>								
Forklift 110 hp	167,420	FL120_U	0.02	0.62	0.06	0.00	0.00	0.00
RTG 600hp	3,416,640	RTG750_U	0.32	3.86	1.24	0.03	0.05	0.05
Side pick 227hp	602,004	SP250_U	0.06	0.68	0.22	0.00	0.01	0.01
Top pick 332hp	3,805,676	TH500_U	0.38	4.52	1.44	0.03	0.06	0.06
Yard tractor 230hp	30,453,030	YTD250_U	2.95	35.41	11.36	0.23	0.47	0.43
LPG Forklift	219,443	FLP120_M	0.21	4.91	0.70	-	0.01	0.01
Total			3.9	50.0	15.0	0.3	0.6	0.6

Table 1.6-28 Peak Daily CHE Emissions Without Mitigation - Alternative 4

Equipment	Peakday Usage (hp-hr/peakday)	Daily Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>							
Forklift 110 hp	533	1.32	4.49	9.64	0.01	1.00	0.92
RTG 600hp	6,720	8.99	30.10	117.63	0.10	5.21	4.79
Side pick 227hp	1,226	1.25	5.01	18.36	0.02	0.80	0.74
Top pick 332hp	14,342	9.10	33.23	187.71	0.22	5.83	5.36
Yard tractor 230hp	77,906	24.61	169.55	812.98	1.20	22.69	20.87
LPG Forklift	699	1.36	31.26	4.44	-	0.05	0.05
Total		46.6	273.6	1,150.7	1.6	35.6	32.7
<i>Project Year 2015</i>							
Forklift 110 hp	559	1.40	4.76	10.18	0.01	1.08	0.99
RTG 600hp	12,000	16.79	55.24	215.06	0.19	9.89	9.10
Side pick 227hp	1,226	1.30	5.14	18.80	0.02	0.85	0.79
Top pick 332hp	16,693	11.27	40.26	226.09	0.26	7.39	6.80
Yard tractor 230hp	91,154	30.57	205.78	982.51	1.41	28.98	26.66
LPG Forklift	733	1.43	32.76	4.65	-	0.05	0.05
Total		62.8	343.9	1,457.3	1.9	48.2	44.4
<i>Project Year 2020</i>							
Forklift 110 hp	575	0.12	4.02	0.39	0.01	0.01	0.01
RTG 600hp	14,520	2.41	30.68	9.94	0.22	0.36	0.33
Side pick 227hp	1,226	0.20	2.59	0.84	0.02	0.03	0.03
Top pick 332hp	18,645	3.19	40.18	12.98	0.29	0.48	0.44
Yard tractor 230hp	93,297	15.74	199.32	64.59	1.44	2.36	2.17
LPG Forklift	753	1.47	33.67	4.78	-	0.05	0.05
Total		23.1	310.5	93.5	2.0	3.3	3.0
<i>Project Year 2025</i>							
Forklift 110 hp	590	0.14	4.32	0.42	0.01	0.02	0.01
RTG 600hp	17,040	3.06	37.80	12.16	0.26	0.47	0.43
Side pick 227hp	1,226	0.22	2.71	0.87	0.02	0.03	0.03
Top pick 332hp	19,681	3.79	45.53	14.55	0.30	0.60	0.55
Yard tractor 230hp	98,495	18.39	223.75	71.98	1.52	2.89	2.66
LPG Forklift	773	1.51	34.58	4.91	-	0.05	0.05
Total		27.1	348.7	104.9	2.1	4.1	3.7
<i>Project Year 2027</i>							
Forklift 110 hp	596	0.14	4.45	0.43	0.01	0.02	0.02
RTG 600hp	19,560	3.63	44.22	14.18	0.30	0.56	0.52
Side pick 227hp	1,226	0.23	2.76	0.89	0.02	0.04	0.03
Top pick 332hp	20,318	4.08	48.29	15.38	0.31	0.65	0.60
Yard tractor 230hp	108,772	21.09	252.97	81.17	1.68	3.37	3.10
LPG Forklift	782	1.52	34.95	4.96	-	0.05	0.05
Total		30.7	387.6	117.0	2.3	4.7	4.3

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Cargo Handling Equipment Emissions**

December 2011

Table 1.6-29 Annual CHE Emissions (continued)

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)					
			VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>								
Forklift 110 hp	149,754	FL120_M	0.18	0.63	1.35	0.00	0.14	0.13
RTG 600hp	76,800	RTG750_M	0.05	0.17	0.67	0.00	0.03	0.03
Side pick 227hp	280,463	SP250_M	0.14	0.57	2.10	0.00	0.09	0.08
Top pick 332hp	1,974,311	TH500_M	0.63	2.29	12.92	0.02	0.40	0.37
Yard tractor 230hp	21,025,680	YTD250_M	3.32	22.88	109.71	0.16	3.06	2.82
LPG Forklift	196,278	FLP120_M	0.19	4.39	0.62	-	0.01	0.01
Total			4.5	30.9	127.4	0.2	3.7	3.4
<i>Project Year 2015</i>								
Forklift 110 hp	156,945	FL120_M	0.20	0.67	1.43	0.00	0.15	0.14
RTG 600hp	1,436,347	RTG750_M	1.00	3.31	12.87	0.01	0.59	0.54
Side pick 227hp	(continued)	SP250_M	#####	#####	#VALUE!	#####	#VALUE!	#VALUE!
Top pick 332hp	2,719,804	TH500_M	0.92	3.28	18.42	0.02	0.60	0.55
Yard tractor 230hp	24,863,267	YTD250_M	1.96	25.55	8.32	0.19	0.28	0.26
LPG Forklift	205,708	FLP120_M	0.20	4.60	0.65	-	0.01	0.01
Total			#####	#####	#VALUE!	#####	#VALUE!	#VALUE!
<i>Project Year 2020</i>								
Forklift 110 hp	161,310	FL120_M	0.02	0.56	0.06	0.00	0.00	0.00
RTG 600hp	2,261,469	RTG750_M	0.19	2.39	0.77	0.02	0.03	0.03
Side pick 227hp	490,791	SP250_M	0.04	0.52	0.17	0.00	0.01	0.01
Top pick 332hp	3,172,251	TH500_M	0.27	3.42	1.10	0.02	0.04	0.04
Yard tractor 230hp	27,192,335	YTD250_M	2.39	29.78	9.62	0.21	0.37	0.34
LPG Forklift	211,431	FLP120_M	0.21	4.73	0.67	-	0.01	0.01
Total	0		3.1	41.4	12.4	0.3	0.4	0.4
<i>Project Year 2025</i>								
Forklift 110 hp	165,674	FL120_M	0.02	0.61	0.06	0.00	0.00	0.00
RTG 600hp	3,086,591	RTG750_M	0.28	3.42	1.10	0.02	0.04	0.04
Side pick 227hp	570,229	SP250_M	0.05	0.63	0.20	0.00	0.01	0.01
Top pick 332hp	3,624,697	TH500_M	0.35	4.19	1.34	0.03	0.06	0.05
Yard tractor 230hp	29,521,403	YTD250_M	2.86	34.33	11.02	0.23	0.46	0.42
LPG Forklift	217,154	FLP120_M	0.21	4.86	0.69	-	0.01	0.01
Total			3.8	48.0	14.4	0.3	0.6	0.5
<i>Project Year 2027</i>								
Forklift 110 hp	167,420	FL120_M	0.02	0.62	0.06	0.00	0.00	0.00
RTG 600hp	3,416,640	RTG750_M	0.32	3.86	1.24	0.03	0.05	0.05
Side pick 227hp	602,004	SP250_M	0.06	0.68	0.22	0.00	0.01	0.01
Top pick 332hp	3,805,676	TH500_M	0.38	4.52	1.44	0.03	0.06	0.06
Yard tractor 230hp	30,453,030	YTD250_M	2.40	31.30	10.19	0.23	0.35	0.32
LPG Forklift	219,443	FLP120_M	0.21	4.91	0.70	-	0.01	0.01
Total			3.4	45.9	13.8	0.3	0.5	0.4

Table 1.6-30 Peak Daily CHE Emissions With Mitigation - Alternative 4

Equipment	Peakday Usage (hp-hr/peakday)	Daily Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>							
Forklift 110 hp	533	1.32	4.49	9.64	0.01	1.00	0.92
RTG 600hp	6,720	8.99	30.10	117.63	0.10	5.21	4.79
Side pick 227hp	1,226	1.25	5.01	18.36	0.02	0.80	0.74
Top pick 332hp	14,342	9.10	33.23	187.71	0.22	5.83	5.36
Yard tractor 230hp	77,906	24.61	169.55	812.98	1.20	22.69	20.87
LPG Forklift	699	1.36	31.26	4.44	-	0.05	0.05
Total		46.6	273.6	1,150.7	1.6	35.6	32.7
<i>Project Year 2015</i>							
Forklift 110 hp	559	1.40	4.76	10.18	0.01	1.08	0.99
RTG 600hp	12,000	16.79	55.24	215.06	0.19	9.89	9.10
Side pick 227hp	1,226	1.30	5.14	18.80	0.02	0.85	0.79
Top pick 332hp	16,693	11.27	40.26	226.09	0.26	7.39	6.80
Yard tractor 230hp	91,154	14.40	187.35	60.99	1.41	2.08	1.92
LPG Forklift	733	1.43	32.76	4.65	-	0.05	0.05
Total		46.6	325.5	535.8	1.9	21.4	19.6
<i>Project Year 2020</i>							
Forklift 110 hp	575	0.12	4.02	0.39	0.01	0.01	0.01
RTG 600hp	14,520	2.41	30.68	9.94	0.22	0.36	0.33
Side pick 227hp	1,226	0.20	2.59	0.84	0.02	0.03	0.03
Top pick 332hp	18,645	3.19	40.18	12.98	0.29	0.48	0.44
Yard tractor 230hp	93,297	16.41	204.37	66.03	1.44	2.51	2.31
LPG Forklift	753	1.47	33.67	4.78	-	0.05	0.05
Total		23.8	315.5	95.0	2.0	3.4	3.2
<i>Project Year 2025</i>							
Forklift 110 hp	590	0.14	4.32	0.42	0.01	0.02	0.01
RTG 600hp	17,040	3.06	37.80	12.16	0.26	0.47	0.43
Side pick 227hp	1,226	0.22	2.71	0.87	0.02	0.03	0.03
Top pick 332hp	19,681	3.79	45.53	14.55	0.30	0.60	0.55
Yard tractor 230hp	98,495	19.10	229.07	73.50	1.52	3.05	2.80
LPG Forklift	773	1.51	34.58	4.91	-	0.05	0.05
Total		27.8	354.0	106.4	2.1	4.2	3.9
<i>Project Year 2027</i>							
Forklift 110 hp	596	0.14	4.45	0.43	0.01	0.02	0.02
RTG 600hp	19,560	3.63	44.22	14.18	0.30	0.56	0.52
Side pick 227hp	1,226	0.23	2.76	0.89	0.02	0.04	0.03
Top pick 332hp	20,318	4.08	48.29	15.38	0.31	0.65	0.60
Yard tractor 230hp	108,772	17.18	223.56	72.78	1.68	2.49	2.29
LPG Forklift	782	1.52	34.95	4.96	-	0.05	0.05
Total		26.8	358.2	108.6	2.3	3.8	3.5

Table 1.6-31 CHE Emission Summaries - Alternative 4

Summary of Annual CHE Emissions - Alt 4 without Mitigation

Project Study Year	Tons per Year					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	4.5	30.9	127.4	0.2	3.7	3.4
Year 2015	6.7	40.8	170.5	0.2	5.4	5.0
Year 2020	3.0	40.7	12.2	0.3	0.4	0.4
Year 2025	3.7	47.2	14.2	0.3	0.5	0.5
Year 2027	3.9	50.0	15.0	0.3	0.6	0.6

Summary of Annual CHE Emissions - Alt 4 with Mitigation

Project Study Year	Tons per Year					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	4.5	30.9	127.4	0.2	3.7	3.4
Year 2015	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Year 2020	3.1	41.4	12.4	0.3	0.4	0.4
Year 2025	3.8	48.0	14.4	0.3	0.6	0.5
Year 2027	3.4	45.9	13.8	0.3	0.5	0.4

Summary of Peak Daily CHE Emissions - Alt 4 without Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	47	274	1,151	2	36	33
Year 2015	63	344	1,457	2	48	44
Year 2020	23	310	94	2	3	3
Year 2025	27	349	105	2	4	4
Year 2027	31	388	117	2	5	4

Summary of Peak Daily CHE Emissions - Alt 4 with Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	47	274	1,151	2	36	33
Year 2015	47	326	536	2	21	20
Year 2020	24	316	95	2	3	3
Year 2025	28	354	106	2	4	4
Year 2027	27	358	109	2	4	4

Summary of Average Daily CHE Emissions - Alt 4 without Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	25	169	698	1	20	19
Year 2015	37	223	934	1	30	27
Year 2020	17	223	67	1	2	2
Year 2025	20	259	78	2	3	3
Year 2027	22	274	82	2	3	3

Summary of Average Daily CHE Emissions - Alt 4 with Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	25	169	698	1	20	19
Year 2015	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Year 2020	17	227	68	1	2	2
Year 2025	21	263	79	2	3	3
Year 2027	19	251	76	2	3	2

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Cargo Handling Equipment Emissions**

December 2011

Table 1.6-32 Annual CHE Emissions Without Mitigation - Alternative 5

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)					
			VOC	CO	NOx	SOx	PM10	PM2.5
<i>project Year 2012</i>								
Forklift 110 hp	149,754	FL120_U	0.18	0.63	1.35	0.00	0.14	0.13
RTG 600hp	76,800	RTG750_U	0.05	0.17	0.67	0.00	0.03	0.03
Side pick 227hp	280,463	SP250_U	0.14	0.57	2.10	0.00	0.09	0.08
Top pick 332hp	1,974,311	TH500_U	0.63	2.29	12.92	0.02	0.40	0.37
Yard tractor 230hp	21,025,680	YTD250_U	3.32	22.88	109.71	0.16	3.06	2.82
LPG Forklift	196,278	FLP120_M	0.19	4.39	0.62	-	0.01	0.01
Total			4.5	30.9	127.4	0.2	3.7	3.4
<i>project Year 2015</i>								
Forklift 110 hp	167,372	FL120_U	0.21	0.71	1.52	0.00	0.16	0.15
RTG 600hp	2,404,381	RTG750_U	1.68	5.53	21.54	0.02	0.99	0.91
Side pick 227hp	478,118	SP250_U	0.25	1.00	3.67	0.00	0.17	0.15
Top pick 332hp	3,679,087	TH500_U	1.24	4.44	24.92	0.03	0.81	0.75
Yard tractor 230hp	28,736,608	YTD250_U	4.82	32.44	154.87	0.22	4.57	4.20
LPG Forklift	219,370	FLP120_M	0.21	4.90	0.70	-	0.01	0.01
Total			8.4	49.0	207.2	0.3	6.7	6.2
<i>project Year 2020</i>								
Forklift 110 hp	173,341	FL120_U	0.02	0.61	0.06	0.00	0.00	0.00
RTG 600hp	3,192,955	RTG750_U	0.26	3.37	1.09	0.02	0.04	0.04
Side pick 227hp	545,082	SP250_U	0.05	0.57	0.19	0.00	0.01	0.01
Top pick 332hp	4,256,658	TH500_U	0.36	4.59	1.48	0.03	0.05	0.05
Yard tractor 230hp	31,349,039	YTD250_U	2.64	33.49	10.85	0.24	0.40	0.36
LPG Forklift	227,194	FLP120_M	0.22	5.08	0.72	-	0.01	0.01
Total			3.6	47.7	14.4	0.3	0.5	0.5
<i>project Year 2025</i>								
Forklift 110 hp	179,310	FL120_U	0.02	0.66	0.06	0.00	0.00	0.00
RTG 600hp	3,981,530	RTG750_U	0.36	4.42	1.42	0.03	0.05	0.05
Side pick 227hp	612,047	SP250_U	0.05	0.68	0.22	0.00	0.01	0.01
Top pick 332hp	4,834,229	TH500_U	0.47	5.59	1.79	0.04	0.07	0.07
Yard tractor 230hp	33,961,469	YTD250_U	3.17	38.57	12.41	0.26	0.50	0.46
LPG Forklift	235,017	FLP120_M	0.23	5.25	0.75	-	0.01	0.01
Total			4.3	55.2	16.6	0.3	0.6	0.6
<i>project Year 2027</i>								
Forklift 110 hp	181,698	FL120_U	0.02	0.68	0.07	0.00	0.00	0.00
RTG 600hp	4,296,960	RTG750_U	0.40	4.86	1.56	0.03	0.06	0.06
Side pick 227hp	638,832	SP250_U	0.06	0.72	0.23	0.00	0.01	0.01
Top pick 332hp	5,065,258	TH500_U	0.51	6.02	1.92	0.04	0.08	0.08
Yard tractor 230hp	35,006,442	YTD250_U	3.39	40.71	13.06	0.27	0.54	0.50
LPG Forklift	238,147	FLP120_M	0.23	5.32	0.76	-	0.01	0.01
Total			4.6	58.3	17.6	0.3	0.7	0.6

Table 1.6-33 Peak Daily CHE Emissions Without Mitigation - Alternative 5

Equipment	Peakday Usage (hp-hr/peakday)	Daily Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>							
Forklift 110 hp	533	1.32	4.49	9.64	0.01	1.00	0.92
RTG 600hp	6,720	8.99	30.10	117.63	0.10	5.21	4.79
Side pick 227hp	1,226	1.25	5.01	18.36	0.02	0.80	0.74
Top pick 332hp	14,342	9.10	33.23	187.71	0.22	5.83	5.36
Yard tractor 230hp	77,906	24.61	169.55	812.98	1.20	22.69	20.87
LPG Forklift	699	1.36	31.26	4.44	-	0.05	0.05
Total		46.6	273.6	1,150.7	1.6	35.6	32.7
<i>Project Year 2015</i>							
Forklift 110 hp	596	1.50	5.07	10.86	0.01	1.15	1.06
RTG 600hp	13,200	18.47	60.76	236.56	0.20	10.88	10.01
Side pick 227hp	1,226	1.30	5.14	18.80	0.02	0.85	0.79
Top pick 332hp	19,681	13.29	47.47	266.56	0.30	8.72	8.02
Yard tractor 230hp	94,668	31.75	213.71	1,020.39	1.46	30.09	27.69
LPG Forklift	781	1.52	34.94	4.96	-	0.05	0.05
Total		67.8	367.1	1,558.1	2.0	51.7	47.6
<i>Project Year 2020</i>							
Forklift 110 hp	617	0.13	4.32	0.42	0.01	0.02	0.01
RTG 600hp	15,120	2.50	31.95	10.35	0.23	0.37	0.34
Side pick 227hp	1,662	0.27	3.51	1.14	0.03	0.04	0.04
Top pick 332hp	20,916	3.58	45.07	14.56	0.32	0.54	0.50
Yard tractor 230hp	112,185	18.93	239.68	77.66	1.73	2.84	2.61
LPG Forklift	809	1.58	36.18	5.14	-	0.06	0.06
Total		27.0	360.7	109.3	2.3	3.9	3.6
<i>Project Year 2025</i>							
Forklift 110 hp	639	0.15	4.68	0.46	0.01	0.02	0.02
RTG 600hp	20,160	3.62	44.72	14.38	0.31	0.56	0.51
Side pick 227hp	1,662	0.30	3.67	1.19	0.03	0.05	0.04
Top pick 332hp	23,824	4.59	55.12	17.62	0.37	0.72	0.67
Yard tractor 230hp	123,059	22.98	279.55	89.94	1.90	3.61	3.32
LPG Forklift	837	1.63	37.43	5.31	-	0.06	0.06
Total		33.3	425.2	128.9	2.6	5.0	4.6
<i>Project Year 2027</i>							
Forklift 110 hp	647	0.15	4.83	0.47	0.01	0.02	0.02
RTG 600hp	20,160	3.74	45.58	14.62	0.31	0.58	0.53
Side pick 227hp	2,097	0.39	4.72	1.52	0.03	0.06	0.06
Top pick 332hp	24,980	5.02	59.37	18.91	0.39	0.80	0.74
Yard tractor 230hp	124,255	24.10	288.99	92.73	1.92	3.84	3.54
LPG Forklift	848	1.65	37.93	5.38	-	0.06	0.06
Total		35.0	441.4	133.6	2.7	5.4	4.9

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Cargo Handling Equipment Emissions**

December 2011

Table 1.6-34 Annual CHE Emissions (continued)

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)					
			VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>								
Forklift 110 hp	149,754	FL120_M	0.18	0.63	1.35	0.00	0.14	0.13
RTG 600hp	76,800	RTG750_M	0.05	0.17	0.67	0.00	0.03	0.03
Side pick 227hp	280,463	SP250_M	0.14	0.57	2.10	0.00	0.09	0.08
Top pick 332hp	1,974,311	TH500_M	0.63	2.29	12.92	0.02	0.40	0.37
Yard tractor 230hp	21,025,680	YTD250_M	3.32	22.88	109.71	0.16	3.06	2.82
LPG Forklift	196,278	FLP120_M	0.19	4.39	0.62	-	0.01	0.01
Total			4.5	30.9	127.4	0.2	3.7	3.4
<i>Project Year 2015</i>								
Forklift 110 hp	167,372	FL120_M	0.21	0.71	1.52	0.00	0.16	0.15
RTG 600hp	2,404,381	RTG750_M	1.68	5.53	21.54	0.02	0.99	0.91
Side pick 227hp	(continued)	SP250_M	#####	#####	#VALUE!	#####	#VALUE!	#VALUE!
Top pick 332hp	3,679,087	TH500_M	1.24	4.44	24.92	0.03	0.81	0.75
Yard tractor 230hp	28,736,608	YTD250_M	2.27	29.53	9.61	0.22	0.33	0.30
LPG Forklift	219,370	FLP120_M	0.21	4.90	0.70	-	0.01	0.01
Total			#####	#####	#VALUE!	#####	#VALUE!	#VALUE!
<i>Project Year 2020</i>								
Forklift 110 hp	173,341	FL120_M	0.02	0.61	0.06	0.00	0.00	0.00
RTG 600hp	3,192,955	RTG750_M	0.26	3.37	1.09	0.02	0.04	0.04
Side pick 227hp	545,082	SP250_M	0.05	0.57	0.19	0.00	0.01	0.01
Top pick 332hp	4,256,658	TH500_M	0.36	4.59	1.48	0.03	0.05	0.05
Yard tractor 230hp	31,349,039	YTD250_M	2.76	34.34	11.09	0.24	0.42	0.39
LPG Forklift	227,194	FLP120_M	0.22	5.08	0.72	-	0.01	0.01
Total			3.7	48.6	14.6	0.3	0.5	0.5
<i>Project Year 2025</i>								
Forklift 110 hp	179,310	FL120_M	0.02	0.66	0.06	0.00	0.00	0.00
RTG 600hp	3,981,530	RTG750_M	0.36	4.42	1.42	0.03	0.05	0.05
Side pick 227hp	612,047	SP250_M	0.05	0.68	0.22	0.00	0.01	0.01
Top pick 332hp	4,834,229	TH500_M	0.47	5.59	1.79	0.04	0.07	0.07
Yard tractor 230hp	33,961,469	YTD250_M	3.29	39.49	12.67	0.26	0.53	0.48
LPG Forklift	235,017	FLP120_M	0.23	5.25	0.75	-	0.01	0.01
Total			4.4	56.1	16.9	0.3	0.7	0.6
<i>Project Year 2027</i>								
Forklift 110 hp	181,698	FL120_M	0.02	0.68	0.07	0.00	0.00	0.00
RTG 600hp	4,296,960	RTG750_M	0.40	4.86	1.56	0.03	0.06	0.06
Side pick 227hp	638,832	SP250_M	0.06	0.72	0.23	0.00	0.01	0.01
Top pick 332hp	5,065,258	TH500_M	0.51	6.02	1.92	0.04	0.08	0.08
Yard tractor 230hp	35,006,442	YTD250_M	2.76	35.97	11.71	0.27	0.40	0.37
LPG Forklift	238,147	FLP120_M	0.23	5.32	0.76	-	0.01	0.01
Total			4.0	53.6	16.2	0.3	0.6	0.5

Table 1.6-35 Peak Daily CHE Emissions With Mitigation - Alternative 5

Equipment	Peakday Usage (hp-hr/peakday)	Daily Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>							
Forklift 110 hp	533	1.32	4.49	9.64	0.01	1.00	0.92
RTG 600hp	6,720	8.99	30.10	117.63	0.10	5.21	4.79
Side pick 227hp	1,226	1.25	5.01	18.36	0.02	0.80	0.74
Top pick 332hp	14,342	9.10	33.23	187.71	0.22	5.83	5.36
Yard tractor 230hp	77,906	24.61	169.55	812.98	1.20	22.69	20.87
LPG Forklift	699	1.36	31.26	4.44	-	0.05	0.05
Total		46.6	273.6	1,150.7	1.6	35.6	32.7
<i>Project Year 2015</i>							
Forklift 110 hp	596	1.50	5.07	10.86	0.01	1.15	1.06
RTG 600hp	13,200	18.47	60.76	236.56	0.20	10.88	10.01
Side pick 227hp	1,226	1.30	5.14	18.80	0.02	0.85	0.79
Top pick 332hp	19,681	13.29	47.47	266.56	0.30	8.72	8.02
Yard tractor 230hp	94,668	14.95	194.57	63.34	1.46	2.16	1.99
LPG Forklift	781	1.52	34.94	4.96	-	0.05	0.05
Total		51.0	348.0	601.1	2.0	23.8	21.9
<i>Project Year 2020</i>							
Forklift 110 hp	617	0.13	4.32	0.42	0.01	0.02	0.01
RTG 600hp	15,120	2.50	31.95	10.35	0.23	0.37	0.34
Side pick 227hp	1,662	0.27	3.51	1.14	0.03	0.04	0.04
Top pick 332hp	20,916	3.58	45.07	14.56	0.32	0.54	0.50
Yard tractor 230hp	112,185	19.74	245.74	79.39	1.73	3.02	2.78
LPG Forklift	809	1.58	36.18	5.14	-	0.06	0.06
Total		27.8	366.8	111.0	2.3	4.0	3.7
<i>Project Year 2025</i>							
Forklift 110 hp	639	0.15	4.68	0.46	0.01	0.02	0.02
RTG 600hp	20,160	3.62	44.72	14.38	0.31	0.56	0.51
Side pick 227hp	1,662	0.30	3.67	1.19	0.03	0.05	0.04
Top pick 332hp	23,824	4.59	55.12	17.62	0.37	0.72	0.67
Yard tractor 230hp	123,059	23.87	286.20	91.84	1.90	3.81	3.50
LPG Forklift	837	1.63	37.43	5.31	-	0.06	0.06
Total		34.2	431.8	130.8	2.6	5.2	4.8
<i>Project Year 2027</i>							
Forklift 110 hp	647	0.15	4.83	0.47	0.01	0.02	0.02
RTG 600hp	20,160	3.74	45.58	14.62	0.31	0.58	0.53
Side pick 227hp	2,097	0.39	4.72	1.52	0.03	0.06	0.06
Top pick 332hp	24,980	5.02	59.37	18.91	0.39	0.80	0.74
Yard tractor 230hp	124,255	19.62	255.38	83.14	1.92	2.84	2.61
LPG Forklift	848	1.65	37.93	5.38	-	0.06	0.06
Total		30.6	407.8	124.0	2.7	4.4	4.0

Table 1.6-36 CHE Emission Summaries - Alternative 5

Summary of Annual CHE Emissions - Alt 5 without Mitigation

Project Study Year	Tons per Year					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	4.5	30.9	127.4	0.2	3.7	3.4
Year 2015	8.4	49.0	207.2	0.3	6.7	6.2
Year 2020	3.6	47.7	14.4	0.3	0.5	0.5
Year 2025	4.3	55.2	16.6	0.3	0.6	0.6
Year 2027	4.6	58.3	17.6	0.3	0.7	0.6

Summary of Annual CHE Emissions - Alt 5 with Mitigation

Project Study Year	Tons per Year					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	5	31	127	0	3.73	3.43
Year 2015	#####	#####	#####	#####	#VALUE!	#VALUE!
Year 2020	4	49	15	0	0.53	0.49
Year 2025	4	56	17	0	0.67	0.62
Year 2027	4	54	16	0	0.56	0.52

Summary of Peak Daily CHE Emissions - Alt 5 without Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	47	274	1,151	2	36	33
Year 2015	68	367	1,558	2	52	48
Year 2020	27	361	109	2	4	4
Year 2025	33	425	129	3	5	5
Year 2027	35	441	134	3	5	5

Summary of Peak Daily CHE Emissions - Alt 5 with Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	47	274	1,151	2	35.58	32.74
Year 2015	51	348	601	2	23.82	21.92
Year 2020	28	367	111	2	4.04	3.72
Year 2025	34	432	131	3	5.21	4.80
Year 2027	31	408	124	3	4.36	4.02

Summary of Average Daily CHE Emissions - Alt 5 without Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	25	169	698	1	20	19
Year 2015	46	269	1,135	1	37	34
Year 2020	19	261	79	2	3	3
Year 2025	24	302	91	2	4	3
Year 2027	25	319	96	2	4	4

Summary of Average Daily CHE Emissions - Alt 5 with Mitigation

Project Study Year	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	25	169	698	1	20.45	18.82
Year 2015	#####	#####	#####	#####	#VALUE!	#VALUE!
Year 2020	20	266	80	2	2.92	2.69
Year 2025	24	307	93	2	3.69	3.39
Year 2027	22	294	89	2	3.09	2.84

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Cargo Handling Equipment Emissions**

December 2011

Table 1.6-37 Annual CHE Emissions Without Mitigation - Alternative 6

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)					
			VOC	CO	NOx	SOx	PM10	PM2.5
<i>project Year 2012</i>								
Forklift 110 hp	149,754	FL120_U	0.18	0.63	1.35	0.00	0.14	0.13
RTG 600hp	76,800	RTG750_U	0.05	0.17	0.67	0.00	0.03	0.03
Side pick 227hp	280,463	SP250_U	0.14	0.57	2.10	0.00	0.09	0.08
Top pick 332hp	1,974,311	TH500_U	0.63	2.29	12.92	0.02	0.40	0.37
Yard tractor 230hp	21,025,680	YTD250_U	3.32	22.88	109.71	0.16	3.06	2.82
LPG Forklift	196,278	FLP120_M	0.19	4.39	0.62	-	0.01	0.01
Total			4.5	30.9	127.4	0.2	3.7	3.4
<i>project Year 2015</i>								
Forklift 110 hp	169,314	FL120_U	0.21	0.72	1.54	0.00	0.16	0.15
RTG 600hp	1,675,070	RTG750_U	1.17	3.86	15.01	0.01	0.69	0.64
Side pick 227hp	499,895	SP250_U	0.27	1.05	3.83	0.00	0.17	0.16
Top pick 332hp	3,464,805	TH500_U	1.17	4.18	23.46	0.03	0.77	0.71
Yard tractor 230hp	28,880,837	YTD250_U	4.84	32.60	155.65	0.22	4.59	4.22
LPG Forklift	221,915	FLP120_M	0.22	4.96	0.70	-	0.01	0.01
Total			7.9	47.4	200.2	0.3	6.4	5.9
<i>project Year 2020</i>								
Forklift 110 hp	174,474	FL120_U	0.02	0.61	0.06	0.00	0.00	0.00
RTG 600hp	2,096,724	RTG750_U	0.17	2.21	0.72	0.02	0.03	0.02
Side pick 227hp	557,786	SP250_U	0.05	0.59	0.19	0.00	0.01	0.01
Top pick 332hp	3,858,026	TH500_U	0.33	4.16	1.34	0.03	0.05	0.05
Yard tractor 230hp	30,953,178	YTD250_U	2.61	33.06	10.71	0.24	0.39	0.36
LPG Forklift	228,678	FLP120_M	0.22	5.11	0.73	-	0.01	0.01
Total			3.4	45.7	13.8	0.3	0.5	0.4
<i>project Year 2025</i>								
Forklift 110 hp	179,634	FL120_U	0.02	0.66	0.06	0.00	0.00	0.00
RTG 600hp	2,518,378	RTG750_U	0.23	2.79	0.90	0.02	0.03	0.03
Side pick 227hp	615,676	SP250_U	0.05	0.68	0.22	0.00	0.01	0.01
Top pick 332hp	4,251,247	TH500_U	0.41	4.92	1.57	0.03	0.06	0.06
Yard tractor 230hp	33,062,613	YTD250_U	3.09	37.55	12.08	0.26	0.48	0.45
LPG Forklift	235,441	FLP120_M	0.23	5.26	0.75	-	0.01	0.01
Total			4.0	51.9	15.6	0.3	0.6	0.6
<i>project Year 2027</i>								
Forklift 110 hp	181,698	FL120_U	0.02	0.68	0.07	0.00	0.00	0.00
RTG 600hp	2,687,040	RTG750_U	0.25	3.04	0.97	0.02	0.04	0.04
Side pick 227hp	638,832	SP250_U	0.06	0.72	0.23	0.00	0.01	0.01
Top pick 332hp	4,408,535	TH500_U	0.44	5.24	1.67	0.03	0.07	0.07
Yard tractor 230hp	34,084,086	YTD250_U	3.31	39.64	12.72	0.26	0.53	0.49
LPG Forklift	238,147	FLP120_M	0.23	5.32	0.76	-	0.01	0.01
Total			4.3	54.6	16.4	0.3	0.7	0.6

Table 1.6-38 Peak Daily CHE Emissions Without Mitigation - Alternative 6

Equipment	Peakday Usage (hp-hr/peakday)	Daily Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>							
Forklift 110 hp	533	1.32	4.49	9.64	0.01	1.00	0.92
RTG 600hp	6,720	8.99	30.10	117.63	0.10	5.21	4.79
Side pick 227hp	1,226	1.25	5.01	18.36	0.02	0.80	0.74
Top pick 332hp	14,342	9.10	33.23	187.71	0.22	5.83	5.36
Yard tractor 230hp	77,906	24.61	169.55	812.98	1.20	22.69	20.87
LPG Forklift	699	1.36	31.26	4.44	-	0.05	0.05
Total		46.6	273.6	1,150.7	1.6	35.6	32.7
<i>Project Year 2015</i>							
Forklift 110 hp	603	1.51	5.13	10.98	0.01	1.16	1.07
RTG 600hp	11,280	15.78	51.93	202.15	0.17	9.30	8.55
Side pick 227hp	1,226	1.30	5.14	18.80	0.02	0.85	0.79
Top pick 332hp	16,773	11.32	40.45	227.17	0.26	7.43	6.83
Yard tractor 230hp	101,715	34.12	229.62	1,096.35	1.57	32.33	29.75
LPG Forklift	790	1.54	35.34	5.02	-	0.05	0.05
Total		65.6	367.6	1,560.5	2.0	51.1	47.0
<i>Project Year 2020</i>							
Forklift 110 hp	621	0.13	4.35	0.43	0.01	0.02	0.01
RTG 600hp	15,120	2.50	31.95	10.35	0.23	0.37	0.34
Side pick 227hp	1,662	0.27	3.51	1.14	0.03	0.04	0.04
Top pick 332hp	19,283	3.30	41.55	13.42	0.30	0.50	0.46
Yard tractor 230hp	111,578	18.83	238.38	77.24	1.72	2.82	2.60
LPG Forklift	814	1.59	36.42	5.17	-	0.06	0.06
Total		26.6	356.1	107.7	2.3	3.8	3.5
<i>Project Year 2025</i>							
Forklift 110 hp	640	0.15	4.69	0.46	0.01	0.02	0.02
RTG 600hp	17,040	3.06	37.80	12.16	0.26	0.47	0.43
Side pick 227hp	1,662	0.30	3.67	1.19	0.03	0.05	0.04
Top pick 332hp	19,920	3.83	46.08	14.73	0.31	0.60	0.56
Yard tractor 230hp	119,232	22.26	270.85	87.14	1.84	3.50	3.22
LPG Forklift	839	1.63	37.50	5.32	-	0.06	0.06
Total		31.2	400.6	121.0	2.4	4.7	4.3
<i>Project Year 2027</i>							
Forklift 110 hp	647	0.15	4.83	0.47	0.01	0.02	0.02
RTG 600hp	18,960	3.52	42.86	13.75	0.29	0.55	0.50
Side pick 227hp	1,662	0.31	3.74	1.20	0.03	0.05	0.04
Top pick 332hp	21,155	4.25	50.28	16.01	0.33	0.68	0.63
Yard tractor 230hp	121,440	23.55	282.44	90.63	1.87	3.76	3.46
LPG Forklift	848	1.65	37.93	5.38	-	0.06	0.06
Total		33.4	422.1	127.4	2.5	5.1	4.7

**Port of Los Angeles
Berths 302-306 [APL] Container Terminal Project
Cargo Handling Equipment Emissions**

December 2011

Table 1.6-39 Annual CHE Emissions (continued)

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)					
			VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>								
Forklift 110 hp	149,754	FL120_M	0.18	0.63	1.35	0.00	0.14	0.13
RTG 600hp	76,800	RTG750_M	0.05	0.17	0.67	0.00	0.03	0.03
Side pick 227hp	280,463	SP250_M	0.14	0.57	2.10	0.00	0.09	0.08
Top pick 332hp	1,974,311	TH500_M	0.63	2.29	12.92	0.02	0.40	0.37
Yard tractor 230hp	21,025,680	YTD250_M	3.32	22.88	109.71	0.16	3.06	2.82
LPG Forklift	196,278	FLP120_M	0.19	4.39	0.62	-	0.01	0.01
Total			4.5	30.9	127.4	0.2	3.7	3.4
<i>Project Year 2015</i>								
Forklift 110 hp	169,314	FL120_M	0.21	0.72	1.54	0.00	0.16	0.15
RTG 600hp	1,675,070	RTG750_M	1.17	3.86	15.01	0.01	0.69	0.64
Side pick 227hp	(continued)	SP250_M	#####	#####	#####	#####	#VALUE!	#VALUE!
Top pick 332hp	3,464,805	TH500_M	1.17	4.18	23.46	0.03	0.77	0.71
Yard tractor 230hp	28,880,837	YTD250_M	2.28	29.68	9.66	0.22	0.33	0.30
LPG Forklift	221,915	FLP120_M	0.22	4.96	0.70	-	0.01	0.01
Total			#####	#####	#####	#####	#VALUE!	#VALUE!
<i>Project Year 2020</i>								
Forklift 110 hp	174,474	FL120_M	0.02	0.61	0.06	0.00	0.00	0.00
RTG 600hp	2,096,724	RTG750_M	0.17	2.21	0.72	0.02	0.03	0.02
Side pick 227hp	557,786	SP250_M	0.05	0.59	0.19	0.00	0.01	0.01
Top pick 332hp	3,858,026	TH500_M	0.33	4.16	1.34	0.03	0.05	0.05
Yard tractor 230hp	30,953,178	YTD250_M	2.72	33.90	10.95	0.24	0.42	0.38
LPG Forklift	228,678	FLP120_M	0.22	5.11	0.73	-	0.01	0.01
Total			3.5	46.6	14.0	0.3	0.5	0.5
<i>Project Year 2025</i>								
Forklift 110 hp	179,634	FL120_M	0.02	0.66	0.06	0.00	0.00	0.00
RTG 600hp	2,518,378	RTG750_M	0.23	2.79	0.90	0.02	0.03	0.03
Side pick 227hp	615,676	SP250_M	0.05	0.68	0.22	0.00	0.01	0.01
Top pick 332hp	4,251,247	TH500_M	0.41	4.92	1.57	0.03	0.06	0.06
Yard tractor 230hp	33,062,613	YTD250_M	3.21	38.45	12.34	0.26	0.51	0.47
LPG Forklift	235,441	FLP120_M	0.23	5.26	0.75	-	0.01	0.01
Total			4.1	52.8	15.8	0.3	0.6	0.6
<i>Project Year 2027</i>								
Forklift 110 hp	181,698	FL120_M	0.02	0.68	0.07	0.00	0.00	0.00
RTG 600hp	2,687,040	RTG750_M	0.25	3.04	0.97	0.02	0.04	0.04
Side pick 227hp	638,832	SP250_M	0.06	0.72	0.23	0.00	0.01	0.01
Top pick 332hp	4,408,535	TH500_M	0.44	5.24	1.67	0.03	0.07	0.07
Yard tractor 230hp	34,084,086	YTD250_M	2.69	35.03	11.40	0.26	0.39	0.36
LPG Forklift	238,147	FLP120_M	0.23	5.32	0.76	-	0.01	0.01
Total			3.7	50.0	15.1	0.3	0.5	0.5

Note: 2040 emission factors were used for year 2045, since Offroad2007 only calculates up to year 2040.

Table 1.6-40 Peak Daily CHE Emissions With Mitigation - Alternative 6

Equipment	Peakday Usage (hp-hr/peakday)	Daily Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<i>Project Year 2012</i>							
Forklift 110 hp	533	1.32	4.49	9.64	0.01	1.00	0.92
RTG 600hp	6,720	8.99	30.10	117.63	0.10	5.21	4.79
Side pick 227hp	1,226	1.25	5.01	18.36	0.02	0.80	0.74
Top pick 332hp	14,342	9.10	33.23	187.71	0.22	5.83	5.36
Yard tractor 230hp	77,906	24.61	169.55	812.98	1.20	22.69	20.87
LPG Forklift	699	1.36	31.26	4.44	-	0.05	0.05
Total		46.6	273.6	1,150.7	1.6	35.6	32.7
<i>Project Year 2015</i>							
Forklift 110 hp	603	1.51	5.13	10.98	0.01	1.16	1.07
RTG 600hp	11,280	15.78	51.93	202.15	0.17	9.30	8.55
Side pick 227hp	1,226	1.30	5.14	18.80	0.02	0.85	0.79
Top pick 332hp	16,773	11.32	40.45	227.17	0.26	7.43	6.83
Yard tractor 230hp	101,715	16.06	209.06	68.06	1.57	2.32	2.14
LPG Forklift	790	1.54	35.34	5.02	-	0.05	0.05
Total		47.5	347.1	532.2	2.0	21.1	19.4
<i>Project Year 2020</i>							
Forklift 110 hp	621	0.13	4.35	0.43	0.01	0.02	0.01
RTG 600hp	15,120	2.50	31.95	10.35	0.23	0.37	0.34
Side pick 227hp	1,662	0.27	3.51	1.14	0.03	0.04	0.04
Top pick 332hp	19,283	3.30	41.55	13.42	0.30	0.50	0.46
Yard tractor 230hp	111,578	19.63	244.41	78.96	1.72	3.00	2.76
LPG Forklift	814	1.59	36.42	5.17	-	0.06	0.06
Total		27.4	362.2	109.5	2.3	4.0	3.7
<i>Project Year 2025</i>							
Forklift 110 hp	640	0.15	4.69	0.46	0.01	0.02	0.02
RTG 600hp	17,040	3.06	37.80	12.16	0.26	0.47	0.43
Side pick 227hp	1,662	0.30	3.67	1.19	0.03	0.05	0.04
Top pick 332hp	19,920	3.83	46.08	14.73	0.31	0.60	0.56
Yard tractor 230hp	119,232	23.12	277.30	88.98	1.84	3.69	3.39
LPG Forklift	839	1.63	37.50	5.32	-	0.06	0.06
Total		32.1	407.0	122.8	2.4	4.9	4.5
<i>Project Year 2027</i>							
Forklift 110 hp	647	0.15	4.83	0.47	0.01	0.02	0.02
RTG 600hp	18,960	3.52	42.86	13.75	0.29	0.55	0.50
Side pick 227hp	1,662	0.31	3.74	1.20	0.03	0.05	0.04
Top pick 332hp	21,155	4.25	50.28	16.01	0.33	0.68	0.63
Yard tractor 230hp	121,440	19.18	249.60	81.26	1.87	2.78	2.55
LPG Forklift							
Total		27.4	351.3	112.7	2.5	4.1	3.7

Table 1.6-41 CHE Emission Summaries - Alternative 6

Summary of Annual CHE Emissions - Alt 6 without Mitigation

Project Study	Tons per Year					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	4.5	30.9	127.4	0.2	3.7	3.4
Year 2015	7.9	47.4	200.2	0.3	6.4	5.9
Year 2020	3.4	45.7	13.8	0.3	0.5	0.4
Year 2025	4.0	51.9	15.6	0.3	0.6	0.6
Year 2027	4.3	54.6	16.4	0.3	0.7	0.6

Summary of Annual CHE Emissions - Alt 6 with Mitigation

Project Study	Tons per Year					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	4.5	30.9	127.4	0.2	3.7	3.4
Year 2015	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Year 2020	3.5	46.6	14.0	0.3	0.5	0.5
Year 2025	4.1	52.8	15.8	0.3	0.6	0.6
Year 2027	3.7	50.0	15.1	0.3	0.5	0.5

Summary of Peak Daily CHE Emissions - Alt 6 without Mitigation

Project Study	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	47	274	1,151	2	36	33
Year 2015	66	368	1,560	2	51	47
Year 2020	27	356	108	2	4	4
Year 2025	31	401	121	2	5	4
Year 2027	33	422	127	3	5	5

Summary of Peak Daily CHE Emissions - Alt 6 with Mitigation

Project Study	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	47	274	1,151	2	36	33
Year 2015	48	347	532	2	21	19
Year 2020	27	362	109	2	4	4
Year 2025	32	407	123	2	5	4
Year 2027	27	351	113	3	4	4

Summary of Average Daily CHE Emissions - Alt 6 without Mitigation

Project Study	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	25	169	698	1	20	19
Year 2015	43	260	1,097	1	35	32
Year 2020	19	251	75	2	3	2
Year 2025	22	284	85	2	3	3
Year 2027	24	299	90	2	4	3

Summary of Average Daily CHE Emissions - Alt 6 with Mitigation

Project Study	Pounds per Day					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2012	25	169	698	1	20	19
Year 2015	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Year 2020	19	255	77	2	3	3
Year 2025	23	289	87	2	3	3
Year 2027	20	274	83	2	3	3

Table 1.6-42 Comparison of Energy Demand for Automated Backlands (41 ac) - Proposed Project in 2027

Calculation of Energy for Conventional Operation - Berth 302-306		1,832,000 Vessel Lifts 593,568 Rail Lifts
Equipment	Energy (Kwh/Year)	
Single Trolley Crane	12,824,000 Kwh	
RTG	1,889,217 Kwh	2,533,440
Top Handler	3,287,498 Kwh	4,408,535
Side Pick	476,385 Kwh	638,832
Yard Tractor	25,245,678 Kwh	33,854,454
RMG's	1,780,704 Kwh	
Forklifts	135,494 Kwh	181,698
Total	45,638,977 Kwh/Year	

Note: 14,604,704 Kwh is utility electric power, 31,034,273 Kwh is diesel generated power

Assumptions:

	Annual hours for 1,832,000 lifts	Horsepower	Load Factor
RTG	21,112 Hrs	600 Hp	0.2
Top Pick	55,328 Hrs	332 Hp	0.24
Side Pick	11,726 Hrs	227 Hp	0.24
Yard Tractor	919,958 Hrs	230 Hp	0.16
Forklift	8,259 Hrs	110 Hp	0.2

Yard Tractor (1,832,000 Vessel Lifts)	0.50	
Yard Tractor (1,083,200 Vessel Lifts)	0.65	0.52
AGVs (748,800 Vessel Lifts)	0.33	

	36.8	919,958
	40.2	948,896
	3.4	28,938

Calculation of Energy for Conventional Operation - Berth 302-305		1,083,200 Vessel Lifts
Equipment	Energy (Kwh/Year)	
Single Trolley Crane	7,582,400 Kwh	
RTG	868,367 Kwh	1,164,480
Top Handler	1,873,936 Kwh	2,512,948
Side Pick	352,800 Kwh	473,104
Yard Tractor	19,190,226 Kwh	25,734,093
RMG's	1,780,704 Kwh	
Forklifts	135,494 Kwh	181,698
Total	31,783,926 Kwh/Year	

Note: 9,363,104 Kwh is utility electric power, 22,420,822 Kwh is diesel generated power

Note: RMG based on 593,568 rail lifts

Note: Forklifts based on 1,832,000 vessel lifts

Assumptions:

	Annual hours for 1,083,200 lifts	Horsepower	Load Factor
RTG	9,704 Hrs	600 Hp	0.2
Top Pick	31,538 Hrs	332 Hp	0.24
Side Pick	8,684 Hrs	227 Hp	0.24
Yard Tractor	699,296 Hrs	230 Hp	0.16
Forklifts	8,259 Hrs	110 Hp	0.2

Calculation of Energy for Automated Area -
Berth 306

748,800 Vessel Lifts

Equipment	Energy (Kwh/lift)	Energy (Kwh/Year)
Dual Trolley Quay Crane	7.1	5,316,480
AGV (Crane - ASC)	5.0	3,741,208
ASC (in/out of stack)	9.2	6,888,960
AGV (LTC - ASC)	5.0	3,741,208
LTC	1.6	1,198,080
Total	27.9 Kwh/lift	20,885,936 Kwh/Year

Note: 13,403,520 Kwh is utility electric power, 7,482,416 Kwh is diesel generated power

Assumptions:

	Annual hours for 748,800 Lifts		
AGV (Diesel Electric)	249,600 Hrs (748,800 Lifts)	335 Hp	0.12

Berth 302-305 Conventional combined with Berth 306 Automated

Diesel Power	29,903,239 Kwh/Year
Electrical Power	22,766,624 Kwh/Year
Total	52,669,863 Kwh/Year

Percentage Inc/Dec

Change in Total Energy Demand (kWh/year)	7,030,886	15%
Change in Electrical Power Demand (kWh/year)	8,161,920	64%
Change in Diesel Fuel Consumption (kWh/year)	(1,131,034)	-4%

Table 1.6-43 CHE Emissions for Conventional Container Handling On All Backlands - Proposed Project 2027

Yard Equipment			2027 Activity Levels		Annual Usage	Daily Usage	2027 Emission Factors (g/hp-hr)							
Type	Average Hp ^a	Average Load Factor ^a	Total Annual Hours by type ^b	Peak Day Hours by type ^b	hp-hrs/year	hp-hrs/day	VOC	CO	NOx	SOx	PM	CO2	CH4	N2O
<i>Electric Wharf Crane</i>	NA	NA					Electric							
<i>Forklift (Diesel)</i>	110	0.2	8,259	29	181,698	647	0.107	3.386	0.329	0.007	0.013	568.3	0.008	0.004
<i>RMG cranes</i>	NA	0.2					Electric							
<i>Rub-trd Gantry Crane</i>	600	0.2	21,112	158	2,533,440	18,960	0.084	1.025	0.329	0.007	0.013	568.3	0.011	0.005
<i>Side pick</i>	227	0.24	11,726	31	638,832	1,662	0.083	1.021	0.329	0.007	0.013	568.3	0.008	0.004
<i>Top handler</i>	332	0.24	55,328	266	4,408,535	21,155	0.091	1.078	0.343	0.007	0.015	568.3	0.018	0.008
<i>Yard tractor</i>	230	0.16	919,958	3,240	33,854,454	119,232	0.088	1.055	0.339	0.007	0.014	568.3	0.014	0.006

a. Average horsepower (HP) and load factor provided by APL (J. Cutler) on May 10, 2010.

b. CHE (except forklifts) annual and peak day operating hours provided by APL (J. Cutler) on April 30, 2010 via email (1:28 pm).

Table 1.6-44 CHE Emissions for Automated Container Handling on Berth 306 Backlands - Proposed Project 2027^a

Yard Equipment			2027 Activity Levels		Annual Usage	Daily Usage	2027 Emission Factors (g/hp-hr)										
Type	Average HP	Average Load Factor	Total Annual Hours by type	Peak Day Hours by type	hp-hrs/year	hp-hrs/day	VOC	CO	NOx	SOx	PM	CO2	CH4	N2O			
<i>Electric Wharf Crane</i>	NA	NA					Electric										
<i>Forklift (Diesel)</i>	110	0.2	8,259	29	181,698	647	0.107	3.386	0.329	0.007	0.013	568.3	0.008	0.004			
<i>RMG cranes</i>	NA	0.2					Electric										
<i>Rub-trd Gantry Crane</i>	600	0.2	9,704	158	1,164,480	18,960	0.084	1.025	0.329	0.007	0.013	568.3	0.011	0.005			
<i>Side pick</i>	227	0.24	8,684	31	473,104	1,662	0.083	1.021	0.329	0.007	0.013	568.3	0.008	0.004			
<i>Top handler</i>	332	0.24	31,538	266	2,512,948	21,155	0.091	1.078	0.343	0.007	0.015	568.3	0.018	0.008			
<i>AGV^b</i>	335	0.12	249,600	879	10,033,920	35,338	0.088	1.055	0.339	0.007	0.014	568.3	0.014	0.006			
<i>Yard tractor</i>	230	0.16	699,296	2,361	25,734,093	86,882	0.088	1.055	0.339	0.007	0.014	568.3	0.014	0.006			
			kWh/year	MWh/year													
<i>Incremental Elec. Power Demand</i>			8,161,920	8,161.92									2007 GHG EFs (lb/MW-hr)		1,227	0.032	0.008

a. Calculations include emissions from Conventional Container Handling on Berth 302-305 Backlands.

b. Diesel-electric AGVs assumed to have same emission factors as yard tractors.

Notes:

GHG Emissions are global, therefore are calculated from all sources providing power to the CHE.

Criteria pollutants are generally local, therefore are only calculated for sources at the Port providing power to CHE.

Table 1.6-43 CHE Emissions for Conventional Container Handling On All Backlands - Proposed Project 2027 (continued)

Yard Equipment			2027 Activity Levels		2027 Annual (MT/year)			2027 Average Daily Emissions (lbs/day)				
Type	Average Hp ^a	Average Load Factor ^a	Total Annual Hours by type ^b	Peak Day Hours by type ^b	CO2	CH4	N2O	VOC	CO	NOx	SOx	PM
Electric Wharf Crane	NA	NA			Electric			Electric				
Forklift (Diesel)	110	0.2	8,259	29	103.3	0.002	0.001	0.118	3.715	0.361	0.008	0.014
RMG cranes	NA	0.2			Electric			Electric				
Rub-trd Gantry Crane	600	0.2	21,112	158	1439.8	0.027	0.012	1.287	15.691	5.033	0.107	0.200
Side pick	227	0.24	11,726	31	363.0	0.005	0.002	0.322	3.940	1.269	0.027	0.050
Top handler	332	0.24	55,328	266	2505.4	0.080	0.036	2.428	28.708	9.142	0.186	0.389
Yard tractor	230	0.16	919,958	3,240	19239.5	0.466	0.209	17.988	215.717	69.218	1.431	2.870
					23650.92	0.580	0.260	22.143	267.772	85.022	1.760	3.523

a. Average horsepower (HP) and load factor provided by APL (J. Cutler) on May 10, 2010.

b. CHE (except forklifts) annual and peak day operating hours provided by APL (J. Cutler) on April 30, 2010 via email (1:28 p

Table 1.6-44 CHE Emissions for Automated Container Handling on Berth 306 Backlands - Proposed Project 2027^a (continued)

Yard Equipment			2027 Activity Levels		2027 Annual (MT/year)			2027 Average Daily Emissions (lbs/day)				
Type	Average HP	Average Load Factor	Total Annual Hours by type	Peak Day Hours by type	CO2	CH4	N2O	VOC	CO	NOx	SOx	PM
Electric Wharf Crane	NA	NA			Electric			Electric				
Forklift (Diesel)	110	0.2	8,259	29	103.3	0.002	0.001	0.118	3.715	0.361	0.008	0.014
RMG cranes	NA	0.2			Electric			Electric				
Rub-trd Gantry Crane	600	0.2	9,704	158	661.8	0.012	0.006	0.592	7.212	2.313	0.049	0.092
Side pick	227	0.24	8,684	31	268.9	0.004	0.002	0.239	2.918	0.940	0.020	0.037
Top handler	332	0.24	31,538	266	1428.1	0.046	0.020	1.384	16.364	5.211	0.106	0.222
AGV ^b	335	0.12	249,600	879	5702.3	0.138	0.062	5.331	63.935	20.515	0.424	0.851
Yard tractor	230	0.16	699,296	2,361	14624.7	0.354	0.159	13.673	163.975	52.615	1.088	2.181
			kWh/year	MWh/year								
Incremental Elec. Power Demand		8,161,920	8,161.92		4552.1	0.119	0.030					
					27341.1	0.674	0.279	21.336	258.120	81.955	1.695	3.397
Incremental Change Relative to Fully Conventional Container Handling												
					3690	0.09	0.02	(0.81)	(9.65)	(3.07)	(0.06)	(0.13)
					16%	16%	7%	-4%	-4%	-4%	-4%	-4%

Notes:

GHG Emissions are global, therefore are calculated from all sources providing power to the CHE.

Criteria pollutants are generally local, therefore are only calculated for sources at the Port providing power to CHE.

Table 1.6-45 Electric Power Production Emission Factors

Electricity Consumption Emissions	2027 Emission Factors (lb/MW-hr)		
	CO2	CH4	N2O
LADWP Emissions - 2007 ¹ (6% Renewable)	1,227	0.03204	0.00808
LADWP RPS Goal - 2020 (33 % Renewable)	875	0.03204	0.00808

¹ CCAR 2007 Emissions Report. Emission factor for total energy generation.

Sources: eGrid2007 Version 1.1 Year 2005 GHG Annual Output Emission Rates, LADWP, California Energy Commission (CEC)

Table 1.6-46. GHG Emission Factors for Diesel and LPG CHE

	EF ID	CO2 g/hp-hr	CH4 g/hp-hr	N2O g/hp-hr
Diesel	FL120_U_2008	568.30	0.0085	0.0038
	FL120_U_2012	568.30	0.0085	0.0038
	FL120_U_2015	568.30	0.0085	0.0038
	FL120_U_2020	568.30	0.0085	0.0038
	FL120_U_2025	568.30	0.0085	0.0038
	FL120_U_2027	568.30	0.0085	0.0038
	RTG750_U_2008	568.30	0.0106	0.0048
	RTG750_U_2012	568.30	0.0106	0.0048
	RTG750_U_2015	568.30	0.0106	0.0048
	RTG750_U_2020	568.30	0.0106	0.0048
	RTG750_U_2025	568.30	0.0106	0.0048
	RTG750_U_2027	568.30	0.0106	0.0048
	SP250_U_2008	568.30	0.0081	0.0036
	SP250_U_2012	568.30	0.0081	0.0036
	SP250_U_2015	568.30	0.0081	0.0036
	SP250_U_2020	568.30	0.0081	0.0036
	SP250_U_2025	568.30	0.0081	0.0036
	SP250_U_2027	568.30	0.0081	0.0036
	TH500_U_2008	568.30	0.0181	0.0081
	TH500_U_2012	568.30	0.0181	0.0081
	TH500_U_2015	568.30	0.0181	0.0081
	TH500_U_2020	568.30	0.0181	0.0081
	TH500_U_2025	568.30	0.0181	0.0081
	TH500_U_2027	568.30	0.0181	0.0081
	YTD250_U_2008	568.30	0.0138	0.0062
	YTD250_U_2012	568.30	0.0138	0.0062
	YTD250_U_2015	568.30	0.0138	0.0062
	YTD250_U_2020	568.30	0.0138	0.0062
	YTD250_U_2025	568.30	0.0138	0.0062
	YTD250_U_2027	568.30	0.0138	0.0062
<i>LPG Emission Factors Estimated from the 2009 POLA EI</i>				
	EF ID	CO2 g/hp-hr	CH4 g/hp-hr	N2O g/hp-hr
LPG	FLP120_M_2008	84.56	0.0146	0.0015
	FLP120_M_2012	84.56	0.0146	0.0015
	FLP120_M_2015	84.56	0.0146	0.0015
	FLP120_M_2020	84.56	0.0146	0.0015
	FLP120_M_2025	84.56	0.0146	0.0015
	FLP120_M_2027	84.56	0.0146	0.0015

*LPG emission factor estimates are only available for the baseline, therefore all study years use the same emission factors.

Table 1.6-47. CHE GHG Emissions - CEQA Baseline

<i>Equipment</i>	Annual Usage (hp-hr/yr)	<i>EF ID</i>	<i>Annual Emissions (tons/year)</i>		
			<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
<i>Year 2008 Baseline</i>					
Forklift	131,120	FL120_U	82.14	0.00	0.00
RTG	0	RTG750_U	0.00	0.00	0.00
Side pick	83,354	SP250_U	52.22	0.00	0.00
Top pick	1,096,955	TH500_U	687.18	0.02	0.01
Yard tractor	10,712,480	YTD250_U	6,710.80	0.16	0.07
LPG Forklift	172,292	FLP120_M	16.06	0.00	0.00
<i>Subtotal - Forklift</i>			98.20	0.00	0.00
<i>Subtotal - Other CHE</i>			7,450.20	0.19	0.08
Total			7,548.40	0.19	0.08

Table 1.6-48. CHE GHG Emissions Without Mitigation - Proposed Project

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)		
			CO2	CH4	N2O
<i>Project Year 2012</i>					
Forklift 110 hp	149,754	FL120_U	93.81	0.00	0.00
RTG 600hp	76,800	RTG750_U	48.11	0.00	0.00
Side pick 227hp	280,463	SP250_U	175.70	0.00	0.00
Top pick 332hp	1,974,311	TH500_U	1,236.80	0.04	0.02
Yard tractor 230hp	21,025,680	YTD250_U	13,171.47	0.32	0.14
LPG Forklift	196,278	FLP120_M	18.30	0.00	0.00
Total	23,703,286		14,744.2	0.4	0.2
<i>Project Year 2015</i>					
Forklift 110 hp	169,314	FL120_U	106.07	0.00	0.00
RTG 600hp	1,581,020	RTG750_U	990.42	0.02	0.01
Side pick 227hp	499,895	SP250_U	313.16	0.00	0.00
Top pick 332hp	3,464,805	TH500_U	2,170.52	0.07	0.03
Yard tractor 230hp	28,880,837	YTD250_U	18,092.31	0.44	0.20
LPG Forklift	221,915	FLP120_M	20.68	0.00	0.00
Total	34,817,785		21,693.2	0.5	0.2
<i>Project Year 2020</i>					
Forklift 110 hp	174,474	FL120_U	109.30	0.00	0.00
RTG 600hp	1,977,861	RTG750_U	1,239.02	0.02	0.01
Side pick 227hp	557,786	SP250_U	349.42	0.00	0.00
Top pick 332hp	3,858,026	TH500_U	2,416.85	0.08	0.03
Yard tractor 230hp	30,953,178	YTD250_U	19,390.52	0.47	0.21
LPG Forklift	228,678	FLP120_M	21.32	0.00	0.00
Total	37,750,003		23,526.4	0.6	0.3
<i>Project Year 2025</i>					
Forklift 110 hp	179,634	FL120_U	112.53	0.00	0.00
RTG 600hp	2,374,703	RTG750_U	1,487.63	0.03	0.01
Side pick 227hp	615,676	SP250_U	385.69	0.01	0.00
Top pick 332hp	4,251,247	TH500_U	2,663.18	0.08	0.04
Yard tractor 230hp	33,025,518	YTD250_U	20,688.73	0.50	0.22
LPG Forklift	235,441	FLP120_M	21.95	0.00	0.00
Total	40,682,220		25,359.7	0.6	0.3
<i>Project Year 2027</i>					
Forklift 110 hp	181,698	FL120_U	113.82	0.00	0.00
RTG 600hp	2,533,440	RTG750_U	1,587.07	0.03	0.01
Side pick 227hp	638,832	SP250_U	400.19	0.01	0.00
Top pick 332hp	4,408,535	TH500_U	2,761.71	0.09	0.04
Yard tractor 230hp	33,854,454	YTD250_U	21,208.01	0.51	0.23
LPG Forklift	238,147	FLP120_M	22.20	0.00	0.00
Total	41,855,107		26,093.0	0.6	0.3

Table 1.6-49. CHE GHG Emissions Without Mitigation - NEPA Baseline/Alternatives 1 & 2

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)		
			CO2	CH4	N2O
<i>project Year 2012</i>					
Forklift 110 hp	149,754	FL120_U	93.81	0.00	0.00
RTG 600hp	76,800	RTG750_U	48.11	0.00	0.00
Side pick 227hp	280,463	SP250_U	175.70	0.00	0.00
Top pick 332hp	1,974,311	TH500_U	1,236.80	0.04	0.02
Yard tractor 230hp	21,025,680	YTD250_U	13,171.47	0.32	0.14
LPG Forklift	196,278	FLP120_M	18.30	0.00	0.00
Total			14,744.2	0.4	0.2
<i>project Year 2015</i>					
Forklift 110 hp	151,228	FL120_U	94.74	0.00	0.00
RTG 600hp	80,640	RTG750_U	50.52	0.00	0.00
Side pick 227hp	326,358	SP250_U	204.45	0.00	0.00
Top pick 332hp	2,049,722	TH500_U	1,284.04	0.04	0.02
Yard tractor 230hp	21,414,148	YTD250_U	13,414.82	0.32	0.15
LPG Forklift	198,213	FLP120_M	18.48	0.00	0.00
Total			15,067.0	0.4	0.2
<i>project Year 2020</i>					
Forklift 110 hp	153,685	FL120_U	96.28	0.00	0.00
RTG 600hp	87,040	RTG750_U	54.53	0.00	0.00
Side pick 227hp	402,849	SP250_U	252.36	0.00	0.00
Top pick 332hp	2,175,406	TH500_U	1,362.78	0.04	0.02
Yard tractor 230hp	22,061,596	YTD250_U	13,820.42	0.33	0.15
LPG Forklift	201,437	FLP120_M	18.78	0.00	0.00
Total			15,605.1	0.4	0.2
<i>project Year 2025</i>					
Forklift 110 hp	156,141	FL120_U	97.81	0.00	0.00
RTG 600hp	93,440	RTG750_U	58.54	0.00	0.00
Side pick 227hp	479,341	SP250_U	300.28	0.00	0.00
Top pick 332hp	2,301,090	TH500_U	1,441.51	0.05	0.02
Yard tractor 230hp	22,709,043	YTD250_U	14,226.01	0.34	0.15
LPG Forklift	204,662	FLP120_M	19.08	0.00	0.00
Total			16,143.2	0.4	0.2
<i>project Year 2027</i>					
Forklift 110 hp	157,124	FL120_U	98.43	0.00	0.00
RTG 600hp	96,000	RTG750_U	60.14	0.00	0.00
Side pick 227hp	509,933	SP250_U	319.45	0.00	0.00
Top pick 332hp	2,351,357	TH500_U	1,473.00	0.05	0.02
Yard tractor 230hp	22,967,984	YTD250_U	14,388.22	0.35	0.16
LPG Forklift	205,951	FLP120_M	19.20	0.00	0.00
Total			16,358.4	0.4	0.2

Table 1.6-50. CHE GHG Emissions Without Mitigation - Alternative 3

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)		
			CO2	CH4	N2O
<i>project Year 2012</i>					
Forklift 110 hp	149,754	FL120_U	93.81	0.00	0.00
RTG 600hp	76,800	RTG750_U	48.11	0.00	0.00
Side pick 227hp	280,463	SP250_U	175.70	0.00	0.00
Top pick 332hp	1,974,311	TH500_U	1,236.80	0.04	0.02
Yard tractor 230hp	21,025,680	YTD250_U	13,171.47	0.32	0.14
LPG Forklift	196,278	FLP120_M	18.30	0.00	0.00
Total			14,744.2	0.4	0.2
<i>project Year 2015</i>					
Forklift 110 hp	153,576	FL120_U	96.21	0.00	0.00
RTG 600hp	478,134	RTG750_U	299.53	0.01	0.00
Side pick 227hp	378,884	SP250_U	237.35	0.00	0.00
Top pick 332hp	2,525,506	TH500_U	1,582.10	0.05	0.02
Yard tractor 230hp	22,919,844	YTD250_U	14,358.06	0.35	0.16
LPG Forklift	201,290	FLP120_M	18.76	0.00	0.00
Total			16,592.0	0.4	0.2
<i>project Year 2020</i>					
Forklift 110 hp	157,483	FL120_U	98.65	0.00	0.00
RTG 600hp	888,511	RTG750_U	556.61	0.01	0.00
Side pick 227hp	479,523	SP250_U	300.40	0.00	0.00
Top pick 332hp	3,089,122	TH500_U	1,935.17	0.06	0.03
Yard tractor 230hp	24,856,692	YTD250_U	15,571.39	0.38	0.17
LPG Forklift	206,415	FLP120_M	19.24	0.00	0.00
Total			18,481.5	0.5	0.2
<i>project Year 2025</i>					
Forklift 110 hp	161,391	FL120_U	101.10	0.00	0.00
RTG 600hp	1,298,889	RTG750_U	813.68	0.02	0.01
Side pick 227hp	580,163	SP250_U	363.44	0.01	0.00
Top pick 332hp	3,652,739	TH500_U	2,288.25	0.07	0.03
Yard tractor 230hp	26,793,539	YTD250_U	16,784.73	0.41	0.18
LPG Forklift	211,540	FLP120_M	19.72	0.00	0.00
Total			20,370.9	0.5	0.2
<i>project Year 2027</i>					
Forklift 110 hp	162,954	FL120_U	102.08	0.00	0.00
RTG 600hp	1,463,040	RTG750_U	916.52	0.02	0.01
Side pick 227hp	620,418	SP250_U	388.66	0.01	0.00
Top pick 332hp	3,878,185	TH500_U	2,429.48	0.08	0.03
Yard tractor 230hp	27,568,278	YTD250_U	17,270.06	0.42	0.19
LPG Forklift	213,590	FLP120_M	19.91	0.00	0.00
Total			21,126.7	0.5	0.2

Table 1.6-51. CHE GHG Emissions Without Mitigation - Alternative 4

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)		
			CO2	CH4	N2O
<i>project Year 2012</i>					
Forklift 110 hp	149,754	FL120_U	93.81	0.00	0.00
RTG 600hp	76,800	RTG750_U	48.11	0.00	0.00
Side pick 227hp	280,463	SP250_U	175.70	0.00	0.00
Top pick 332hp	1,974,311	TH500_U	1,236.80	0.04	0.02
Yard tractor 230hp	21,025,680	YTD250_U	13,171.47	0.32	0.14
LPG Forklift	196,278	FLP120_M	18.30	0.00	0.00
Total			14,744.2	0.4	0.2
<i>project Year 2015</i>					
Forklift 110 hp	156,945	FL120_U	98.32	0.00	0.00
RTG 600hp	1,436,347	RTG750_U	899.80	0.02	0.01
Side pick 227hp	411,353	SP250_U	257.69	0.00	0.00
Top pick 332hp	2,719,804	TH500_U	1,703.81	0.05	0.02
Yard tractor 230hp	24,863,267	YTD250_U	15,575.51	0.38	0.17
LPG Forklift	205,708	FLP120_M	19.17	0.00	0.00
Total			18,554.3	0.5	0.2
<i>project Year 2020</i>					
Forklift 110 hp	161,310	FL120_U	101.05	0.00	0.00
RTG 600hp	2,261,469	RTG750_U	1,416.69	0.03	0.01
Side pick 227hp	490,791	SP250_U	307.45	0.00	0.00
Top pick 332hp	3,172,251	TH500_U	1,987.25	0.06	0.03
Yard tractor 230hp	27,192,335	YTD250_U	17,034.55	0.41	0.18
LPG Forklift	211,431	FLP120_M	19.71	0.00	0.00
Total			20,866.7	0.5	0.2
<i>project Year 2025</i>					
Forklift 110 hp	165,674	FL120_U	103.79	0.00	0.00
RTG 600hp	3,086,591	RTG750_U	1,933.59	0.04	0.02
Side pick 227hp	570,229	SP250_U	357.22	0.01	0.00
Top pick 332hp	3,624,697	TH500_U	2,270.68	0.07	0.03
Yard tractor 230hp	29,521,403	YTD250_U	18,493.59	0.45	0.20
LPG Forklift	217,154	FLP120_M	20.24	0.00	0.00
Total			23,179.1	0.6	0.3
<i>project Year 2027</i>					
Forklift 110 hp	167,420	FL120_U	104.88	0.00	0.00
RTG 600hp	3,416,640	RTG750_U	2,140.34	0.04	0.02
Side pick 227hp	602,004	SP250_U	377.12	0.01	0.00
Top pick 332hp	3,805,676	TH500_U	2,384.05	0.08	0.03
Yard tractor 230hp	30,453,030	YTD250_U	19,077.20	0.46	0.21
LPG Forklift	219,443	FLP120_M	20.45	0.00	0.00
Total			24,104.1	0.6	0.3

Table 1.6-52. CHE GHG Emissions Without Mitigation - Alternative 5

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)		
			CO2	CH4	N2O
<i>project Year 2012</i>					
Forklift 110 hp	149,754	FL120_U	93.81	0.00	0.00
RTG 600hp	76,800	RTG750_U	48.11	0.00	0.00
Side pick 227hp	280,463	SP250_U	175.70	0.00	0.00
Top pick 332hp	1,974,311	TH500_U	1,236.80	0.04	0.02
Yard tractor 230hp	21,025,680	YTD250_U	13,171.47	0.32	0.14
LPG Forklift	196,278	FLP120_M	18.30	0.00	0.00
Total			14,744.2	0.4	0.2
<i>project Year 2015</i>					
Forklift 110 hp	167,372	FL120_U	104.85	0.00	0.00
RTG 600hp	2,404,381	RTG750_U	1,506.22	0.03	0.01
Side pick 227hp	478,118	SP250_U	299.52	0.00	0.00
Top pick 332hp	3,679,087	TH500_U	2,304.75	0.07	0.03
Yard tractor 230hp	28,736,608	YTD250_U	18,001.96	0.44	0.20
LPG Forklift	219,370	FLP120_M	20.45	0.00	0.00
Total			22,237.7	0.5	0.2
<i>project Year 2020</i>					
Forklift 110 hp	173,341	FL120_U	108.59	0.00	0.00
RTG 600hp	3,192,955	RTG750_U	2,000.22	0.04	0.02
Side pick 227hp	545,082	SP250_U	341.46	0.00	0.00
Top pick 332hp	4,256,658	TH500_U	2,666.57	0.08	0.04
Yard tractor 230hp	31,349,039	YTD250_U	19,638.50	0.48	0.21
LPG Forklift	227,194	FLP120_M	21.18	0.00	0.00
Total			24,776.5	0.6	0.3
<i>project Year 2025</i>					
Forklift 110 hp	179,310	FL120_U	112.33	0.00	0.00
RTG 600hp	3,981,530	RTG750_U	2,494.22	0.05	0.02
Side pick 227hp	612,047	SP250_U	383.41	0.01	0.00
Top pick 332hp	4,834,229	TH500_U	3,028.39	0.10	0.04
Yard tractor 230hp	33,961,469	YTD250_U	21,275.05	0.52	0.23
LPG Forklift	235,017	FLP120_M	21.91	0.00	0.00
Total			27,315.3	0.7	0.3
<i>project Year 2027</i>					
Forklift 110 hp	181,698	FL120_U	113.82	0.00	0.00
RTG 600hp	4,296,960	RTG750_U	2,691.82	0.05	0.02
Side pick 227hp	638,832	SP250_U	400.19	0.01	0.00
Top pick 332hp	5,065,258	TH500_U	3,173.11	0.10	0.05
Yard tractor 230hp	35,006,442	YTD250_U	21,929.67	0.53	0.24
LPG Forklift	238,147	FLP120_M	22.20	0.00	0.00
Total			28,330.8	0.7	0.3

Table 1.6-53. CHE GHG Emissions Without Mitigation - Alternative 6

Equipment	Annual Usage (hp-hr/yr)	EF ID	Annual Emissions (tons/year)		
			CO2	CH4	N2O
<i>project Year 2012</i>					
Forklift 110 hp	149,754	FL120_U	93.81	0.00	0.00
RTG 600hp	76,800	RTG750_U	48.11	0.00	0.00
Side pick 227hp	280,463	SP250_U	175.70	0.00	0.00
Top pick 332hp	1,974,311	TH500_U	1,236.80	0.04	0.02
Yard tractor 230hp	21,025,680	YTD250_U	13,171.47	0.32	0.14
LPG Forklift	196,278	FLP120_M	18.30	0.00	0.00
Total			14,744.2	0.4	0.2
<i>project Year 2015</i>					
Forklift 110 hp	169,314	FL120_U	106.07	0.00	0.00
RTG 600hp	1,675,070	RTG750_U	1,049.34	0.02	0.01
Side pick 227hp	499,895	SP250_U	313.16	0.00	0.00
Top pick 332hp	3,464,805	TH500_U	2,170.52	0.07	0.03
Yard tractor 230hp	28,880,837	YTD250_U	18,092.31	0.44	0.20
LPG Forklift	221,915	FLP120_M	20.68	0.00	0.00
Total			21,752.1	0.5	0.2
<i>project Year 2020</i>					
Forklift 110 hp	174,474	FL120_U	109.30	0.00	0.00
RTG 600hp	2,096,724	RTG750_U	1,313.49	0.02	0.01
Side pick 227hp	557,786	SP250_U	349.42	0.00	0.00
Top pick 332hp	3,858,026	TH500_U	2,416.85	0.08	0.03
Yard tractor 230hp	30,953,178	YTD250_U	19,390.52	0.47	0.21
LPG Forklift	228,678	FLP120_M	21.32	0.00	0.00
Total			23,600.9	0.6	0.3
<i>project Year 2025</i>					
Forklift 110 hp	179,634	FL120_U	112.53	0.00	0.00
RTG 600hp	2,518,378	RTG750_U	1,577.63	0.03	0.01
Side pick 227hp	615,676	SP250_U	385.69	0.01	0.00
Top pick 332hp	4,251,247	TH500_U	2,663.18	0.08	0.04
Yard tractor 230hp	33,062,613	YTD250_U	20,711.97	0.50	0.22
LPG Forklift	235,441	FLP120_M	21.95	0.00	0.00
Total			25,472.9	0.6	0.3
<i>project Year 2027</i>					
Forklift 110 hp	181,698	FL120_U	113.82	0.00	0.00
RTG 600hp	2,687,040	RTG750_U	1,683.29	0.03	0.01
Side pick 227hp	638,832	SP250_U	400.19	0.01	0.00
Top pick 332hp	4,408,535	TH500_U	2,761.71	0.09	0.04
Yard tractor 230hp	34,084,086	YTD250_U	21,351.87	0.52	0.23
LPG Forklift	238,147	FLP120_M	22.20	0.00	0.00
Total			26,333.1	0.6	0.3

Table 1.7-1 Drayage Truck (HDV) Composite Emission Factors by Speed

Calendar Year	Speed	ROG	CO	NOx	SOx	PM10	PM2.5	CO2
2008	0	10.02	19.6264	84.72	0.04	1.39	1.28	4640
2012	0	5.9700	16.6000	95.5000	0.0422	0.0720	0.0662	4640
2015	0	5.9700	16.6000	95.5000	0.0422	0.0720	0.0662	4640
2020	0	5.9700	16.6000	95.5000	0.0422	0.0720	0.0662	4640
2025	0	5.9700	16.6000	95.5000	0.0422	0.0720	0.0662	4640
2027	0	5.9700	16.6000	95.5000	0.0422	0.0720	0.0662	4640
2008	5	14.16	28.5127	50.66	0.02	4.67	4.30	3843
2012	5	3.3838	6.6463	15.0136	0.0183	0.0860	0.0791	3845
2015	5	4.3439	8.5595	17.2882	0.0183	0.1126	0.1036	3845
2020	5	4.8059	9.4395	16.8212	0.0183	0.1373	0.1263	3845
2025	5	3.2923	6.5339	9.8631	0.0183	0.1307	0.1202	3845
2027	5	3.3247	6.6115	10.0833	0.0183	0.1328	0.1221	3845
2008	10	10.84	25.1617	41.67	0.0178	3.87	3.56	3490
2012	10	2.5422	5.1964	13.0140	0.0183	0.0824	0.0758	3492
2015	10	3.2647	6.6617	14.9693	0.0183	0.1076	0.0990	3492
2020	10	3.6102	7.3897	14.5605	0.0183	0.1314	0.1209	3492
2025	10	2.4716	5.1101	8.5483	0.0183	0.1252	0.1152	3492
2027	10	2.4981	5.1620	8.7308	0.0183	0.1270	0.1169	3492
2008	15	5.73	19.3584	28.58	0.02	2.57	2.36	2866
2012	15	1.2923	3.0158	9.7966	0.0183	0.0751	0.0691	2867
2015	15	1.6576	3.8696	11.2651	0.0183	0.0984	0.0905	2867
2020	15	1.8349	4.2876	10.9595	0.0183	0.1199	0.1103	2867
2025	15	1.2562	2.9646	6.4241	0.0183	0.1143	0.1052	2867
2027	15	1.2685	2.9926	6.5615	0.0183	0.1159	0.1067	2867
2008	20	2.63	14.7856	22.15	0.02	1.67	1.54	2351
2012	20	0.6186	1.7949	7.6475	0.0183	0.0682	0.0627	2353
2015	20	0.7944	2.3046	8.7941	0.0183	0.0893	0.0822	2353
2020	20	0.8790	2.5539	8.5523	0.0183	0.1088	0.1001	2353
2025	20	0.6011	1.7650	5.0164	0.0183	0.1036	0.0953	2353
2027	20	0.6076	1.7833	5.1237	0.0183	0.1053	0.0969	2353
2008	25	1.84	12.0708	20.99	0.02	1.31	1.21	2109
2012	25	0.4847	1.5423	6.6344	0.0183	0.0645	0.0593	2110
2015	25	0.6231	1.9809	7.6300	0.0183	0.0843	0.0776	2110
2020	25	0.6890	2.1945	7.4192	0.0183	0.1027	0.0945	2110
2025	25	0.4719	1.5164	4.3518	0.0183	0.0979	0.0901	2110
2027	25	0.4767	1.5331	4.4455	0.0183	0.0994	0.0915	2110
2008	30	1.48	10.1028	20.48	0.02	1.10	1.01	1980
2012	30	0.4230	1.4783	5.9866	0.0183	0.0640	0.0589	1981
2015	30	0.5436	1.8984	6.8837	0.0183	0.0837	0.0770	1981
2020	30	0.6009	2.1044	6.6947	0.0183	0.1021	0.0939	1981
2025	30	0.4115	1.4536	3.9266	0.0183	0.0973	0.0895	1981
2027	30	0.4159	1.4689	4.0109	0.0183	0.0988	0.0909	1981
2008	35	1.21	8.4439	20.12	0.02	0.94	0.87	1872
2012	35	0.3689	1.4416	5.4465	0.0183	0.0661	0.0608	1873
2015	35	0.4733	1.8509	6.2626	0.0183	0.0865	0.0796	1873
2020	35	0.5245	2.0514	6.0898	0.0183	0.1056	0.0972	1873
2025	35	0.3591	1.4173	3.5714	0.0183	0.1005	0.0925	1873
2027	35	0.3629	1.4319	3.6491	0.0183	0.1020	0.0939	1873

Table 1.7-1 Drayage Truck (HDV) Composite Emission Factors by Speed

Calendar Year	Speed	ROG	CO	NOx	SOx	PM10	PM2.5	CO2
2008	40	1.02	7.0940	19.89	0.02	0.84	0.77	1787
2012	40	0.3226	1.4328	5.0157	0.0183	0.0710	0.0653	1788
2015	40	0.4147	1.8400	5.7663	0.0183	0.0928	0.0854	1788
2020	40	0.4584	2.0390	5.6069	0.0183	0.1132	0.1041	1788
2025	40	0.3141	1.4091	3.2892	0.0183	0.1078	0.0992	1788
2027	40	0.3173	1.4236	3.3596	0.0183	0.1095	0.1008	1788
2008	45	0.91	6.0528	19.82	0.02	0.78	0.72	1724
2012	45	0.2855	1.4508	4.6999	0.0183	0.0784	0.0721	1724
2015	45	0.3659	1.8637	5.4046	0.0183	0.1026	0.0944	1724
2020	45	0.4042	2.0641	5.2550	0.0183	0.1251	0.1151	1724
2025	45	0.2771	1.4261	3.0822	0.0183	0.1191	0.1096	1724
2027	45	0.2801	1.4421	3.1478	0.0183	0.1209	0.1113	1724
2008	50	0.90	5.3207	19.91	0.02	0.78	0.72	1682
2012	50	0.2545	1.4971	4.5000	0.0183	0.0885	0.0814	1683
2015	50	0.3277	1.9216	5.1738	0.0183	0.1157	0.1064	1683
2020	50	0.3622	2.1303	5.0313	0.0183	0.1411	0.1298	1683
2025	50	0.2480	1.4718	2.9513	0.0183	0.1344	0.1236	1683
2027	50	0.2508	1.4885	3.0137	0.0183	0.1365	0.1255	1683
2008	55	0.96	4.8976	20.16	0.02	0.83	0.77	1663
2012	55	0.2336	1.5702	4.4099	0.0183	0.1011	0.0930	1664
2015	55	0.2988	2.0160	5.0712	0.0183	0.1322	0.1216	1664
2020	55	0.3312	2.2343	4.9316	0.0183	0.1613	0.1484	1664
2025	55	0.2267	1.5434	2.8940	0.0183	0.1537	0.1414	1664
2027	55	0.2292	1.5613	2.9571	0.0183	0.1560	0.1435	1664
2008	60	1.12	4.7835	20.58	0.02	0.94	0.86	1666
2012	60	0.2197	1.6712	4.4420	0.0183	0.1165	0.1072	1666
2015	60	0.2818	2.1452	5.1082	0.0183	0.1522	0.1400	1666
2020	60	0.3116	2.3769	4.9687	0.0183	0.1858	0.1709	1666
2025	60	0.2131	1.6427	2.9162	0.0183	0.1769	0.1627	1666
2027	60	0.2155	1.6608	2.9778	0.0183	0.1796	0.1652	1666
2008	65	1.35	4.9783	21.20	0.02	1.10	1.01	1690
2012	65	0.2137	1.7986	4.5965	0.0183	0.1344	0.1236	1691
2015	65	0.2738	2.3105	5.2826	0.0183	0.1757	0.1616	1691
2020	65	0.3033	2.5599	5.1416	0.0183	0.2144	0.1972	1691
2025	65	0.2075	1.7692	3.0213	0.0183	0.2041	0.1878	1691
2027	65	0.2098	1.7892	3.0868	0.0183	0.2071	0.1906	1691
2008	70	1.68	5.4821	22.00	0.02	1.31	1.20	1737
2012	70	0.2155	1.9550	4.8692	0.0183	0.1549	0.1425	1738
2015	70	0.2768	2.5105	5.6011	0.0183	0.2026	0.1864	1738
2020	70	0.3061	2.7820	5.4438	0.0183	0.2470	0.2272	1738
2025	70	0.2096	1.9224	3.1894	0.0183	0.2353	0.2165	1738
2027	70	0.2119	1.9430	3.2579	0.0183	0.2390	0.2199	1738

Notes

Consistent with HDV EI emissions calculation methodology used for POLA 2009 EI

Factors Reflect Port's Clean Truck Program and CARB's Drayage Truck Regulation

Composite emission factors are based on the age distribution included in the tab "POLA HDV Age Dist"

Growth Factors and Age Distribution Calculation Methodology is Same as used for Draft 2010 CAAP Update

Table 1.7-2 APL Truck Operating Parameters

	Year	Truck Idling Time In-Gate (min)	Truck Idling Time Out-Gate (min)	On-Terminal Truck Driving Distance (mile)	On-Terminal Truck Driving Speed (mph)	On-Terminal Truck Driving Time (min)
Baseline		10	1	1.6	10	8
Proposed Project	2012	10	1	1.6	10	8
	2015-2020	10	1	1.7	10	8
	2025	10	1	1.7	10	8
	2027	10	1	1.7	10	8
Alt 1	2012-27	10	1	1.6	10	8
Alt 2	2012-27	10	1	1.6	10	8
Alt 3	2012-27	10	1	1.6	10	8
Alt 4	2012	10	1	1.6	10	8
	2015-27	10	1	1.72	10	8
Alt 5	2012	10	1	1.6	10	8
	2015-2020	10	1	1.72	10	8
	2025	10	1	1.72	10	8
	2027	10	1	1.72	10	8
Alt 6	2012	10	1	1.6	10	8
	2015-27	10	1	1.7	10	8

Table 1.7-2 APL Truck Operating Parameters

	Year	BNSF Railyard Distance (mile)	BNSF Railyard Truck Trip (%)	BNSF/ICTF Railyard Truck Idling (min)	ICTF Railyard Distance (mile)	ICTF Railyard Truck Trip (%)	Truck Idling Time at Local Community (min)
Baseline		18.5	30%		5	70%	
Proposed Project	2012	18.5	30%	9.5	5	70%	10
	2015-2020						
	2025						
	2027						
Alt 1	2012-27						
Alt 2	2012-27						
Alt 3	2012-27						
Alt 4	2012						
	2015-27						
Alt 5	2012						
	2015-2020						
	2025						
	2027						
Alt 6	2012						
	2015-27						

Table 1.7-3 Truck Operations Data - Annual

Annual	Year / Description	CEQA/NEPA Baseline	Proposed Project	Alt 1 No-Project	Alt 2 No Federal Action	Alternative 3 – Reduced Project: Four New Cranes	Alternative 4 – Reduced Project: No New Wharf	Alternative 5 – Reduced Project: No Space Assignments	Alternative 6 – Proposed Project with Expanded On-dock Rail Yard
Total Ann Truck Trips (one-way)	2008(CEQA)	998,728							
	2012		1,701,940	1,701,940	1,701,940	1,701,940	1,701,940	1,701,940	1,701,940
	2015		2,412,720	1,739,620	1,739,620	1,876,960	2,020,720	2,412,720	2,412,720
	2020		2,600,240	1,815,820	1,815,820	2,055,920	2,214,200	2,600,240	2,600,240
	2025		2,879,170	1,892,020	1,892,020	2,234,880	2,407,660	2,879,170	2,787,760
	2027		3,003,160	1,922,500	1,922,500	2,306,460	2,485,050	3,003,157	2,862,760
Ann. VMT On-Terminal = Total Ann Truck Trips (one-way) X On-Terminal Truck Driving Distance (mile)									
Ann VMT On-Terminal	2008(CEQA)	1,597,965							
	2012		2,723,104	2,723,104	2,723,104	2,723,104	2,723,104	2,723,104	2,723,104
	2015		4,101,624	2,783,392	2,783,392	3,003,136	3,475,638	4,149,878	4,101,624
	2020		4,420,408	2,905,312	2,905,312	3,289,472	3,808,424	4,472,413	4,420,408
	2025		4,894,589	3,027,232	3,027,232	3,575,808	4,141,175	4,952,172	4,739,192
	2027		5,105,372	3,076,000	3,076,000	3,690,336	4,274,286	5,165,430	4,866,692
Ann. Idling Time On-Terminal = Total Ann Truck Trips (one-way) X [(Truck Idling Time In-Gate (min) + Truck Idling Time Out-Gate (min))/2]/60									
Ann Idling Time On-dock (hours)	2008(CEQA)	91,550							
	2012		156,011	156,011	156,011	156,011	156,011	156,011	156,011
	2015		221,166	159,465	159,465	172,055	185,233	221,166	221,166
	2020		238,355	166,450	166,450	188,459	202,968	238,355	238,355
	2025		263,924	173,435	173,435	204,864	220,702	263,924	255,545
	2027		275,290	176,229	176,229	211,426	227,796	275,289	262,420

Table 1.7-3 Truck Operations Data - Annual

Annual	Year / Description	CEQA/NEPA Baseline	Proposed Project	Alt 1 No-Project	Alt 2 No Federal Action	Alternative 3 – Reduced Project: Four New Cranes	Alternative 4 – Reduced Project: No New Wharf	Alternative 5 – Reduced Project: No Space Assignments	Alternative 6 – Proposed Project with Expanded On-dock Rail Yard
Ann Near Dock Truck Trips (2-railyards off-terminal)[1]	2008(CEQA)	194,340							
	2012		314,893	314,893	314,893	314,893	314,893	314,893	314,893
	2015		446,401	321,864	321,864	347,275	373,873	446,401	446,401
	2020		481,096	335,963	335,963	380,386	409,671	481,096	481,096
	2025		612,564	350,061	350,061	413,497	445,465	612,564	515,791
	2027		678,301	355,701	355,701	426,741	459,784	678,300	529,668
Ann. VMT Near-Dock = Total Ann Truck Trips (one-way) X Off-Dock Distance (mile)									
Ann VMT Near Dock (2-railyards off-terminal)	2008(CEQA)	1,758,777							
	2012		2,849,780	2,849,780	2,849,780	2,849,780	2,849,780	2,849,780	2,849,780
	2015		4,039,931	2,912,872	2,912,872	3,142,839	3,383,555	4,039,931	4,039,931
	2020		4,353,920	3,040,464	3,040,464	3,442,495	3,707,523	4,353,920	4,353,920
	2025		5,543,708	3,168,055	3,168,055	3,742,151	4,031,459	5,543,708	4,667,910
	2027		6,138,620	3,219,092	3,219,092	3,862,006	4,161,043	6,138,614	4,793,492
Ann. Idling Time Near-Dock = (Ann Near-Dock Truck Trips X Truck Idling Time Near-Dock)/60									
Ann Idling Time Near-Dock (hours)	2008(CEQA)	30,771							
	2012		49,858	49,858	49,858	49,858	49,858	49,858	49,858
	2015		70,680	50,962	50,962	54,985	59,197	70,680	70,680
	2020		76,174	53,194	53,194	60,228	64,865	76,174	76,174
	2025		96,989	55,426	55,426	65,470	70,532	96,989	81,667
	2027		107,398	56,319	56,319	67,567	72,799	107,397	83,864

Table 1.7-3 Truck Operations Data - Annual

Annual	Year / Description	CEQA/NEPA Baseline	Proposed Project	Alt 1 No-Project	Alt 2 No Federal Action	Alternative 3 – Reduced Project: Four New Cranes	Alternative 4 – Reduced Project: No New Wharf	Alternative 5 – Reduced Project: No Space Assignments	Alternative 6 – Proposed Project with Expanded On-dock Rail Yard
Ann Local Truck Community Trips (one-way) [2]	2008(CEQA)	804,388							
	2012		1,387,047	1,387,047	1,387,047	1,387,047	1,387,047	1,387,047	1,387,047
	2015		1,966,319	1,417,756	1,417,756	1,529,685	1,646,847	1,966,319	1,966,319
	2020		2,119,144	1,479,857	1,479,857	1,675,534	1,804,529	2,119,144	2,119,144
	2025		2,266,606	1,541,959	1,541,959	1,821,383	1,962,195	2,266,606	2,271,969
	2027		2,324,859	1,566,799	1,566,799	1,879,719	2,025,266	2,324,857	2,333,092
Ann. Local VMT = Ann Local Truck Trips X Average Local One-way Distance (mile)									
Ann Local Community VMT	2008(CEQA)	12,468,012							
	2012		21,586,230	21,586,230	21,586,230	21,586,230	21,586,230	21,586,230	21,586,230
	2015		30,601,272	22,064,137	22,064,137	23,806,063	25,629,415	30,601,272	30,601,272
	2020		32,979,646	23,030,605	23,030,605	26,075,868	28,083,382	32,979,646	32,979,646
	2025		34,862,401	23,997,073	23,997,073	28,345,672	30,537,095	34,862,401	35,358,020
	2027		35,558,664	24,383,661	24,383,661	29,253,544	31,518,656	35,558,629	36,309,268
Ann. Idling Time Local Community = (Ann Local Truck Community Trips X Truck Idling Time Local)/60									
Ann Idling Time Local Community Truck Trips (hours)	2008(CEQA)	134,065							
	2012		231,175	231,175	231,175	231,175	231,175	231,175	231,175
	2015		327,720	236,293	236,293	254,948	274,474	327,720	327,720
	2020		353,191	246,643	246,643	279,256	300,755	353,191	353,191
	2025		377,768	256,993	256,993	303,564	327,032	377,768	378,661
	2027		387,477	261,133	261,133	313,286	337,544	387,476	388,849

Table 1.7-4 Truck Operations Data - Peak Day

Peakday	Year / Description	CEQA/NEPA Baseline	Proposed Project	Alt 1 No-Project	Alt 2 No Federal Action	Alternative 3 – Reduced Project: Four New Cranes	Alternative 4 – Reduced Project: No New Wharf	Alternative 5 – Reduced Project: No Space Assignments	Alternative 6 – Proposed Project with Expanded On-dock Rail Yard
Peakday Truck Trips (Daily Ave. of Peak Week)	2008(CEQA)	5,093	Updated to match truck trips in APL Traffic Data for Noise and AQ Daily Revised 102510.xlsx (10/25/2010, 10:33 am - K. Travis)						
	2012		6,438	6,438	6,438	6,438	6,438	6,438	6,438
	2015		9,127	6,581	6,581	7,100	7,644	9,127	9,127
	2020		9,836	6,869	6,869	7,777	8,376	9,836	9,836
	2025		10,892	7,157	7,157	8,454	9,108	10,892	10,546
	2027		11,361	7,273	7,273	8,725	9,401	11,361	10,830

Peakday VMT On-Terminal = Peakday Truck Trips (one-way) X On-Terminal Truck Driving Distance (mile)

Ann VMT On-Terminal	2008(CEQA)	8,149							
	2012		10,301	10,301	10,301	10,301	10,301	10,301	10,301
	2015		15,516	10,529	10,529	11,361	13,148	15,699	15,516
	2020		16,722	10,991	10,991	12,444	14,407	16,919	16,722
	2025		18,516	11,452	11,452	13,527	15,666	18,734	17,928
	2027		19,313	11,636	11,636	13,960	16,169	19,540	18,410

Peakday trips to railyard (calculated from the total peakday trips and the annual railyard, and annual local community trips)

Peakday Truck Trips (Daily Ave. of Peak Week)	2008(CEQA)	991							
	2012		1,191	1,191	1,191	1,191	1,191	1,191	1,191
	2015		1,689	1,218	1,218	1,314	1,414	1,689	1,689
	2020		1,820	1,271	1,271	1,439	1,550	1,820	1,820
	2025		2,317	1,324	1,324	1,564	1,685	2,317	1,951
	2027		2,566	1,346	1,346	1,614	1,739	2,566	2,004

Peakday trips to local community (calculated from the total peakday trips and the annual railyard, and annual local community trips)

Peakday Truck Trips (Daily Ave. of Peak Week)	2008(CEQA)	4,102							
	2012		5,247	5,247	5,247	5,247	5,247	5,247	5,247
	2015		7,438	5,363	5,363	5,787	6,230	7,438	7,438
	2020		8,017	5,598	5,598	6,338	6,826	8,017	8,017
	2025		8,574	5,833	5,833	6,890	7,423	8,574	8,595
	2027		8,795	5,927	5,927	7,111	7,661	8,795	8,826

[1] Ann Near Dock Truck Trips - dock to two railyard outside

[2] Ann Local Truck Community Trips - dock to local community, stores, etc

Table 1.7-5 Summary of Truck Emissions - CEQA Baseline [1]

	<i>Emissions</i>					
<i>Baseline_2008</i>	<i>VOC</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>
Annual (t/y)	46.07	201.40	421.74	0.32	31.72	23.60
Peak_Day (lb/day)	469.9	2,054.1	4,301.4	3.3	323.6	248.2
Average_Day (lb/day)	252.45	1,103.57	2,310.93	1.77	173.83	129.31

[1] Unmitigated - emission factors taking account of Clean Truck Program

Table 1.7-6 Summary of Truck Emissions Without Mitigation - Proposed Project

A. Annual

	<i>Tons per Year</i>					
<i>Project Year</i>	<i>VOC</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>
2012	21.29	65.36	243.74	0.57	13.42	4.03
2015	37.81	116.37	389.63	0.81	20.16	6.68
2020	42.96	137.86	398.83	0.87	23.02	8.39
2025	33.51	107.72	286.90	0.95	24.67	8.82
2027	34.98	112.49	301.81	0.98	25.59	9.20

B. Peak Day

	<i>Pounds per Day</i>					
<i>Project Year</i>	<i>VOC</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>
2012	161.08	494.50	1,844.12	4.30	101.57	30.49
2015	286.09	880.45	2,947.85	6.13	152.55	50.56
2020	325.05	1,043.05	3,017.48	6.61	174.16	63.46
2025	253.55	815.00	2,170.65	7.17	186.68	66.75
2027	264.67	851.07	2,283.45	7.41	193.60	69.64

C. Average Day

	<i>Pounds per Day</i>					
<i>Project Year</i>	<i>VOC</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>
2012	116.66	358.13	1,335.58	3.11	73.56	22.08
2015	207.20	637.66	2,134.95	4.44	110.49	36.62
2020	235.41	755.42	2,185.37	4.79	126.14	45.96
2025	183.63	590.26	1,572.07	5.20	135.20	48.34
2027	191.68	616.38	1,653.76	5.37	140.21	50.43

Table 1.7-7 Driving Speed Distribution per Off-site Trip

Study Year	Driving Speed Distribution per Off-site Trip		
	10 MPH	25 MPH	55 MPH
2008	0.1	0.6	0.3
2012	0.1	0.6	0.3
2015	0.1	0.6	0.3
2020	0.1	0.5	0.4
2025	0.1	0.5	0.4
2027	0.1	0.5	0.4

(1) Source: Iteris 2010.

Table 1.7-8 On-Road Truck Operational Data and Paved Road Dust Parameters

Activity/Project Scenario	Idling Time/ Trip (Hrs)	Miles/ Trip	Idling Hrs/ Year	Miles/ Year	Idling Hrs/ Peak_Day	Miles/ Peak_Day
On-Terminal						
2008	0.09	1.60	91,550	1,597,965	467	8,149
Near-Dock (Off-terminal railyard)						
2008	0.16	9.05	30,771	1,758,777	157	8,969
Local Community Truck Trip (non-railyard off-terminal)						
2008	0.17	15.50	134,065	12,468,012	684	63,580

Paved Road Dust, g/mi	
PM10	0.37000000
PM2.5	0.06247594

Fugitive Road Dust	tons per year		pounds per day	
	PM10	PM2.5	PM10	PM2.5
On-Terminal	0.65	0.11	6.65	1.12
Off-Terminal Railyard	0.72	0.12	7.32	1.24
Local Community	5.09	0.86	51.86	8.76

Table 1.7-9 On-Road Truck Emission Factors - Baseline

Project Year/Mode	Speed	Emission Factors								
	(mph)	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>Project Year 2008</i>										
On-road Diesel Truck Idle (g/hr)	0	10.02	19.63	84.72	0.04	1.39	1.28	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	14.16	28.51	50.66	0.02	4.67	4.30	0.01	0.0048000	3,843
	10	10.84	25.16	41.67	0.02	3.87	3.56	0.01	0.00	3,490
	15	5.73	19.36	28.58	0.02	2.57	2.36	0.01	0.00	2,866
	20	2.63	14.79	22.15	0.02	1.67	1.54	0.01	0.00	2,351
	25	1.84	12.07	20.99	0.02	1.31	1.21	0.01	0.00	2,109
	30	1.48	10.10	20.48	0.02	1.10	1.01	0.01	0.00	1,980
	35	1.21	8.44	20.12	0.02	0.94	0.87	0.01	0.00	1,872
	40	1.02	7.09	19.89	0.02	0.84	0.77	0.01	0.00	1,787
	45	0.91	6.05	19.82	0.02	0.78	0.72	0.01	0.00	1,724
	50	0.90	5.32	19.91	0.02	0.78	0.72	0.01	0.00	1,682
55	0.96	4.90	20.16	0.02	0.83	0.77	0.01	0.00	1,663	
Composite Efs		2.48	11.23	22.81	0.02	1.43	1.31	0.01	0.00	2,113
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-10 Annual Truck Emissions - CEQA Baseline

<i>Tons per Year</i>									
<i>Location/Project Scenario - Mode</i>	<i>VOC</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2</i>
<i>Project Year 2008</i>									
<i>On-Terminal (1)</i>									
Year 2008 - Idling	1.0	2.0	8.5	0.0	0.1	0.1	0.0	0.0	468
Year 2008 - Driving	4.4	19.8	40.2	0.0	3.2	2.4	0.0	0.0	3,723
Subtotal	5.4	21.8	48.7	0.0	3.3	2.5	0.0	0.0	4,191
<i>Off-Terminal Railyard</i>									
Year 2008 - Idling	0.3	0.7	2.9	0.0	0.0	0.0	0.0	0.0	157
Year 2008 - Driving	4.8	21.8	44.2	0.0	3.5	2.7	0.0	0.0	4,097
Subtotal	5.1	22.4	47.1	0.0	3.5	2.7	0.0	0.0	4,255
<i>Local Community</i>									
Year 2008 - Idling	1.5	2.9	12.5	0.0	0.2	0.2	0.0	0.0	686
Year 2008 - Driving	34.1	154.3	313.4	0.2	24.7	18.2	0.1	0.1	29,045
Subtotal	35.5	157.2	325.9	0.3	24.9	18.3	0.1	0.1	29,730

Table 1.7-11 Peak Day Truck Emissions - CEQA Baseline

<i>Pounds per Day</i>									
<i>Location/Project Scenario - Mode</i>	<i>VOC</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>	<i>CH4</i>	<i>N2O</i>	<i>CO2</i>
<i>Project Year 2008</i>									
<i>On-Terminal (1)</i>									
Year 2008 - Idling	10.3	20.2	87.2	0.0	1.4	1.3	0.0	0.0	4,775
Year 2008 - Driving	44.5	201.7	409.7	0.3	32.3	24.7	0.1	0.1	37,966
Subtotal	54.8	221.9	496.9	0.4	33.7	26.0	0.1	0.1	42,741
<i>Off-Terminal Railyard</i>									
Year 2008 - Idling	3.5	6.8	29.3	0.0	0.5	0.4	0.0	0.0	1,605
Year 2008 - Driving	49.0	222.0	450.9	0.4	35.5	27.2	0.1	0.1	41,787
Subtotal	52.5	228.8	480.2	0.4	36.0	27.6	0.1	0.1	43,392
<i>Local Community</i>									
Year 2008 - Idling	15.1	29.6	127.7	0.1	2.1	1.9	0.0	0.0	6,993
Year 2008 - Driving	347.5	1,573.8	3,196.6	2.5	251.8	192.7	0.7	0.7	296,227
Subtotal	362.6	1,603.4	3,324.3	2.6	253.9	194.6	0.7	0.7	303,220

Table 1.7-12 Driving Speed Distribution per Off-site Trip

Study Year	Driving Speed Distribution per Off-site Trip		
	10 MPH	25 MPH	55 MPH
2008	0.1	0.6	0.3
2012	0.1	0.6	0.3
2015	0.1	0.6	0.3
2020	0.1	0.5	0.4
2025	0.1	0.5	0.4
2027	0.1	0.5	0.4

(1) Source: Iteris 2010.

Paved Road Dust, g/mi	
PM10	0.370000
PM2.5	0.062476

Table 1.7-13 On-Road Truck Operational & Road Dust Data - Proposed Project

Activity/Project Scenario	Idling Time/ Trip (Hrs)	Miles/ Trip	Idling Hrs/ Year	Miles/ Year	Idling Hrs/ Peakday	Miles/ Peakday
<i>On-Terminal</i>						
2012	0.09	1.60	156,011	2,723,104	590	10,301
2015	0.09	1.70	221,166	4,101,624	837	15,516
2020	0.09	1.70	238,355	4,420,408	902	16,722
2025	0.09	1.70	263,924	4,894,589	998	18,516
2027	0.09	1.70	275,290	5,105,372	1,041	19,313
<i>Near-Dock (Off-terminal railyard)</i>						
2012	0.16	9.05	49,858	2,849,780	189	10,780
2015	0.16	9.05	70,680	4,039,931	267	15,283
2020	0.16	9.05	76,174	4,353,920	288	16,470
2025	0.16	9.05	96,989	5,543,708	367	20,971
2027	0.16	9.05	107,398	6,138,620	406	23,222
<i>Local Truck Trip (non-railyard off-terminal)</i>						
2012	0.17	15.56	231,175	21,586,230	875	81,659
2015	0.17	15.56	327,720	30,601,272	1,240	115,762
2020	0.17	15.56	353,191	32,979,646	1,336	124,759
2025	0.17	15.38	377,768	34,862,401	1,429	131,881
2027	0.17	15.29	387,477	35,558,664	1,466	134,515

Driving Area	Year	(t/y)		Road Fugitive Dust	
		PM10	PM2.5	PM10	PM2.5
On-Terminal	2012	1.11	0.19	8.40	1.42
	2015	1.67	0.28	12.66	2.14
	2020	1.80	0.30	13.64	2.30
	2025	2.00	0.34	15.10	2.55
	2027	2.08	0.35	15.75	2.66
Off-Terminal Railyard	2012	1.16	0.20	8.79	1.48
	2015	1.65	0.28	12.47	2.10
	2020	1.78	0.30	13.43	2.27
	2025	2.26	0.38	17.11	2.89
	2027	2.50	0.42	18.94	3.20
Local Community	2012	8.80	1.49	66.61	11.25
	2015	12.48	2.11	94.43	15.94
	2020	13.45	2.27	101.77	17.18
	2025	14.22	2.40	107.57	18.16
	2027	14.50	2.45	109.72	18.53

Table 1.7-14 On-Road Truck Emission Factors Without Mitigation - Proposed Project

Project Year/Mode	Speed	Emission Factors								
	(mph)	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2012										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	3.38	6.65	15.01	0.02	0.09	0.08	0.01	0.00	3,845.34
	10	2.54	5.20	13.01	0.02	0.08	0.08	0.01	0.00	3,491.58
	15	1.29	3.02	9.80	0.02	0.08	0.07	0.01	0.00	2,866.88
	20	0.62	1.79	7.65	0.02	0.07	0.06	0.01	0.00	2,352.61
	25	0.48	1.54	6.63	0.02	0.06	0.06	0.01	0.00	2,110.16
	30	0.42	1.48	5.99	0.02	0.06	0.06	0.01	0.00	1,980.69
	35	0.37	1.44	5.45	0.02	0.07	0.06	0.01	0.00	1,873.26
	40	0.32	1.43	5.02	0.02	0.07	0.07	0.01	0.00	1,787.84
	45	0.29	1.45	4.70	0.02	0.08	0.07	0.01	0.00	1,724.46
	50	0.25	1.50	4.50	0.02	0.09	0.08	0.01	0.00	1,683.09
55	0.23	1.57	4.41	0.02	0.10	0.09	0.01	0.00	1,663.75	
Composite Efs		0.62	1.92	6.61	0.02	0.08	0.07	0.01	0.00	2,114.38
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										
Project Year 2015										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	4.34	8.56	17.29	0.02	0.11	0.10	0.01	0.00	3,845.34
	10	3.26	6.66	14.97	0.02	0.11	0.10	0.01	0.00	3,491.58
	15	1.66	3.87	11.27	0.02	0.10	0.09	0.01	0.00	2,866.89
	20	0.79	2.30	8.79	0.02	0.09	0.08	0.01	0.00	2,352.61
	25	0.62	1.98	7.63	0.02	0.08	0.08	0.01	0.00	2,110.16
	30	0.54	1.90	6.88	0.02	0.08	0.08	0.01	0.00	1,980.70
	35	0.47	1.85	6.26	0.02	0.09	0.08	0.01	0.00	1,873.26
	40	0.41	1.84	5.77	0.02	0.09	0.09	0.01	0.00	1,787.85
	45	0.37	1.86	5.40	0.02	0.10	0.09	0.01	0.00	1,724.46
	50	0.33	1.92	5.17	0.02	0.12	0.11	0.01	0.00	1,683.09
55	0.30	2.02	5.07	0.02	0.13	0.12	0.01	0.00	1,663.76	
Composite Efs		0.79	2.46	7.60	0.02	0.10	0.09	0.01	0.00	2,114.38
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-14 On-Road Truck Emission Factors Without Mitigation - Proposed Project

Project Year/Mode	Speed	Emission Factors								
	(mph)	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2020										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	4.81	9.44	16.82	0.02	0.14	0.13	0.01	0.00	3,845.34
	10	3.61	7.39	14.56	0.02	0.13	0.12	0.01	0.00	3,491.58
	15	1.83	4.29	10.96	0.02	0.12	0.11	0.01	0.00	2,866.88
	20	0.88	2.55	8.55	0.02	0.11	0.10	0.01	0.00	2,352.61
	25	0.69	2.19	7.42	0.02	0.10	0.09	0.01	0.00	2,110.16
	30	0.60	2.10	6.69	0.02	0.10	0.09	0.01	0.00	1,980.70
	35	0.52	2.05	6.09	0.02	0.11	0.10	0.01	0.00	1,873.26
	40	0.46	2.04	5.61	0.02	0.11	0.10	0.01	0.00	1,787.85
	45	0.40	2.06	5.26	0.02	0.13	0.12	0.01	0.00	1,724.46
	50	0.36	2.13	5.03	0.02	0.14	0.13	0.01	0.00	1,683.09
55	0.33	2.23	4.93	0.02	0.16	0.15	0.01	0.00	1,663.75	
Composite Efs		0.84	2.73	7.14	0.02	0.13	0.12	0.01	0.00	2,069.74
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										
Project Year 2025										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	3.29	6.53	9.86	0.02	0.13	0.12	0.01	0.00	3,845.34
	10	2.47	5.11	8.55	0.02	0.13	0.12	0.01	0.00	3,491.59
	15	1.26	2.96	6.42	0.02	0.11	0.11	0.01	0.00	2,866.89
	20	0.60	1.77	5.02	0.02	0.10	0.10	0.01	0.00	2,352.61
	25	0.47	1.52	4.35	0.02	0.10	0.09	0.01	0.00	2,110.16
	30	0.41	1.45	3.93	0.02	0.10	0.09	0.01	0.00	1,980.70
	35	0.36	1.42	3.57	0.02	0.10	0.09	0.01	0.00	1,873.26
	40	0.31	1.41	3.29	0.02	0.11	0.10	0.01	0.00	1,787.85
	45	0.28	1.43	3.08	0.02	0.12	0.11	0.01	0.00	1,724.46
	50	0.25	1.47	2.95	0.02	0.13	0.12	0.01	0.00	1,683.09
55	0.23	1.54	2.89	0.02	0.15	0.14	0.01	0.00	1,663.76	
Composite Efs		0.57	1.89	4.19	0.02	0.12	0.11	0.01	0.00	2,069.74
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-14 On-Road Truck Emission Factors Without Mitigation - Proposed Project

Project Year/Mode	Speed	Emission Factors								
	(mph)	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2027										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	3.32	6.61	10.08	0.02	0.13	0.12	0.01	0.00	3,845.34
	10	2.50	5.16	8.73	0.02	0.13	0.12	0.01	0.00	3,491.58
	15	1.27	2.99	6.56	0.02	0.12	0.11	0.01	0.00	2,866.88
	20	0.61	1.78	5.12	0.02	0.11	0.10	0.01	0.00	2,352.61
	25	0.48	1.53	4.45	0.02	0.10	0.09	0.01	0.00	2,110.16
	30	0.42	1.47	4.01	0.02	0.10	0.09	0.01	0.00	1,980.70
	35	0.36	1.43	3.65	0.02	0.10	0.09	0.01	0.00	1,873.26
	40	0.32	1.42	3.36	0.02	0.11	0.10	0.01	0.00	1,787.85
	45	0.28	1.44	3.15	0.02	0.12	0.11	0.01	0.00	1,724.46
	50	0.25	1.49	3.01	0.02	0.14	0.13	0.01	0.00	1,683.09
55	0.23	1.56	2.96	0.02	0.16	0.14	0.01	0.00	1,663.75	
Composite Efs		0.58	1.91	4.28	0.02	0.12	0.11	0.01	0.00	2,069.74
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-15 Annual Truck Emissions without Mitigation - Proposed Project

	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>On-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	1.0	2.9	16.4	0.0	0.0	0.0	0.0	0.0	797.9
Year 2012 - Driving	1.8	5.8	19.8	0.1	1.3	0.4	0.0	0.0	6,346.6
Subtotal	2.9	8.6	36.2	0.1	1.4	0.4	0.0	0.0	7,144.6
<i>Project Year 2015</i>									
Year 2015 - Idling	1.5	4.0	23.3	0.0	0.0	0.0	0.0	0.0	1,131.2
Year 2015 - Driving	3.6	11.1	34.3	0.1	2.1	0.7	0.0	0.0	9,559.5
Subtotal	5.0	15.2	57.6	0.1	2.1	0.7	0.0	0.0	10,690.7
<i>Project Year 2020</i>									
Year 2020 - Idling	1.6	4.4	25.1	0.0	0.0	0.0	0.0	0.0	1,219.1
Year 2020 - Driving	4.1	13.3	34.8	0.1	2.4	0.9	0.0	0.0	10,085.0
Subtotal	5.7	17.7	59.9	0.1	2.5	0.9	0.0	0.0	11,304.1
<i>Project Year 2025</i>									
Year 2025 - Idling	1.7	4.8	27.8	0.0	0.0	0.0	0.0	0.0	1,349.9
Year 2025 - Driving	3.1	10.2	22.6	0.1	2.7	0.9	0.0	0.0	11,166.8
Subtotal	4.8	15.0	50.4	0.1	2.7	1.0	0.0	0.0	12,516.7
<i>Project Year 2027</i>									
Year 2027 - Idling	1.8	5.0	29.0	0.0	0.0	0.0	0.0	0.0	1,408.0
Year 2027 - Driving	3.3	10.7	24.1	0.1	2.8	1.0	0.0	0.0	11,647.7
Subtotal	5.1	15.8	53.1	0.1	2.8	1.0	0.0	0.0	13,055.7

Table 1.7-16 Peak Day Truck Emissions without Mitigation - Proposed Project

	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>On-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	7.8	21.6	124.3	0.1	0.1	0.1	0.0	0.0	6,037.1
Year 2012 - Driving	14.0	43.5	150.0	0.4	10.2	3.0	0.1	0.1	48,017.5
Subtotal	21.7	65.1	274.3	0.5	10.3	3.1	0.1	0.1	54,054.6
<i>Project Year 2015</i>									
Year 2015 - Idling	11.0	30.6	176.1	0.1	0.1	0.1	0.0	0.0	8,558.3
Year 2015 - Driving	27.0	84.1	259.8	0.6	16.1	5.3	0.2	0.2	72,325.6
Subtotal	38.0	114.7	436.0	0.7	16.2	5.4	0.2	0.2	80,884.0
<i>Project Year 2020</i>									
Year 2020 - Idling	11.9	33.0	189.8	0.1	0.1	0.1	0.0	0.0	9,223.5
Year 2020 - Driving	30.9	100.6	263.2	0.7	18.4	6.7	0.2	0.2	76,301.0
Subtotal	42.8	133.6	453.0	0.8	18.5	6.8	0.2	0.2	85,524.5
<i>Project Year 2025</i>									
Year 2025 - Idling	13.1	36.5	210.2	0.1	0.2	0.1	0.0	0.0	10,212.9
Year 2025 - Driving	23.4	77.0	171.0	0.7	20.1	7.2	0.2	0.2	84,485.9
Subtotal	36.6	113.5	381.2	0.8	20.3	7.3	0.2	0.2	94,698.8
<i>Project Year 2027</i>									
Year 2027 - Idling	13.7	38.1	219.3	0.1	0.2	0.2	0.0	0.0	10,652.7
Year 2027 - Driving	24.7	81.2	182.2	0.8	21.1	7.5	0.2	0.2	88,124.2
Subtotal	38.4	119.3	401.4	0.9	21.2	7.7	0.2	0.2	98,777.0

Table 1.7-15 Annual Truck Emissions without Mitigation - Proposed Project

	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>Off-Terminal Railyard</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	0.3	0.9	5.2	0.0	0.0	0.0	0.0	0.0	255.0
Year 2012 - Driving	1.9	6.0	20.7	0.1	1.4	0.4	0.0	0.0	6,641.9
Subtotal	2.3	6.9	26.0	0.1	1.4	0.4	0.0	0.0	6,896.9
<i>Project Year 2015</i>									
Year 2015 - Idling	0.5	1.3	7.4	0.0	0.0	0.0	0.0	0.0	361.5
Year 2015 - Driving	3.5	11.0	33.8	0.1	2.1	0.7	0.0	0.0	9,415.7
Subtotal	4.0	12.2	41.3	0.1	2.1	0.7	0.0	0.0	9,777.2
<i>Project Year 2020</i>									
Year 2020 - Idling	0.5	1.4	8.0	0.0	0.0	0.0	0.0	0.0	389.6
Year 2020 - Driving	4.0	13.1	34.3	0.1	2.4	0.9	0.0	0.0	9,933.3
Subtotal	4.5	14.5	42.3	0.1	2.4	0.9	0.0	0.0	10,322.9
<i>Project Year 2025</i>									
Year 2025 - Idling	0.6	1.8	10.2	0.0	0.0	0.0	0.0	0.0	496.1
Year 2025 - Driving	3.5	11.5	25.6	0.1	3.0	1.1	0.0	0.0	12,647.7
Subtotal	4.1	13.3	35.8	0.1	3.0	1.1	0.0	0.0	13,143.8
<i>Project Year 2027</i>									
Year 2027 - Idling	0.7	2.0	11.3	0.0	0.0	0.0	0.0	0.0	549.3
Year 2027 - Driving	3.9	12.9	29.0	0.1	3.3	1.2	0.0	0.0	14,005.0
Subtotal	4.6	14.9	40.3	0.1	3.4	1.2	0.0	0.0	14,554.3

Table 1.7-16 Peak Day Truck Emissions without Mitigation - Proposed Project

	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>Off-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	2.5	6.9	39.7	0.0	0.0	0.0	0.0	0.0	1,929.3
Year 2012 - Driving	14.6	45.5	157.0	0.4	10.6	3.2	0.1	0.1	50,251.3
Subtotal	17.1	52.4	196.7	0.5	10.7	3.2	0.1	0.1	52,180.6
<i>Project Year 2015</i>									
Year 2015 - Idling	3.5	9.8	56.3	0.0	0.0	0.0	0.0	0.0	2,735.1
Year 2015 - Driving	26.6	82.9	255.9	0.6	15.9	5.2	0.2	0.2	71,237.8
Subtotal	30.1	92.7	312.2	0.6	15.9	5.3	0.2	0.2	73,972.8
<i>Project Year 2020</i>									
Year 2020 - Idling	3.8	10.5	60.7	0.0	0.0	0.0	0.0	0.0	2,947.6
Year 2020 - Driving	30.4	99.1	259.2	0.7	18.1	6.6	0.2	0.2	75,153.4
Subtotal	34.2	109.7	319.9	0.7	18.2	6.6	0.2	0.2	78,101.0
<i>Project Year 2025</i>									
Year 2025 - Idling	4.8	13.4	77.2	0.0	0.1	0.1	0.0	0.0	3,753.1
Year 2025 - Driving	26.5	87.2	193.6	0.8	22.8	8.1	0.2	0.2	95,690.4
Subtotal	31.4	100.6	270.9	0.9	22.8	8.2	0.2	0.2	99,443.6
<i>Project Year 2027</i>									
Year 2027 - Idling	5.3	14.9	85.5	0.0	0.1	0.1	0.0	0.0	4,155.9
Year 2027 - Driving	29.7	97.6	219.0	0.9	25.3	9.1	0.3	0.2	105,959.2
Subtotal	35.0	112.5	304.6	1.0	25.4	9.1	0.3	0.3	110,115.1

Table 1.7-15 Annual Truck Emissions without Mitigation - Proposed Project

	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>Local Community</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	1.5	4.2	24.3	0.0	0.0	0.0	0.0	0.0	1,182.4
Year 2012 - Driving	14.6	45.6	157.2	0.4	10.6	3.2	0.1	0.1	50,310.2
Subtotal	16.2	49.8	181.5	0.4	10.7	3.2	0.1	0.1	51,492.6
<i>Project Year 2015</i>									
Year 2015 - Idling	2.2	6.0	34.5	0.0	0.0	0.0	0.0	0.0	1,676.2
Year 2015 - Driving	26.6	83.0	256.2	0.6	15.9	5.2	0.2	0.2	71,321.4
Subtotal	28.8	89.0	290.7	0.6	15.9	5.3	0.2	0.2	72,997.6
<i>Project Year 2020</i>									
Year 2020 - Idling	2.3	6.5	37.2	0.0	0.0	0.0	0.0	0.0	1,806.4
Year 2020 - Driving	30.5	99.2	259.5	0.7	18.1	6.6	0.2	0.2	75,241.7
Subtotal	32.8	105.7	296.7	0.7	18.2	6.6	0.2	0.2	77,048.1
<i>Project Year 2025</i>									
Year 2025 - Idling	2.5	6.9	39.8	0.0	0.0	0.0	0.0	0.0	1,932.1
Year 2025 - Driving	22.0	72.5	161.0	0.7	18.9	6.7	0.2	0.2	79,537.2
Subtotal	24.5	79.4	200.7	0.7	19.0	6.8	0.2	0.2	81,469.3
<i>Project Year 2027</i>									
Year 2027 - Idling	2.5	7.1	40.8	0.0	0.0	0.0	0.0	0.0	1,981.8
Year 2027 - Driving	22.7	74.8	167.7	0.7	19.4	7.0	0.2	0.2	81,125.6
Subtotal	25.3	81.8	208.5	0.7	19.4	7.0	0.2	0.2	83,107.4

[1] Road fugitive dusts are included for both PM10 and PM2.5.

Table 1.7-16 Peak Day Truck Emissions without Mitigation - Proposed Project

	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>Local Community</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	11.5	32.0	184.1	0.1	0.1	0.1	0.0	0.0	8,945.6
Year 2012 - Driving	110.7	344.9	1,189.1	3.3	80.5	24.0	0.9	0.9	380,638.3
Subtotal	122.2	376.9	1,373.2	3.4	80.7	24.2	0.9	0.9	389,584.0
<i>Project Year 2015</i>									
Year 2015 - Idling	16.3	45.4	261.0	0.1	0.2	0.2	0.0	0.0	12,681.6
Year 2015 - Driving	201.6	627.7	1,938.6	4.7	120.2	39.7	1.3	1.2	539,604.9
Subtotal	217.9	673.1	2,199.6	4.8	120.4	39.8	1.3	1.2	552,286.5
<i>Project Year 2020</i>									
Year 2020 - Idling	17.6	48.9	281.3	0.1	0.2	0.2	0.0	0.0	13,667.2
Year 2020 - Driving	230.5	750.8	1,963.3	5.0	137.2	49.8	1.4	1.3	569,264.5
Subtotal	248.1	799.7	2,244.6	5.2	137.5	50.0	1.4	1.3	582,931.7
<i>Project Year 2025</i>									
Year 2025 - Idling	18.8	52.3	300.9	0.1	0.2	0.2	0.0	0.0	14,618.2
Year 2025 - Driving	166.8	548.5	1,217.7	5.3	143.3	51.1	1.5	1.4	601,762.9
Subtotal	185.6	600.8	1,518.6	5.5	143.5	51.3	1.5	1.4	616,381.2
<i>Project Year 2027</i>									
Year 2027 - Idling	19.3	53.6	308.6	0.1	0.2	0.2	0.0	0.0	14,993.9
Year 2027 - Driving	171.9	565.6	1,268.8	5.4	146.7	52.6	1.5	1.4	613,781.0
Subtotal	191.2	619.2	1,577.4	5.6	147.0	52.8	1.5	1.4	628,775.0

Table 1.7-17 Driving Speed Distribution per Off-site Trip

Study Year	site Trip		
	10 MPH	25 MPH	55 MPH
2008	0.1	0.6	0.3
2012	0.1	0.6	0.3
2015	0.1	0.6	0.3
2020	0.1	0.5	0.4
2025	0.1	0.5	0.4
2027	0.1	0.5	0.4

(1) Source: Iteris 2010.

Table 1.7-18 On-Road Truck Operational & Road Dust Data - Alternatives 1 & 2

Activity/Project Scenario	Idling Time/ Trip (Hrs)	Miles/ Trip	Idling Hrs/ Year	Miles/ Year	Idling Hrs/ Peakday	Miles/ Peakday
<i>On-Terminal</i>						
2012	0.09	1.60	156,011	2,723,104	590	10,301
2015	0.09	1.60	159,465	2,783,392	603	10,529
2020	0.09	1.60	166,450	2,905,312	630	10,991
2025	0.09	1.60	173,435	3,027,232	656	11,452
2027	0.09	1.60	176,229	3,076,000	667	11,636
<i>Near-Dock (Off-terminal railyard)</i>						
2012	0.16	9.05	49,858	2,849,780	189	10,780
2015	0.16	9.05	50,962	2,912,872	193	11,019
2020	0.16	9.05	53,194	3,040,464	201	11,502
2025	0.16	9.05	55,426	3,168,055	210	11,984
2027	0.16	9.05	56,319	3,219,092	213	12,178
<i>Local Truck Trip (non-railyard off-terminal)</i>						
2012	0.17	15.56	231,175	21,586,230	875	81,659
2015	0.17	15.56	236,293	22,064,137	894	83,467
2020	0.17	15.56	246,643	23,030,605	933	87,123
2025	0.17	15.56	256,993	23,997,073	972	90,779
2027	0.17	15.56	261,133	24,383,661	988	92,241

Paved Road Dust, g/mi	
PM10	0.370000
PM2.5	0.062476

Driving Area	Year	(t/y)		Road Fugitive Dust (lb/d)	
		PM10	PM2.5	PM10	PM2.5
On-Terminal	2012	1.11	0.19	8.40	1.42
	2015	1.14	0.19	8.59	1.45
	2020	1.18	0.20	8.96	1.51
	2025	1.23	0.21	9.34	1.58
	2027	1.25	0.21	9.49	1.60
Off-Terminal Railyard	2012	1.16	0.20	8.79	1.48
	2015	1.19	0.20	8.99	1.52
	2020	1.24	0.21	9.38	1.58
	2025	1.29	0.22	9.78	1.65
	2027	1.31	0.22	9.93	1.68
Local Community	2012	8.80	1.49	66.61	11.25
	2015	9.00	1.52	68.08	11.50
	2020	9.39	1.59	71.07	12.00
	2025	9.79	1.65	74.05	12.50
	2027	9.94	1.68	75.24	12.70

Table 1.7-19 On-Road Truck Emission Factors Without Mitigation - Alternatives 1 & 2

Project Year/Mode	Speed (mph)	Emission Factors								
		VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2012										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	3.38	6.65	15.01	0.02	0.09	0.08	0.01	0.00	3,845
	10	2.54	5.20	13.01	0.02	0.08	0.08	0.01	0.00	3,492
	15	1.29	3.02	9.80	0.02	0.08	0.07	0.01	0.00	2,867
	20	0.62	1.79	7.65	0.02	0.07	0.06	0.01	0.00	2,353
	25	0.48	1.54	6.63	0.02	0.06	0.06	0.01	0.00	2,110
	30	0.42	1.48	5.99	0.02	0.06	0.06	0.01	0.00	1,981
	35	0.37	1.44	5.45	0.02	0.07	0.06	0.01	0.00	1,873
	40	0.32	1.43	5.02	0.02	0.07	0.07	0.01	0.00	1,788
	45	0.29	1.45	4.70	0.02	0.08	0.07	0.01	0.00	1,724
	50	0.25	1.50	4.50	0.02	0.09	0.08	0.01	0.00	1,683
55	0.23	1.57	4.41	0.02	0.10	0.09	0.01	0.00	1,664	
Composite Efs		0.62	1.92	6.61	0.02	0.08	0.07	0.01	0.00	2,114
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										
Project Year 2015										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	4.34	8.56	17.29	0.02	0.11	0.10	0.01	0.00	3,845
	10	3.26	6.66	14.97	0.02	0.11	0.10	0.01	0.00	3,492
	15	1.66	3.87	11.27	0.02	0.10	0.09	0.01	0.00	2,867
	20	0.79	2.30	8.79	0.02	0.09	0.08	0.01	0.00	2,353
	25	0.62	1.98	7.63	0.02	0.08	0.08	0.01	0.00	2,110
	30	0.54	1.90	6.88	0.02	0.08	0.08	0.01	0.00	1,981
	35	0.47	1.85	6.26	0.02	0.09	0.08	0.01	0.00	1,873
	40	0.41	1.84	5.77	0.02	0.09	0.09	0.01	0.00	1,788
	45	0.37	1.86	5.40	0.02	0.10	0.09	0.01	0.00	1,724
	50	0.33	1.92	5.17	0.02	0.12	0.11	0.01	0.00	1,683
55	0.30	2.02	5.07	0.02	0.13	0.12	0.01	0.00	1,664	
Composite Efs		0.79	2.46	7.60	0.02	0.10	0.09	0.01	0.00	2,114
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-19 On-Road Truck Emission Factors Without Mitigation - Alternatives 1 & 2

Project Year/Mode	Speed	Emission Factors								
	(mph)	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2020										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	4.81	9.44	16.82	0.02	0.14	0.13	0.01	0.00	3,845
	10	3.61	7.39	14.56	0.02	0.13	0.12	0.01	0.00	3,492
	15	1.83	4.29	10.96	0.02	0.12	0.11	0.01	0.00	2,867
	20	0.88	2.55	8.55	0.02	0.11	0.10	0.01	0.00	2,353
	25	0.69	2.19	7.42	0.02	0.10	0.09	0.01	0.00	2,110
	30	0.60	2.10	6.69	0.02	0.10	0.09	0.01	0.00	1,981
	35	0.52	2.05	6.09	0.02	0.11	0.10	0.01	0.00	1,873
	40	0.46	2.04	5.61	0.02	0.11	0.10	0.01	0.00	1,788
	45	0.40	2.06	5.26	0.02	0.13	0.12	0.01	0.00	1,724
	50	0.36	2.13	5.03	0.02	0.14	0.13	0.01	0.00	1,683
55	0.33	2.23	4.93	0.02	0.16	0.15	0.01	0.00	1,664	
Composite Efs		0.84	2.73	7.14	0.02	0.13	0.12	0.01	0.00	2,070
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										
Project Year 2025										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	3.29	6.53	9.86	0.02	0.13	0.12	0.01	0.00	3,845
	10	2.47	5.11	8.55	0.02	0.13	0.12	0.01	0.00	3,492
	15	1.26	2.96	6.42	0.02	0.11	0.11	0.01	0.00	2,867
	20	0.60	1.77	5.02	0.02	0.10	0.10	0.01	0.00	2,353
	25	0.47	1.52	4.35	0.02	0.10	0.09	0.01	0.00	2,110
	30	0.41	1.45	3.93	0.02	0.10	0.09	0.01	0.00	1,981
	35	0.36	1.42	3.57	0.02	0.10	0.09	0.01	0.00	1,873
	40	0.31	1.41	3.29	0.02	0.11	0.10	0.01	0.00	1,788
	45	0.28	1.43	3.08	0.02	0.12	0.11	0.01	0.00	1,724
	50	0.25	1.47	2.95	0.02	0.13	0.12	0.01	0.00	1,683
55	0.23	1.54	2.89	0.02	0.15	0.14	0.01	0.00	1,664	
Composite Efs		0.57	1.89	4.19	0.02	0.12	0.11	0.01	0.00	2,070
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-19 On-Road Truck Emission Factors Without Mitigation - Alternatives 1 & 2

Project Year/Mode	Speed	Emission Factors								
	(mph)	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>Project Year 2027</i>										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	3.32	6.61	10.08	0.02	0.13	0.12	0.01	0.00	3,845
	10	2.50	5.16	8.73	0.02	0.13	0.12	0.01	0.00	3,492
	15	1.27	2.99	6.56	0.02	0.12	0.11	0.01	0.00	2,867
	20	0.61	1.78	5.12	0.02	0.11	0.10	0.01	0.00	2,353
	25	0.48	1.53	4.45	0.02	0.10	0.09	0.01	0.00	2,110
	30	0.42	1.47	4.01	0.02	0.10	0.09	0.01	0.00	1,981
	35	0.36	1.43	3.65	0.02	0.10	0.09	0.01	0.00	1,873
	40	0.32	1.42	3.36	0.02	0.11	0.10	0.01	0.00	1,788
	45	0.28	1.44	3.15	0.02	0.12	0.11	0.01	0.00	1,724
	50	0.25	1.49	3.01	0.02	0.14	0.13	0.01	0.00	1,683
55	0.23	1.56	2.96	0.02	0.16	0.14	0.01	0.00	1,664	
Composite Efs		0.58	1.91	4.28	0.02	0.12	0.11	0.01	0.00	2,070
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-20 Annual Truck Emissions without Mitigation - Alternatives 1 & 2

Location/Project Scenario	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>On-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	1.0	2.9	16.4	0.0	0.0	0.0	0.0	0.0	797.9
Year 2012 - Driving	1.8	5.8	19.8	0.1	1.3	0.4	0.0	0.0	6,346.6
Subtotal	2.9	8.6	36.2	0.1	1.4	0.4	0.0	0.0	7,144.6
<i>Project Year 2015</i>									
Year 2015 - Idling	1.0	2.9	16.8	0.0	0.0	0.0	0.0	0.0	815.6
Year 2015 - Driving	2.4	7.5	23.3	0.1	1.4	0.5	0.0	0.0	6,487.2
Subtotal	3.5	10.5	40.1	0.1	1.5	0.5	0.0	0.0	7,302.8
<i>Project Year 2020</i>									
Year 2020 - Idling	1.1	3.0	17.5	0.0	0.0	0.0	0.0	0.0	851.3
Year 2020 - Driving	2.7	8.7	22.9	0.1	1.6	0.6	0.0	0.0	6,628.3
Subtotal	3.8	11.8	40.4	0.1	1.6	0.6	0.0	0.0	7,479.7
<i>Project Year 2025</i>									
Year 2025 - Idling	1.1	3.2	18.3	0.0	0.0	0.0	0.0	0.0	887.1
Year 2025 - Driving	1.9	6.3	14.0	0.1	1.6	0.6	0.0	0.0	6,906.5
Subtotal	3.1	9.5	32.2	0.1	1.7	0.6	0.0	0.0	7,793.6
<i>Project Year 2027</i>									
Year 2027 - Idling	1.2	3.2	18.6	0.0	0.0	0.0	0.0	0.0	901.3
Year 2027 - Driving	2.0	6.5	14.5	0.1	1.7	0.6	0.0	0.0	7,017.8
Subtotal	3.1	9.7	33.1	0.1	1.7	0.6	0.0	0.0	7,919.1

Table 1.7-21 Peak Day Truck Emissions without Mitigation - Alternatives 1 & 2

Location/Project Scenario	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>On-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	7.8	21.6	124.3	0.1	0.1	0.1	0.0	0.0	6,037.1
Year 2012 - Driving	14.0	43.5	150.0	0.4	10.2	3.0	0.1	0.1	48,017.5
Subtotal	21.7	65.1	274.3	0.5	10.3	3.1	0.1	0.1	54,054.6
<i>Project Year 2015</i>									
Year 2015 - Idling	7.9	22.1	127.0	0.1	0.1	0.1	0.0	0.0	6,170.7
Year 2015 - Driving	18.3	57.1	176.3	0.4	10.9	3.6	0.1	0.1	49,080.8
Subtotal	26.3	79.2	303.3	0.5	11.0	3.7	0.1	0.1	55,251.6
<i>Project Year 2020</i>									
Year 2020 - Idling	8.3	23.0	132.6	0.1	0.1	0.1	0.0	0.0	6,441.0
Year 2020 - Driving	20.3	66.1	173.0	0.4	12.1	4.4	0.1	0.1	50,149.0
Subtotal	28.6	89.2	305.5	0.5	12.2	4.5	0.1	0.1	56,590.0
<i>Project Year 2025</i>									
Year 2025 - Idling	8.6	24.0	138.1	0.1	0.1	0.1	0.0	0.0	6,711.3
Year 2025 - Driving	14.5	47.6	105.7	0.5	12.4	4.4	0.1	0.1	52,253.5
Subtotal	23.1	71.6	243.9	0.5	12.5	4.5	0.1	0.1	58,964.8
<i>Project Year 2027</i>									
Year 2027 - Idling	8.8	24.4	140.4	0.1	0.1	0.1	0.0	0.0	6,819.4
Year 2027 - Driving	14.9	48.9	109.8	0.5	12.7	4.5	0.1	0.1	53,095.1
Subtotal	23.6	73.3	250.1	0.5	12.8	4.6	0.1	0.1	59,914.5

Table 1.7-20 Annual Truck Emissions without Mitigation - Alternatives 1 & 2

Location/Project Scenario	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
Off-Terminal Railyard									
<i>Project Year 2012</i>									
Year 2012 - Idling	0.3	0.9	5.2	0.0	0.0	0.0	0.0	0.0	255.0
Year 2012 - Driving	1.9	6.0	20.7	0.1	1.4	0.4	0.0	0.0	6,641.9
Subtotal	2.3	6.9	26.0	0.1	1.4	0.4	0.0	0.0	6,896.9
<i>Project Year 2015</i>									
Year 2015 - Idling	0.3	0.9	5.4	0.0	0.0	0.0	0.0	0.0	260.7
Year 2015 - Driving	2.5	7.9	24.4	0.1	1.5	0.5	0.0	0.0	6,788.9
Subtotal	2.9	8.8	29.8	0.1	1.5	0.5	0.0	0.0	7,049.6
<i>Project Year 2020</i>									
Year 2020 - Idling	0.4	1.0	5.6	0.0	0.0	0.0	0.0	0.0	272.1
Year 2020 - Driving	2.8	9.1	23.9	0.1	1.7	0.6	0.0	0.0	6,936.7
Subtotal	3.2	10.1	29.5	0.1	1.7	0.6	0.0	0.0	7,208.8
<i>Project Year 2025</i>									
Year 2025 - Idling	0.4	1.0	5.8	0.0	0.0	0.0	0.0	0.0	283.5
Year 2025 - Driving	2.0	6.6	14.6	0.1	1.7	0.6	0.0	0.0	7,227.8
Subtotal	2.4	7.6	20.5	0.1	1.7	0.6	0.0	0.0	7,511.3
<i>Project Year 2027</i>									
Year 2027 - Idling	0.4	1.0	5.9	0.0	0.0	0.0	0.0	0.0	288.1
Year 2027 - Driving	2.1	6.8	15.2	0.1	1.8	0.6	0.0	0.0	7,344.2
Subtotal	2.4	7.8	21.1	0.1	1.8	0.6	0.0	0.0	7,632.3

Table 1.7-21 Peak Day Truck Emissions without Mitigation - Alternatives 1 & 2

Location/Project Scenario	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Off-Terminal									
<i>Project Year 2012</i>									
Year 2012 - Idling	2.5	6.9	39.7	0.0	0.0	0.0	0.0	0.0	1,929.3
Year 2012 - Driving	14.6	45.5	157.0	0.4	10.6	3.2	0.1	0.1	50,251.3
Subtotal	17.1	52.4	196.7	0.5	10.7	3.2	0.1	0.1	52,180.6
<i>Project Year 2015</i>									
Year 2015 - Idling	2.5	7.1	40.6	0.0	0.0	0.0	0.0	0.0	1,972.0
Year 2015 - Driving	19.2	59.7	184.5	0.4	11.4	3.8	0.1	0.1	51,364.0
Subtotal	21.7	66.8	225.1	0.5	11.5	3.8	0.1	0.1	53,336.0
<i>Project Year 2020</i>									
Year 2020 - Idling	2.6	7.4	42.4	0.0	0.0	0.0	0.0	0.0	2,058.4
Year 2020 - Driving	21.2	69.2	181.0	0.5	12.7	4.6	0.1	0.1	52,481.8
Subtotal	23.9	76.6	223.4	0.5	12.7	4.6	0.1	0.1	54,540.3
<i>Project Year 2025</i>									
Year 2025 - Idling	2.8	7.7	44.1	0.0	0.0	0.0	0.0	0.0	2,144.8
Year 2025 - Driving	15.2	49.8	110.7	0.5	13.0	4.6	0.1	0.1	54,684.2
Subtotal	17.9	57.5	154.8	0.5	13.1	4.7	0.1	0.1	56,829.0
<i>Project Year 2027</i>									
Year 2027 - Idling	2.8	7.8	44.9	0.0	0.0	0.0	0.0	0.0	2,179.4
Year 2027 - Driving	15.6	51.2	114.9	0.5	13.3	4.8	0.1	0.1	55,565.0
Subtotal	18.4	59.0	159.7	0.5	13.3	4.8	0.1	0.1	57,744.3

Table 1.7-20 Annual Truck Emissions without Mitigation - Alternatives 1 & 2

Location/Project Scenario	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>Local Community</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	1.5	4.2	24.3	0.0	0.0	0.0	0.0	0.0	1,182.4
Year 2012 - Driving	14.6	45.6	157.2	0.4	10.6	3.2	0.1	0.1	50,310.2
Subtotal	16.2	49.8	181.5	0.4	10.7	3.2	0.1	0.1	51,492.6
<i>Project Year 2015</i>									
Year 2015 - Idling	1.6	4.3	24.9	0.0	0.0	0.0	0.0	0.0	1,208.6
Year 2015 - Driving	19.2	59.8	184.8	0.4	11.5	3.8	0.1	0.1	51,424.2
Subtotal	20.8	64.1	209.6	0.5	11.5	3.8	0.1	0.1	52,632.7
<i>Project Year 2020</i>									
Year 2020 - Idling	1.6	4.5	26.0	0.0	0.0	0.0	0.0	0.0	1,261.5
Year 2020 - Driving	21.3	69.3	181.2	0.5	12.7	4.6	0.1	0.1	52,543.4
Subtotal	22.9	73.8	207.2	0.5	12.7	4.6	0.1	0.1	53,804.8
<i>Project Year 2025</i>									
Year 2025 - Idling	1.7	4.7	27.1	0.0	0.0	0.0	0.0	0.0	1,314.4
Year 2025 - Driving	15.2	49.9	110.8	0.5	13.0	4.6	0.1	0.1	54,748.4
Subtotal	16.9	54.6	137.8	0.5	13.1	4.7	0.1	0.1	56,062.8
<i>Project Year 2027</i>									
Year 2027 - Idling	1.7	4.8	27.5	0.0	0.0	0.0	0.0	0.0	1,335.6
Year 2027 - Driving	15.6	51.3	115.0	0.5	13.3	4.8	0.1	0.1	55,630.3
Subtotal	17.3	56.0	142.5	0.5	13.3	4.8	0.1	0.1	56,965.9

[1] Road fugitive dusts are included for both PM10 and PM2.5.

Table 1.7-21 Peak Day Truck Emissions without Mitigation - Alternatives 1 & 2

Location/Project Scenario	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>Local Community</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	11.5	32.0	184.1	0.1	0.1	0.1	0.0	0.0	8,945.6
Year 2012 - Driving	110.7	344.9	1,189.1	3.3	80.5	24.0	0.9	0.9	380,638.3
Subtotal	122.2	376.9	1,373.2	3.4	80.7	24.2	0.9	0.9	389,584.0
<i>Project Year 2015</i>									
Year 2015 - Idling	11.8	32.7	188.2	0.1	0.1	0.1	0.0	0.0	9,143.7
Year 2015 - Driving	145.4	452.6	1,397.8	3.4	86.7	28.6	0.9	0.9	389,066.9
Subtotal	157.1	485.3	1,586.0	3.5	86.8	28.7	0.9	0.9	398,210.6
<i>Project Year 2020</i>									
Year 2020 - Idling	12.3	34.1	196.4	0.1	0.1	0.1	0.0	0.0	9,544.2
Year 2020 - Driving	161.0	524.3	1,371.0	3.5	95.8	34.8	1.0	0.9	397,534.3
Subtotal	173.2	558.5	1,567.5	3.6	96.0	34.9	1.0	0.9	407,078.5
<i>Project Year 2025</i>									
Year 2025 - Idling	12.8	35.6	204.7	0.1	0.2	0.1	0.0	0.0	9,944.7
Year 2025 - Driving	114.8	377.6	838.2	3.7	98.7	35.1	1.0	1.0	414,216.7
Subtotal	127.6	413.1	1,042.9	3.8	98.8	35.3	1.0	1.0	424,161.5
<i>Project Year 2027</i>									
Year 2027 - Idling	13.0	36.2	208.0	0.1	0.2	0.1	0.0	0.0	10,104.9
Year 2027 - Driving	117.9	387.8	870.1	3.7	100.6	36.1	1.0	1.0	420,888.2
Subtotal	130.9	424.0	1,078.1	3.8	100.8	36.2	1.0	1.0	430,993.1

Table 1.7-22 Driving Speed Distribution per Off-site Trip

Study Year	Off-site Trip		
	10 MPH	25 MPH	55 MPH
2008	0.1	0.6	0.3
2012	0.1	0.6	0.3
2015	0.1	0.6	0.3
2020	0.1	0.5	0.4
2025	0.1	0.5	0.4
2027	0.1	0.5	0.4

(1) Source: Iteris 2010.

g/mi	
PM10	0.370000
PM2.5	0.062476

Table 1.7-23 On-Road Truck Operational & Road Dust Data - Alternative 3

Activity/Project Scenario	Idling Time/ Trip (Hrs)	Miles/ Trip	Idling Hrs/ Year	Miles/ Year	Idling Hrs/ Peakday	Miles/ Peakday
<i>On-Terminal</i> Corrected on-dock Idling Time for One-Way Trips (8/24/10, 8:09 am J. Pehrson)						
2012	0.09	1.60	156,011	2,723,104	590	10,301
2015	0.09	1.60	172,055	3,003,136	651	11,361
2020	0.09	1.60	188,459	3,289,472	713	12,444
2025	0.09	1.60	204,864	3,575,808	775	13,527
2027	0.09	1.60	211,426	3,690,336	800	13,960
<i>Near-Dock (Off-terminal railyard)</i>						
2012	0.16	9.05	49,858	2,849,780	189	10,780
2015	0.16	9.05	54,985	3,142,839	208	11,889
2020	0.16	9.05	60,228	3,442,495	228	13,023
2025	0.16	9.05	65,470	3,742,151	248	14,156
2027	0.16	9.05	67,567	3,862,006	256	14,610
<i>Local Truck Trip (non-railyard off-terminal)</i>						
2012	0.17	15.56	231,175	21,586,230	875	81,659
2015	0.17	15.56	254,948	23,806,063	964	90,056
2020	0.17	15.56	279,256	26,075,868	1,056	98,643
2025	0.17	15.56	303,564	28,345,672	1,148	107,229
2027	0.17	15.56	313,286	29,253,544	1,185	110,664

Driving Area	Year	(t/y)		Road Fugitive Dust (lb/d)	
		PM10	PM2.5	PM10	PM2.5
On-Terminal	2012	1.11	0.19	8.40	1.42
	2015	1.22	0.21	9.27	1.56
	2020	1.34	0.23	10.15	1.71
	2025	1.46	0.25	11.03	1.86
	2027	1.51	0.25	11.39	1.92
Off-Terminal Railyard	2012	1.16	0.20	8.79	1.48
	2015	1.28	0.22	9.70	1.64
	2020	1.40	0.24	10.62	1.79
	2025	1.53	0.26	11.55	1.95
	2027	1.58	0.27	11.92	2.01
Local Community	2012	8.80	1.49	66.61	11.25
	2015	9.71	1.64	73.46	12.40
	2020	10.63	1.80	80.46	13.59
	2025	11.56	1.95	87.47	14.77
	2027	11.93	2.01	90.27	15.24

Table 1.7-24 On-Road Truck Emission Factors Without Mitigation - Alternative 3

Project Year/Mode	Speed (mph)	Emission Factors								
		VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2012										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	3.38	6.65	15.01	0.02	0.09	0.08	0.01	0.00	3,845.34
	10	2.54	5.20	13.01	0.02	0.08	0.08	0.01	0.00	3,491.58
	15	1.29	3.02	9.80	0.02	0.08	0.07	0.01	0.00	2,866.88
	20	0.62	1.79	7.65	0.02	0.07	0.06	0.01	0.00	2,352.61
	25	0.48	1.54	6.63	0.02	0.06	0.06	0.01	0.00	2,110.16
	30	0.42	1.48	5.99	0.02	0.06	0.06	0.01	0.00	1,980.69
	35	0.37	1.44	5.45	0.02	0.07	0.06	0.01	0.00	1,873.26
	40	0.32	1.43	5.02	0.02	0.07	0.07	0.01	0.00	1,787.84
	45	0.29	1.45	4.70	0.02	0.08	0.07	0.01	0.00	1,724.46
	50	0.25	1.50	4.50	0.02	0.09	0.08	0.01	0.00	1,683.09
55	0.23	1.57	4.41	0.02	0.10	0.09	0.01	0.00	1,663.75	
Composite Efs		0.62	1.92	6.61	0.02	0.08	0.07	0.01	0.00	2,114.38
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										
Project Year 2015										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	4.34	8.56	17.29	0.02	0.11	0.10	0.01	0.00	3,845.34
	10	3.26	6.66	14.97	0.02	0.11	0.10	0.01	0.00	3,491.58
	15	1.66	3.87	11.27	0.02	0.10	0.09	0.01	0.00	2,866.89
	20	0.79	2.30	8.79	0.02	0.09	0.08	0.01	0.00	2,352.61
	25	0.62	1.98	7.63	0.02	0.08	0.08	0.01	0.00	2,110.16
	30	0.54	1.90	6.88	0.02	0.08	0.08	0.01	0.00	1,980.70
	35	0.47	1.85	6.26	0.02	0.09	0.08	0.01	0.00	1,873.26
	40	0.41	1.84	5.77	0.02	0.09	0.09	0.01	0.00	1,787.85
	45	0.37	1.86	5.40	0.02	0.10	0.09	0.01	0.00	1,724.46
	50	0.33	1.92	5.17	0.02	0.12	0.11	0.01	0.00	1,683.09
55	0.30	2.02	5.07	0.02	0.13	0.12	0.01	0.00	1,663.76	
Composite Efs		0.79	2.46	7.60	0.02	0.10	0.09	0.01	0.00	2,114.38
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-24 On-Road Truck Emission Factors Without Mitigation - Alternative 3

Project Year/Mode	Speed (mph)	Emission Factors								
		VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2020										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	4.81	9.44	16.82	0.02	0.14	0.13	0.01	0.00	3,845.34
	10	3.61	7.39	14.56	0.02	0.13	0.12	0.01	0.00	3,491.58
	15	1.83	4.29	10.96	0.02	0.12	0.11	0.01	0.00	2,866.88
	20	0.88	2.55	8.55	0.02	0.11	0.10	0.01	0.00	2,352.61
	25	0.69	2.19	7.42	0.02	0.10	0.09	0.01	0.00	2,110.16
	30	0.60	2.10	6.69	0.02	0.10	0.09	0.01	0.00	1,980.70
	35	0.52	2.05	6.09	0.02	0.11	0.10	0.01	0.00	1,873.26
	40	0.46	2.04	5.61	0.02	0.11	0.10	0.01	0.00	1,787.85
	45	0.40	2.06	5.26	0.02	0.13	0.12	0.01	0.00	1,724.46
	50	0.36	2.13	5.03	0.02	0.14	0.13	0.01	0.00	1,683.09
55	0.33	2.23	4.93	0.02	0.16	0.15	0.01	0.00	1,663.75	
Composite Efs		0.84	2.73	7.14	0.02	0.13	0.12	0.01	0.00	2,069.74
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										
Project Year 2025										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	3.29	6.53	9.86	0.02	0.13	0.12	0.01	0.00	3,845.34
	10	2.47	5.11	8.55	0.02	0.13	0.12	0.01	0.00	3,491.59
	15	1.26	2.96	6.42	0.02	0.11	0.11	0.01	0.00	2,866.89
	20	0.60	1.77	5.02	0.02	0.10	0.10	0.01	0.00	2,352.61
	25	0.47	1.52	4.35	0.02	0.10	0.09	0.01	0.00	2,110.16
	30	0.41	1.45	3.93	0.02	0.10	0.09	0.01	0.00	1,980.70
	35	0.36	1.42	3.57	0.02	0.10	0.09	0.01	0.00	1,873.26
	40	0.31	1.41	3.29	0.02	0.11	0.10	0.01	0.00	1,787.85
	45	0.28	1.43	3.08	0.02	0.12	0.11	0.01	0.00	1,724.46
	50	0.25	1.47	2.95	0.02	0.13	0.12	0.01	0.00	1,683.09
55	0.23	1.54	2.89	0.02	0.15	0.14	0.01	0.00	1,663.76	
Composite Efs		0.57	1.89	4.19	0.02	0.12	0.11	0.01	0.00	2,069.74
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-24 On-Road Truck Emission Factors Without Mitigation - Alternative 3

Project Year/Mode	Speed (mph)	Emission Factors								
		VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2027										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	3.32	6.61	10.08	0.02	0.13	0.12	0.01	0.00	3,845.34
	10	2.50	5.16	8.73	0.02	0.13	0.12	0.01	0.00	3,491.58
	15	1.27	2.99	6.56	0.02	0.12	0.11	0.01	0.00	2,866.88
	20	0.61	1.78	5.12	0.02	0.11	0.10	0.01	0.00	2,352.61
	25	0.48	1.53	4.45	0.02	0.10	0.09	0.01	0.00	2,110.16
	30	0.42	1.47	4.01	0.02	0.10	0.09	0.01	0.00	1,980.70
	35	0.36	1.43	3.65	0.02	0.10	0.09	0.01	0.00	1,873.26
	40	0.32	1.42	3.36	0.02	0.11	0.10	0.01	0.00	1,787.85
	45	0.28	1.44	3.15	0.02	0.12	0.11	0.01	0.00	1,724.46
	50	0.25	1.49	3.01	0.02	0.14	0.13	0.01	0.00	1,683.09
55	0.23	1.56	2.96	0.02	0.16	0.14	0.01	0.00	1,663.75	
Composite Efs		0.58	1.91	4.28	0.02	0.12	0.11	0.01	0.00	2,069.74
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-25 Annual Truck Emissions without Mitigation - Alternative 3

Location/Project Scenario	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>On-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	1.0	2.9	16.4	0.0	0.0	0.0	0.0	0.0	798
Year 2012 - Driving	1.8	5.8	19.8	0.1	1.3	0.4	0.0	0.0	6,347
Subtotal	2.9	8.6	36.2	0.1	1.4	0.4	0.0	0.0	7,145
<i>Project Year 2015</i>									
Year 2015 - Idling	1.1	3.1	18.1	0.0	0.0	0.0	0.0	0.0	880
Year 2015 - Driving	2.6	8.1	25.1	0.1	1.6	0.5	0.0	0.0	6,999
Subtotal	3.7	11.3	43.3	0.1	1.6	0.5	0.0	0.0	7,879
<i>Project Year 2020</i>									
Year 2020 - Idling	1.2	3.4	19.8	0.0	0.0	0.0	0.0	0.0	964
Year 2020 - Driving	3.0	9.9	25.9	0.1	1.8	0.7	0.0	0.0	7,505
Subtotal	4.3	13.3	45.7	0.1	1.8	0.7	0.0	0.0	8,469
<i>Project Year 2025</i>									
Year 2025 - Idling	1.3	3.7	21.6	0.0	0.0	0.0	0.0	0.0	1,048
Year 2025 - Driving	2.3	7.4	16.5	0.1	1.9	0.7	0.0	0.0	8,158
Subtotal	3.6	11.2	38.1	0.1	2.0	0.7	0.0	0.0	9,206
<i>Project Year 2027</i>									
Year 2027 - Idling	1.4	3.9	22.3	0.0	0.0	0.0	0.0	0.0	1,081
Year 2027 - Driving	2.4	7.8	17.4	0.1	2.0	0.7	0.0	0.0	8,419
Subtotal	3.7	11.6	39.7	0.1	2.0	0.7	0.0	0.0	9,501

Table 1.7-26 Peak Day Truck Emissions without Mitigation - Alternative 3

Location/Project Scenario	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>On-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	7.8	21.6	124.3	0.1	0.1	0.1	0.0	0.0	6,037
Year 2012 - Driving	14.0	43.5	150.0	0.4	10.2	3.0	0.1	0.1	48,018
Subtotal	21.7	65.1	274.3	0.5	10.3	3.1	0.1	0.1	54,055
<i>Project Year 2015</i>									
Year 2015 - Idling	8.6	23.8	137.0	0.1	0.1	0.1	0.0	0.0	6,658
Year 2015 - Driving	19.8	61.6	190.3	0.5	11.8	3.9	0.1	0.1	52,955
Subtotal	28.4	85.4	327.3	0.5	11.9	4.0	0.1	0.1	59,613
<i>Project Year 2020</i>									
Year 2020 - Idling	9.4	26.1	150.1	0.1	0.1	0.1	0.0	0.0	7,293
Year 2020 - Driving	23.0	74.9	195.8	0.5	13.7	5.0	0.1	0.1	56,780
Subtotal	32.4	101.0	345.9	0.6	13.8	5.1	0.1	0.1	64,073
<i>Project Year 2025</i>									
Year 2025 - Idling	10.2	28.4	163.2	0.1	0.1	0.1	0.0	0.0	7,927
Year 2025 - Driving	17.1	56.3	124.9	0.5	14.7	5.2	0.2	0.1	61,722
Subtotal	27.3	84.6	288.1	0.6	14.8	5.3	0.2	0.2	69,650
<i>Project Year 2027</i>									
Year 2027 - Idling	10.5	29.3	168.4	0.1	0.1	0.1	0.0	0.0	8,181
Year 2027 - Driving	17.8	58.7	131.7	0.6	15.2	5.5	0.2	0.1	63,699
Subtotal	28.4	88.0	300.1	0.6	15.4	5.6	0.2	0.2	71,881

Table 1.7-25 Annual Truck Emissions without Mitigation - Alternative 3

Location/Project Scenario	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>Off-Terminal Railyard</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	0.3	0.9	5.2	0.0	0.0	0.0	0.0	0.0	255
Year 2012 - Driving	1.9	6.0	20.7	0.1	1.4	0.4	0.0	0.0	6,642
Subtotal	2.3	6.9	26.0	0.1	1.4	0.4	0.0	0.0	6,897
<i>Project Year 2015</i>									
Year 2015 - Idling	0.4	1.0	5.8	0.0	0.0	0.0	0.0	0.0	281
Year 2015 - Driving	2.7	8.5	26.3	0.1	1.6	0.5	0.0	0.0	7,325
Subtotal	3.1	9.5	32.1	0.1	1.6	0.5	0.0	0.0	7,606
<i>Project Year 2020</i>									
Year 2020 - Idling	0.4	1.1	6.3	0.0	0.0	0.0	0.0	0.0	308
Year 2020 - Driving	3.2	10.4	27.1	0.1	1.9	0.7	0.0	0.0	7,854
Subtotal	3.6	11.5	33.4	0.1	1.9	0.7	0.0	0.0	8,162
<i>Project Year 2025</i>									
Year 2025 - Idling	0.4	1.2	6.9	0.0	0.0	0.0	0.0	0.0	335
Year 2025 - Driving	2.4	7.8	17.3	0.1	2.0	0.7	0.0	0.0	8,538
Subtotal	2.8	9.0	24.2	0.1	2.0	0.7	0.0	0.0	8,872
<i>Project Year 2027</i>									
Year 2027 - Idling	0.4	1.2	7.1	0.0	0.0	0.0	0.0	0.0	346
Year 2027 - Driving	2.5	8.1	18.2	0.1	2.1	0.8	0.0	0.0	8,811
Subtotal	2.9	9.4	25.3	0.1	2.1	0.8	0.0	0.0	9,157

Table 1.7-26 Peak Day Truck Emissions without Mitigation - Alternative 3

Location/Project Scenario	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>Off-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	2.5	6.9	39.7	0.0	0.0	0.0	0.0	0.0	1,929
Year 2012 - Driving	14.6	45.5	157.0	0.4	10.6	3.2	0.1	0.1	50,251
Subtotal	17.1	52.4	196.7	0.5	10.7	3.2	0.1	0.1	52,181
<i>Project Year 2015</i>									
Year 2015 - Idling	2.7	7.6	43.8	0.0	0.0	0.0	0.0	0.0	2,128
Year 2015 - Driving	20.7	64.5	199.1	0.5	12.3	4.1	0.1	0.1	55,419
Subtotal	23.4	72.1	242.9	0.5	12.4	4.1	0.1	0.1	57,547
<i>Project Year 2020</i>									
Year 2020 - Idling	3.0	8.3	48.0	0.0	0.0	0.0	0.0	0.0	2,331
Year 2020 - Driving	24.1	78.4	204.9	0.5	14.3	5.2	0.1	0.1	59,421
Subtotal	27.1	86.7	252.9	0.5	14.4	5.2	0.1	0.1	61,752
<i>Project Year 2025</i>									
Year 2025 - Idling	3.3	9.1	52.1	0.0	0.0	0.0	0.0	0.0	2,533
Year 2025 - Driving	17.9	58.9	130.7	0.6	15.4	5.5	0.2	0.1	64,594
Subtotal	21.2	67.9	182.9	0.6	15.4	5.5	0.2	0.2	67,127
<i>Project Year 2027</i>									
Year 2027 - Idling	3.4	9.4	53.8	0.0	0.0	0.0	0.0	0.0	2,615
Year 2027 - Driving	18.7	61.4	137.8	0.6	15.9	5.7	0.2	0.2	66,663
Subtotal	22.0	70.8	191.6	0.6	16.0	5.7	0.2	0.2	69,277

Table 1.7-25 Annual Truck Emissions without Mitigation - Alternative 3

Location/Project Scenario	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>Local Community</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	1.5	4.2	24.3	0.0	0.0	0.0	0.0	0.0	1,182
Year 2012 - Driving	14.6	45.6	157.2	0.4	10.6	3.2	0.1	0.1	50,310
Subtotal	16.2	49.8	181.5	0.4	10.7	3.2	0.1	0.1	51,493
<i>Project Year 2015</i>									
Year 2015 - Idling	1.7	4.7	26.8	0.0	0.0	0.0	0.0	0.0	1,304
Year 2015 - Driving	20.7	64.5	199.3	0.5	12.4	4.1	0.1	0.1	55,484
Subtotal	22.4	69.2	226.2	0.5	12.4	4.1	0.1	0.1	56,788
<i>Project Year 2020</i>									
Year 2020 - Idling	1.8	5.1	29.4	0.0	0.0	0.0	0.0	0.0	1,428
Year 2020 - Driving	24.1	78.5	205.2	0.5	14.3	5.2	0.1	0.1	59,491
Subtotal	25.9	83.6	234.6	0.5	14.4	5.2	0.1	0.1	60,919
<i>Project Year 2025</i>									
Year 2025 - Idling	2.0	5.6	32.0	0.0	0.0	0.0	0.0	0.0	1,553
Year 2025 - Driving	17.9	58.9	130.9	0.6	15.4	5.5	0.2	0.1	64,670
Subtotal	19.9	64.5	162.8	0.6	15.4	5.5	0.2	0.2	66,222
<i>Project Year 2027</i>									
Year 2027 - Idling	2.1	5.7	33.0	0.0	0.0	0.0	0.0	0.0	1,602
Year 2027 - Driving	18.7	61.5	138.0	0.6	16.0	5.7	0.2	0.2	66,741
Subtotal	20.8	67.2	170.9	0.6	16.0	5.7	0.2	0.2	68,343

Table 1.7-26 Peak Day Truck Emissions without Mitigation - Alternative 3

Location/Project Scenario	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>Local Community</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	11.5	32.0	184.1	0.1	0.1	0.1	0.0	0.0	8,946
Year 2012 - Driving	110.7	344.9	1,189.1	3.3	80.5	24.0	0.9	0.9	380,638
Subtotal	122.2	376.9	1,373.2	3.4	80.7	24.2	0.9	0.9	389,584
<i>Project Year 2015</i>									
Year 2015 - Idling	12.7	35.3	203.1	0.1	0.2	0.1	0.0	0.0	9,866
Year 2015 - Driving	156.8	488.3	1,508.1	3.6	93.5	30.9	1.0	1.0	419,781
Subtotal	169.5	523.6	1,711.2	3.7	93.7	31.0	1.0	1.0	429,647
<i>Project Year 2020</i>									
Year 2020 - Idling	13.9	38.7	222.4	0.1	0.2	0.2	0.0	0.0	10,806
Year 2020 - Driving	182.2	593.7	1,552.3	4.0	108.5	39.4	1.1	1.0	450,098
Subtotal	196.1	632.3	1,774.7	4.1	108.7	39.6	1.1	1.1	460,904
<i>Project Year 2025</i>									
Year 2025 - Idling	15.1	42.0	241.8	0.1	0.2	0.2	0.0	0.0	11,747
Year 2025 - Driving	135.6	446.0	990.1	4.3	116.5	41.5	1.2	1.1	489,277
Subtotal	150.8	488.0	1,231.9	4.4	116.7	41.7	1.2	1.1	501,024
<i>Project Year 2027</i>									
Year 2027 - Idling	15.6	43.4	249.5	0.1	0.2	0.2	0.0	0.0	12,123
Year 2027 - Driving	141.5	465.3	1,043.9	4.5	120.7	43.3	1.2	1.2	504,949
Subtotal	157.1	508.7	1,293.4	4.6	120.9	43.4	1.3	1.2	517,072

Table 1.7-27 Driving Speed Distribution per Off-site Trip

Study Year	Off-site Trip		
	10 MPH	25 MPH	55 MPH
2008	0.1	0.6	0.3
2012	0.1	0.6	0.3
2015	0.1	0.6	0.3
2020	0.1	0.5	0.4
2025	0.1	0.5	0.4
2027	0.1	0.5	0.4

(1) Source: Iteris 2010.

g/mi	
PM10	0.370000
PM2.5	0.062476

Table 1.7-28 On-Road Truck Operational & Road Dust Data - Alternative 4

Activity/Project Scenario	Idling Time/ Trip (Hrs)	Miles/ Trip	Idling Hrs/ Year	Miles/ Year	Idling Hrs/ Peakday	Miles/ Peakday
<i>On-Terminal</i>						
2012	0.09	1.60	156,011	2,723,104	590	10,301
2015	0.09	1.72	185,233	3,475,638	701	13,148
2020	0.09	1.72	202,968	3,808,424	768	14,407
2025	0.09	1.72	220,702	4,141,175	835	15,666
2027	0.09	1.72	227,796	4,274,286	862	16,169
<i>Near-Dock (Off-terminal railyard)</i>						
2012	0.16	9.05	49,858	2,849,780	189	10,780
2015	0.16	9.05	59,197	3,383,555	224	12,800
2020	0.16	9.05	64,865	3,707,523	245	14,025
2025	0.16	9.05	70,532	4,031,459	267	15,251
2027	0.16	9.05	72,799	4,161,043	275	15,741
<i>Local Truck Trip (non-railyard off-terminal)</i>						
2012	0.17	15.56	231,175	21,586,230	875	81,659
2015	0.17	15.56	274,474	25,629,415	1,038	96,954
2020	0.17	15.56	300,755	28,083,382	1,138	106,236
2025	0.17	15.56	327,032	30,537,095	1,237	115,519
2027	0.17	15.56	337,544	31,518,656	1,277	119,232

Driving Area	Year	(t/y)		Road Fugitive Dust (lb/d)	
		PM10	PM2.5	PM10	PM2.5
On-Terminal	2012	1.11	0.19	8.40	1.42
	2015	1.42	0.24	10.72	1.81
	2020	1.55	0.26	11.75	1.98
	2025	1.69	0.29	12.78	2.16
	2027	1.74	0.29	13.19	2.23
Off-Terminal Railyard	2012	1.16	0.20	8.79	1.48
	2015	1.38	0.23	10.44	1.76
	2020	1.51	0.26	11.44	1.93
	2025	1.64	0.28	12.44	2.10
	2027	1.70	0.29	12.84	2.17
Local Community	2012	8.80	1.49	66.61	11.25
	2015	10.45	1.77	79.08	13.35
	2020	11.45	1.93	86.66	14.63
	2025	12.45	2.10	94.23	15.91
	2027	12.85	2.17	97.26	16.42

Table 1.7-29 On-Road Truck Emission Factors Without Mitigation - Alternative 4

Project Year/Mode	Speed (mph)	Emission Factors								
		VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2012										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	3.38	6.65	15.01	0.02	0.09	0.08	0.01	0.00	3,845
	10	2.54	5.20	13.01	0.02	0.08	0.08	0.01	0.00	3,492
	15	1.29	3.02	9.80	0.02	0.08	0.07	0.01	0.00	2,867
	20	0.62	1.79	7.65	0.02	0.07	0.06	0.01	0.00	2,353
	25	0.48	1.54	6.63	0.02	0.06	0.06	0.01	0.00	2,110
	30	0.42	1.48	5.99	0.02	0.06	0.06	0.01	0.00	1,981
	35	0.37	1.44	5.45	0.02	0.07	0.06	0.01	0.00	1,873
	40	0.32	1.43	5.02	0.02	0.07	0.07	0.01	0.00	1,788
	45	0.29	1.45	4.70	0.02	0.08	0.07	0.01	0.00	1,724
	50	0.25	1.50	4.50	0.02	0.09	0.08	0.01	0.00	1,683
55	0.23	1.57	4.41	0.02	0.10	0.09	0.01	0.00	1,664	
Composite Efs		0.62	1.92	6.61	0.02	0.08	0.07	0.01	0.00	2,114
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										
Project Year 2015										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	4.34	8.56	17.29	0.02	0.11	0.10	0.01	0.00	3,845
	10	3.26	6.66	14.97	0.02	0.11	0.10	0.01	0.00	3,492
	15	1.66	3.87	11.27	0.02	0.10	0.09	0.01	0.00	2,867
	20	0.79	2.30	8.79	0.02	0.09	0.08	0.01	0.00	2,353
	25	0.62	1.98	7.63	0.02	0.08	0.08	0.01	0.00	2,110
	30	0.54	1.90	6.88	0.02	0.08	0.08	0.01	0.00	1,981
	35	0.47	1.85	6.26	0.02	0.09	0.08	0.01	0.00	1,873
	40	0.41	1.84	5.77	0.02	0.09	0.09	0.01	0.00	1,788
	45	0.37	1.86	5.40	0.02	0.10	0.09	0.01	0.00	1,724
	50	0.33	1.92	5.17	0.02	0.12	0.11	0.01	0.00	1,683
55	0.30	2.02	5.07	0.02	0.13	0.12	0.01	0.00	1,664	
Composite Efs		0.79	2.46	7.60	0.02	0.10	0.09	0.01	0.00	2,114
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-29 On-Road Truck Emission Factors Without Mitigation - Alternative 4

Project Year/Mode	Speed (mph)	Emission Factors								
		VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2020										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	4.81	9.44	16.82	0.02	0.14	0.13	0.01	0.00	3,845
	10	3.61	7.39	14.56	0.02	0.13	0.12	0.01	0.00	3,492
	15	1.83	4.29	10.96	0.02	0.12	0.11	0.01	0.00	2,867
	20	0.88	2.55	8.55	0.02	0.11	0.10	0.01	0.00	2,353
	25	0.69	2.19	7.42	0.02	0.10	0.09	0.01	0.00	2,110
	30	0.60	2.10	6.69	0.02	0.10	0.09	0.01	0.00	1,981
	35	0.52	2.05	6.09	0.02	0.11	0.10	0.01	0.00	1,873
	40	0.46	2.04	5.61	0.02	0.11	0.10	0.01	0.00	1,788
	45	0.40	2.06	5.26	0.02	0.13	0.12	0.01	0.00	1,724
	50	0.36	2.13	5.03	0.02	0.14	0.13	0.01	0.00	1,683
55	0.33	2.23	4.93	0.02	0.16	0.15	0.01	0.00	1,664	
Composite Efs		0.84	2.73	7.14	0.02	0.13	0.12	0.01	0.00	2,070
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										
Project Year 2025										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	3.29	6.53	9.86	0.02	0.13	0.12	0.01	0.00	3,845
	10	2.47	5.11	8.55	0.02	0.13	0.12	0.01	0.00	3,492
	15	1.26	2.96	6.42	0.02	0.11	0.11	0.01	0.00	2,867
	20	0.60	1.77	5.02	0.02	0.10	0.10	0.01	0.00	2,353
	25	0.47	1.52	4.35	0.02	0.10	0.09	0.01	0.00	2,110
	30	0.41	1.45	3.93	0.02	0.10	0.09	0.01	0.00	1,981
	35	0.36	1.42	3.57	0.02	0.10	0.09	0.01	0.00	1,873
	40	0.31	1.41	3.29	0.02	0.11	0.10	0.01	0.00	1,788
	45	0.28	1.43	3.08	0.02	0.12	0.11	0.01	0.00	1,724
	50	0.25	1.47	2.95	0.02	0.13	0.12	0.01	0.00	1,683
55	0.23	1.54	2.89	0.02	0.15	0.14	0.01	0.00	1,664	
Composite Efs		0.57	1.89	4.19	0.02	0.12	0.11	0.01	0.00	2,070
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-29 On-Road Truck Emission Factors Without Mitigation - Alternative 4

Project Year/Mode	Speed (mph)	Emission Factors								
		VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2027										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	3.32	6.61	10.08	0.02	0.13	0.12	0.01	0.00	3,845
	10	2.50	5.16	8.73	0.02	0.13	0.12	0.01	0.00	3,492
	15	1.27	2.99	6.56	0.02	0.12	0.11	0.01	0.00	2,867
	20	0.61	1.78	5.12	0.02	0.11	0.10	0.01	0.00	2,353
	25	0.48	1.53	4.45	0.02	0.10	0.09	0.01	0.00	2,110
	30	0.42	1.47	4.01	0.02	0.10	0.09	0.01	0.00	1,981
	35	0.36	1.43	3.65	0.02	0.10	0.09	0.01	0.00	1,873
	40	0.32	1.42	3.36	0.02	0.11	0.10	0.01	0.00	1,788
	45	0.28	1.44	3.15	0.02	0.12	0.11	0.01	0.00	1,724
	50	0.25	1.49	3.01	0.02	0.14	0.13	0.01	0.00	1,683
55	0.23	1.56	2.96	0.02	0.16	0.14	0.01	0.00	1,664	
Composite Efs		0.58	1.91	4.28	0.02	0.12	0.11	0.01	0.00	2,070
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-30 Annual Truck Emissions without Mitigation - Alternative 4

Location/Project Scenario - Mode	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>On-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	1.0	2.9	16.4	0.0	0.0	0.0	0.0	0.0	798
Year 2012 - Driving	1.8	5.8	19.8	0.1	1.3	0.4	0.0	0.0	6,347
Subtotal	2.9	8.6	36.2	0.1	1.4	0.4	0.0	0.0	7,145
<i>Project Year 2015</i>									
Year 2015 - Idling	1.2	3.4	19.5	0.0	0.0	0.0	0.0	0.0	947
Year 2015 - Driving	3.0	9.4	29.1	0.1	1.8	0.6	0.0	0.0	8,101
Subtotal	4.2	12.8	48.6	0.1	1.8	0.6	0.0	0.0	9,048
<i>Project Year 2020</i>									
Year 2020 - Idling	1.3	3.7	21.4	0.0	0.0	0.0	0.0	0.0	1,038
Year 2020 - Driving	3.5	11.5	30.0	0.1	2.1	0.8	0.0	0.0	8,689
Subtotal	4.9	15.2	51.3	0.1	2.1	0.8	0.0	0.0	9,727
<i>Project Year 2025</i>									
Year 2025 - Idling	1.5	4.0	23.2	0.0	0.0	0.0	0.0	0.0	1,129
Year 2025 - Driving	2.6	8.6	19.1	0.1	2.3	0.8	0.0	0.0	9,448
Subtotal	4.1	12.7	42.4	0.1	2.3	0.8	0.0	0.0	10,577
<i>Project Year 2027</i>									
Year 2027 - Idling	1.5	4.2	24.0	0.0	0.0	0.0	0.0	0.0	1,165
Year 2027 - Driving	2.7	9.0	20.2	0.1	2.3	0.8	0.0	0.0	9,752
Subtotal	4.2	13.2	44.1	0.1	2.3	0.9	0.0	0.0	10,917

Table 1.7-31 Peak Day Truck Emissions without Mitigation - Alternative 4

Location/Project Scenario - Mode	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>On-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	7.8	21.6	124.3	0.1	0.1	0.1	0.0	0.0	6,037.1
Year 2012 - Driving	14.0	43.5	150.0	0.4	10.2	3.0	0.1	0.1	48,017.5
Subtotal	21.7	65.1	274.3	0.5	10.3	3.1	0.1	0.1	54,054.6
<i>Project Year 2015</i>									
Year 2015 - Idling	9.2	25.6	147.5	0.1	0.1	0.1	0.0	0.0	7,167.8
Year 2015 - Driving	22.9	71.3	220.2	0.5	13.7	4.5	0.1	0.1	61,287.4
Subtotal	32.1	96.9	367.7	0.6	13.8	4.6	0.2	0.1	68,455.2
<i>Project Year 2020</i>									
Year 2020 - Idling	10.1	28.1	161.7	0.1	0.1	0.1	0.0	0.0	7,854.1
Year 2020 - Driving	26.6	86.7	226.7	0.6	15.8	5.8	0.2	0.2	65,737.3
Subtotal	36.7	114.8	388.4	0.7	16.0	5.9	0.2	0.2	73,591.4
<i>Project Year 2025</i>									
Year 2025 - Idling	11.0	30.6	175.8	0.1	0.1	0.1	0.0	0.0	8,540.4
Year 2025 - Driving	19.8	65.2	144.6	0.6	17.0	6.1	0.2	0.2	71,481.3
Subtotal	30.8	95.7	320.4	0.7	17.2	6.2	0.2	0.2	80,021.7
<i>Project Year 2027</i>									
Year 2027 - Idling	11.3	31.5	181.4	0.1	0.1	0.1	0.0	0.0	8,814.9
Year 2027 - Driving	20.7	68.0	152.5	0.7	17.6	6.3	0.2	0.2	73,778.8
Subtotal	32.0	99.5	333.9	0.7	17.8	6.4	0.2	0.2	82,593.7

Table 1.7-30 Annual Truck Emissions without Mitigation - Alternative 4

Location/Project Scenario - Mode	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>Off-Terminal Railyard</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	0.3	0.9	5.2	0.0	0.0	0.0	0.0	0.0	255
Year 2012 - Driving	1.9	6.0	20.7	0.1	1.4	0.4	0.0	0.0	6,642
Subtotal	2.3	6.9	26.0	0.1	1.4	0.4	0.0	0.0	6,897
<i>Project Year 2015</i>									
Year 2015 - Idling	0.4	1.1	6.2	0.0	0.0	0.0	0.0	0.0	303
Year 2015 - Driving	2.9	9.2	28.3	0.1	1.8	0.6	0.0	0.0	7,886
Subtotal	3.3	10.3	34.6	0.1	1.8	0.6	0.0	0.0	8,189
<i>Project Year 2020</i>									
Year 2020 - Idling	0.4	1.2	6.8	0.0	0.0	0.0	0.0	0.0	332
Year 2020 - Driving	3.4	11.2	29.2	0.1	2.0	0.7	0.0	0.0	8,459
Subtotal	3.9	12.3	36.0	0.1	2.0	0.7	0.0	0.0	8,790
<i>Project Year 2025</i>									
Year 2025 - Idling	0.5	1.3	7.4	0.0	0.0	0.0	0.0	0.0	361
Year 2025 - Driving	2.5	8.4	18.6	0.1	2.2	0.8	0.0	0.0	9,198
Subtotal	3.0	9.7	26.0	0.1	2.2	0.8	0.0	0.0	9,558
<i>Project Year 2027</i>									
Year 2027 - Idling	0.5	1.3	7.7	0.0	0.0	0.0	0.0	0.0	372
Year 2027 - Driving	2.7	8.7	19.6	0.1	2.3	0.8	0.0	0.0	9,493
Subtotal	3.1	10.1	27.3	0.1	2.3	0.8	0.0	0.0	9,866

Table 1.7-31 Peak Day Truck Emissions without Mitigation - Alternative 4

Location/Project Scenario - Mode	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>Off-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	2.5	6.9	39.7	0.0	0.0	0.0	0.0	0.0	1,929.3
Year 2012 - Driving	14.6	45.5	157.0	0.4	10.6	3.2	0.1	0.1	50,251.3
Subtotal	17.1	52.4	196.7	0.5	10.7	3.2	0.1	0.1	52,180.6
<i>Project Year 2015</i>									
Year 2015 - Idling	2.9	8.2	47.1	0.0	0.0	0.0	0.0	0.0	2,290.7
Year 2015 - Driving	22.3	69.4	214.4	0.5	13.3	4.4	0.1	0.1	59,663.6
Subtotal	25.2	77.6	261.5	0.5	13.3	4.4	0.1	0.1	61,954.3
<i>Project Year 2020</i>									
Year 2020 - Idling	3.2	9.0	51.7	0.0	0.0	0.0	0.0	0.0	2,510.0
Year 2020 - Driving	25.9	84.4	220.7	0.6	15.4	5.6	0.2	0.1	63,995.7
Subtotal	29.1	93.4	272.4	0.6	15.5	5.6	0.2	0.2	66,505.7
<i>Project Year 2025</i>									
Year 2025 - Idling	3.5	9.8	56.2	0.0	0.0	0.0	0.0	0.0	2,729.3
Year 2025 - Driving	19.3	63.4	140.8	0.6	16.6	5.9	0.2	0.2	69,587.5
Subtotal	22.8	73.2	197.0	0.6	16.6	5.9	0.2	0.2	72,316.8
<i>Project Year 2027</i>									
Year 2027 - Idling	3.6	10.1	58.0	0.0	0.0	0.0	0.0	0.0	2,817.1
Year 2027 - Driving	20.1	66.2	148.5	0.6	17.2	6.2	0.2	0.2	71,824.1
Subtotal	23.7	76.3	206.5	0.7	17.2	6.2	0.2	0.2	74,641.2

Table 1.7-30 Annual Truck Emissions without Mitigation - Alternative 4

Location/Project Scenario - Mode	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>Local Community</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	1.5	4.2	24.3	0.0	0.0	0.0	0.0	0.0	1,182
Year 2012 - Driving	14.6	45.6	157.2	0.4	10.6	3.2	0.1	0.1	50,310
Subtotal	16.2	49.8	181.5	0.4	10.7	3.2	0.1	0.1	51,493
<i>Project Year 2015</i>									
Year 2015 - Idling	1.8	5.0	28.9	0.0	0.0	0.0	0.0	0.0	1,404
Year 2015 - Driving	22.3	69.5	214.6	0.5	13.3	4.4	0.1	0.1	59,734
Subtotal	24.1	74.5	243.5	0.5	13.3	4.4	0.1	0.1	61,137
<i>Project Year 2020</i>									
Year 2020 - Idling	2.0	5.5	31.7	0.0	0.0	0.0	0.0	0.0	1,538
Year 2020 - Driving	25.9	84.5	221.0	0.6	15.4	5.6	0.2	0.1	64,071
Subtotal	27.9	90.0	252.6	0.6	15.5	5.6	0.2	0.2	65,609
<i>Project Year 2025</i>									
Year 2025 - Idling	2.2	6.0	34.4	0.0	0.0	0.0	0.0	0.0	1,673
Year 2025 - Driving	19.3	63.5	141.0	0.6	16.6	5.9	0.2	0.2	69,669
Subtotal	21.5	69.5	175.4	0.6	16.6	5.9	0.2	0.2	71,342
<i>Project Year 2027</i>									
Year 2027 - Idling	2.2	6.2	35.5	0.0	0.0	0.0	0.0	0.0	1,726
Year 2027 - Driving	20.1	66.3	148.7	0.6	17.2	6.2	0.2	0.2	71,908
Subtotal	22.4	72.4	184.2	0.7	17.2	6.2	0.2	0.2	73,635

Table 1.7-31 Peak Day Truck Emissions without Mitigation - Alternative 4

Location/Project Scenario - Mode	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>Local Community</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	11.5	32.0	184.1	0.1	0.1	0.1	0.0	0.0	8,945.6
Year 2012 - Driving	110.7	344.9	1,189.1	3.3	80.5	24.0	0.9	0.9	380,638.3
Subtotal	122.2	376.9	1,373.2	3.4	80.7	24.2	0.9	0.9	389,584.0
<i>Project Year 2015</i>									
Year 2015 - Idling	13.7	38.0	218.6	0.1	0.2	0.2	0.0	0.0	10,621.2
Year 2015 - Driving	168.9	525.7	1,623.7	3.9	100.7	33.2	1.1	1.0	451,934.1
Subtotal	182.5	563.7	1,842.3	4.0	100.8	33.4	1.1	1.0	462,555.2
<i>Project Year 2020</i>									
Year 2020 - Idling	15.0	41.6	239.5	0.1	0.2	0.2	0.0	0.0	11,638.1
Year 2020 - Driving	196.3	639.4	1,671.8	4.3	116.9	42.4	1.2	1.1	484,748.0
Subtotal	211.2	681.0	1,911.4	4.4	117.1	42.6	1.2	1.1	496,386.1
<i>Project Year 2025</i>									
Year 2025 - Idling	16.3	45.3	260.5	0.1	0.2	0.2	0.0	0.0	12,655.0
Year 2025 - Driving	146.1	480.5	1,066.6	4.7	125.5	44.7	1.3	1.2	527,104.4
Subtotal	162.4	525.7	1,327.1	4.8	125.7	44.9	1.3	1.2	539,759.4
<i>Project Year 2027</i>									
Year 2027 - Idling	16.8	46.7	268.8	0.1	0.2	0.2	0.0	0.0	13,061.8
Year 2027 - Driving	152.4	501.3	1,124.7	4.8	130.1	46.6	1.3	1.3	544,046.4
Subtotal	169.2	548.1	1,393.5	4.9	130.3	46.8	1.4	1.3	557,108.2

Table 1.7-32 Driving Speed Distribution per Off-site Trip

Study Year	Off-site Trip		
	10 MPH	25 MPH	55 MPH
2008	0.1	0.6	0.3
2012	0.1	0.6	0.3
2015	0.1	0.6	0.3
2020	0.1	0.5	0.4
2025	0.1	0.5	0.4
2027	0.1	0.5	0.4

(1) Source: Iteris 2010.

g/mi	
PM10	0.370000
PM2.5	0.062476

Table 1.7-33 On-Road Truck Operational & Road Dust Data - Alternative 5

Activity/Project Scenario	Idling Time/ Trip (Hrs)	Miles/ Trip	Idling Hrs/ Year	Miles/ Year	Idling Hrs/ Peakday	Miles/ Peakday
<i>On-Terminal</i> Corrected on-dock Idling Time for One-Way Trips (8/24/10, 8:09 am J. Pehrson)						
2012	0.09	1.60	156,011	2,723,104	590	10,301
2015	0.09	1.72	221,166	4,149,878	837	15,699
2020	0.09	1.72	238,355	4,472,413	902	16,919
2025	0.09	1.72	263,924	4,952,172	998	18,734
2027	0.09	1.72	275,289	5,165,430	1,041	19,540
<i>Near-Dock (Off-terminal railyard)</i>						
2012	0.16	9.05	49,858	2,849,780	189	10,780
2015	0.16	9.05	70,680	4,039,931	267	15,283
2020	0.16	9.05	76,174	4,353,920	288	16,470
2025	0.16	9.05	96,989	5,543,708	367	20,971
2027	0.16	9.05	107,397	6,138,614	406	23,222
<i>Local Truck Trip (non-railyard off-terminal)</i>						
2012	0.17	15.56	231,175	21,586,230	875	81,659
2015	0.17	15.56	327,720	30,601,272	1,240	115,762
2020	0.17	15.56	353,191	32,979,646	1,336	124,759
2025	0.17	15.38	377,768	34,862,401	1,429	131,881
2027	0.17	15.29	387,476	35,558,629	1,466	134,515

Driving Area	Year	(t/y)		Road Fugitive Dust (lb/d)	
		PM10	PM2.5	PM10	PM2.5
On-Terminal	2012	1.11	0.19	8.40	1.42
	2015	1.69	0.29	12.81	2.16
	2020	1.82	0.31	13.80	2.33
	2025	2.02	0.34	15.28	2.58
	2027	2.11	0.36	15.94	2.69
Off-Terminal Railyard	2012	1.16	0.20	8.79	1.48
	2015	1.65	0.28	12.47	2.10
	2020	1.78	0.30	13.43	2.27
	2025	2.26	0.38	17.11	2.89
	2027	2.50	0.42	18.94	3.20
Local Community	2012	8.80	1.49	66.61	11.25
	2015	12.48	2.11	94.43	15.94
	2020	13.45	2.27	101.77	17.18
	2025	14.22	2.40	107.57	18.16
	2027	14.50	2.45	109.72	18.53

Table 1.7-34 On-Road Truck Emission Factors Without Mitigation - Alternative 5

Project Year/Mode	Speed (mph)	Emission Factors								
		VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2012										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	3.38	6.65	15.01	0.02	0.09	0.08	0.01	0.00	3,845.34
	10	2.54	5.20	13.01	0.02	0.08	0.08	0.01	0.00	3,491.58
	15	1.29	3.02	9.80	0.02	0.08	0.07	0.01	0.00	2,866.88
	20	0.62	1.79	7.65	0.02	0.07	0.06	0.01	0.00	2,352.61
	25	0.48	1.54	6.63	0.02	0.06	0.06	0.01	0.00	2,110.16
	30	0.42	1.48	5.99	0.02	0.06	0.06	0.01	0.00	1,980.69
	35	0.37	1.44	5.45	0.02	0.07	0.06	0.01	0.00	1,873.26
	40	0.32	1.43	5.02	0.02	0.07	0.07	0.01	0.00	1,787.84
	45	0.29	1.45	4.70	0.02	0.08	0.07	0.01	0.00	1,724.46
	50	0.25	1.50	4.50	0.02	0.09	0.08	0.01	0.00	1,683.09
55	0.23	1.57	4.41	0.02	0.10	0.09	0.01	0.00	1,663.75	
Composite Efs		0.62	1.92	6.61	0.02	0.08	0.07	0.01	0.00	2,114.38
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										
Project Year 2015										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	4.34	8.56	17.29	0.02	0.11	0.10	0.01	0.00	3,845.34
	10	3.26	6.66	14.97	0.02	0.11	0.10	0.01	0.00	3,491.58
	15	1.66	3.87	11.27	0.02	0.10	0.09	0.01	0.00	2,866.89
	20	0.79	2.30	8.79	0.02	0.09	0.08	0.01	0.00	2,352.61
	25	0.62	1.98	7.63	0.02	0.08	0.08	0.01	0.00	2,110.16
	30	0.54	1.90	6.88	0.02	0.08	0.08	0.01	0.00	1,980.70
	35	0.47	1.85	6.26	0.02	0.09	0.08	0.01	0.00	1,873.26
	40	0.41	1.84	5.77	0.02	0.09	0.09	0.01	0.00	1,787.85
	45	0.37	1.86	5.40	0.02	0.10	0.09	0.01	0.00	1,724.46
	50	0.33	1.92	5.17	0.02	0.12	0.11	0.01	0.00	1,683.09
55	0.30	2.02	5.07	0.02	0.13	0.12	0.01	0.00	1,663.76	
Composite Efs		0.79	2.46	7.60	0.02	0.10	0.09	0.01	0.00	2,114.38
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-34 On-Road Truck Emission Factors Without Mitigation - Alternative 5

Project Year/Mode	Speed	Emission Factors								
	(mph)	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2020										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	4.81	9.44	16.82	0.02	0.14	0.13	0.01	0.00	3,845.34
	10	3.61	7.39	14.56	0.02	0.13	0.12	0.01	0.00	3,491.58
	15	1.83	4.29	10.96	0.02	0.12	0.11	0.01	0.00	2,866.88
	20	0.88	2.55	8.55	0.02	0.11	0.10	0.01	0.00	2,352.61
	25	0.69	2.19	7.42	0.02	0.10	0.09	0.01	0.00	2,110.16
	30	0.60	2.10	6.69	0.02	0.10	0.09	0.01	0.00	1,980.70
	35	0.52	2.05	6.09	0.02	0.11	0.10	0.01	0.00	1,873.26
	40	0.46	2.04	5.61	0.02	0.11	0.10	0.01	0.00	1,787.85
	45	0.40	2.06	5.26	0.02	0.13	0.12	0.01	0.00	1,724.46
	50	0.36	2.13	5.03	0.02	0.14	0.13	0.01	0.00	1,683.09
55	0.33	2.23	4.93	0.02	0.16	0.15	0.01	0.00	1,663.75	
Composite Efs		0.84	2.73	7.14	0.02	0.13	0.12	0.01	0.00	2,069.74
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										
Project Year 2025										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	3.29	6.53	9.86	0.02	0.13	0.12	0.01	0.00	3,845.34
	10	2.47	5.11	8.55	0.02	0.13	0.12	0.01	0.00	3,491.59
	15	1.26	2.96	6.42	0.02	0.11	0.11	0.01	0.00	2,866.89
	20	0.60	1.77	5.02	0.02	0.10	0.10	0.01	0.00	2,352.61
	25	0.47	1.52	4.35	0.02	0.10	0.09	0.01	0.00	2,110.16
	30	0.41	1.45	3.93	0.02	0.10	0.09	0.01	0.00	1,980.70
	35	0.36	1.42	3.57	0.02	0.10	0.09	0.01	0.00	1,873.26
	40	0.31	1.41	3.29	0.02	0.11	0.10	0.01	0.00	1,787.85
	45	0.28	1.43	3.08	0.02	0.12	0.11	0.01	0.00	1,724.46
	50	0.25	1.47	2.95	0.02	0.13	0.12	0.01	0.00	1,683.09
55	0.23	1.54	2.89	0.02	0.15	0.14	0.01	0.00	1,663.76	
Composite Efs		0.57	1.89	4.19	0.02	0.12	0.11	0.01	0.00	2,069.74
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-34 On-Road Truck Emission Factors Without Mitigation - Alternative 5

Project Year/Mode	Speed	Emission Factors								
	(mph)	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2027										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640.00
On-road Diesel Truck Transport (Grams/Mile)	5	3.32	6.61	10.08	0.02	0.13	0.12	0.01	0.00	3,845.34
	10	2.50	5.16	8.73	0.02	0.13	0.12	0.01	0.00	3,491.58
	15	1.27	2.99	6.56	0.02	0.12	0.11	0.01	0.00	2,866.88
	20	0.61	1.78	5.12	0.02	0.11	0.10	0.01	0.00	2,352.61
	25	0.48	1.53	4.45	0.02	0.10	0.09	0.01	0.00	2,110.16
	30	0.42	1.47	4.01	0.02	0.10	0.09	0.01	0.00	1,980.70
	35	0.36	1.43	3.65	0.02	0.10	0.09	0.01	0.00	1,873.26
	40	0.32	1.42	3.36	0.02	0.11	0.10	0.01	0.00	1,787.85
	45	0.28	1.44	3.15	0.02	0.12	0.11	0.01	0.00	1,724.46
	50	0.25	1.49	3.01	0.02	0.14	0.13	0.01	0.00	1,683.09
55	0.23	1.56	2.96	0.02	0.16	0.14	0.01	0.00	1,663.75	
Composite Efs		0.58	1.91	4.28	0.02	0.12	0.11	0.01	0.00	2,069.74
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-35 Annual Truck Emissions without Mitigation - Alternative 5

Location/Project Scenario - Mode	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>On-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	1.0	2.9	16.4	0.0	0.0	0.0	0.0	0.0	797.9
Year 2012 - Driving	1.8	5.8	19.8	0.1	1.3	0.4	0.0	0.0	6,346.6
Subtotal	2.9	8.6	36.2	0.1	1.4	0.4	0.0	0.0	7,144.6
<i>Project Year 2015</i>									
Year 2015 - Idling	1.5	4.0	23.3	0.0	0.0	0.0	0.0	0.0	1,131.2
Year 2015 - Driving	3.6	11.3	34.7	0.1	2.2	0.7	0.0	0.0	9,672.0
Subtotal	5.1	15.3	58.0	0.1	2.2	0.7	0.0	0.0	10,803.2
<i>Project Year 2020</i>									
Year 2020 - Idling	1.6	4.4	25.1	0.0	0.0	0.0	0.0	0.0	1,219.1
Year 2020 - Driving	4.1	13.5	35.2	0.1	2.5	0.9	0.0	0.0	10,203.6
Subtotal	5.7	17.8	60.3	0.1	2.5	0.9	0.0	0.0	11,422.7
<i>Project Year 2025</i>									
Year 2025 - Idling	1.7	4.8	27.8	0.0	0.0	0.0	0.0	0.0	1,349.9
Year 2025 - Driving	3.1	10.3	22.9	0.1	2.7	1.0	0.0	0.0	11,298.2
Subtotal	4.9	15.1	50.6	0.1	2.7	1.0	0.0	0.0	12,648.1
<i>Project Year 2027</i>									
Year 2027 - Idling	1.8	5.0	29.0	0.0	0.0	0.0	0.0	0.0	1,408.0
Year 2027 - Driving	3.3	10.9	24.4	0.1	2.8	1.0	0.0	0.0	11,784.7
Subtotal	5.1	15.9	53.3	0.1	2.8	1.0	0.0	0.0	13,192.7

Table 1.7-36 Peak Day Truck Emissions without Mitigation - Alternative 5

Location/Project Scenario - Mode	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>On-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	7.8	21.6	124.3	0.1	0.1	0.1	0.0	0.0	6,037.1
Year 2012 - Driving	14.0	43.5	150.0	0.4	10.2	3.0	0.1	0.1	48,017.5
Subtotal	21.7	65.1	274.3	0.5	10.3	3.1	0.1	0.1	54,054.6
<i>Project Year 2015</i>									
Year 2015 - Idling	11.0	30.6	176.1	0.1	0.1	0.1	0.0	0.0	8,558.3
Year 2015 - Driving	27.3	85.1	262.9	0.6	16.3	5.4	0.2	0.2	73,176.5
Subtotal	38.4	115.7	439.0	0.7	16.4	5.5	0.2	0.2	81,734.9
<i>Project Year 2020</i>									
Year 2020 - Idling	11.9	33.0	189.8	0.1	0.1	0.1	0.0	0.0	9,223.5
Year 2020 - Driving	31.3	101.8	266.2	0.7	18.6	6.8	0.2	0.2	77,198.7
Subtotal	43.1	134.8	456.1	0.8	18.8	6.9	0.2	0.2	86,422.2
<i>Project Year 2025</i>									
Year 2025 - Idling	13.1	36.5	210.2	0.1	0.2	0.1	0.0	0.0	10,212.9
Year 2025 - Driving	23.7	77.9	173.0	0.8	20.4	7.3	0.2	0.2	85,479.9
Subtotal	36.8	114.5	383.2	0.8	20.5	7.4	0.2	0.2	95,692.8
<i>Project Year 2027</i>									
Year 2027 - Idling	13.7	38.1	219.3	0.1	0.2	0.2	0.0	0.0	10,652.7
Year 2027 - Driving	25.0	82.2	184.3	0.8	21.3	7.6	0.2	0.2	89,161.0
Subtotal	38.7	120.3	403.6	0.9	21.5	7.8	0.2	0.2	99,813.7

Table 1.7-35 Annual Truck Emissions without Mitigation - Alternative 5

Location/Project Scenario - Mode	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>Off-Terminal Railyard</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	0.3	0.9	5.2	0.0	0.0	0.0	0.0	0.0	255.0
Year 2012 - Driving	1.9	6.0	20.7	0.1	1.4	0.4	0.0	0.0	6,641.9
Subtotal	2.3	6.9	26.0	0.1	1.4	0.4	0.0	0.0	6,896.9
<i>Project Year 2015</i>									
Year 2015 - Idling	0.5	1.3	7.4	0.0	0.0	0.0	0.0	0.0	361.5
Year 2015 - Driving	3.5	11.0	33.8	0.1	2.1	0.7	0.0	0.0	9,415.7
Subtotal	4.0	12.2	41.3	0.1	2.1	0.7	0.0	0.0	9,777.2
<i>Project Year 2020</i>									
Year 2020 - Idling	0.5	1.4	8.0	0.0	0.0	0.0	0.0	0.0	389.6
Year 2020 - Driving	4.0	13.1	34.3	0.1	2.4	0.9	0.0	0.0	9,933.3
Subtotal	4.5	14.5	42.3	0.1	2.4	0.9	0.0	0.0	10,322.9
<i>Project Year 2025</i>									
Year 2025 - Idling	0.6	1.8	10.2	0.0	0.0	0.0	0.0	0.0	496.1
Year 2025 - Driving	3.5	11.5	25.6	0.1	3.0	1.1	0.0	0.0	12,647.7
Subtotal	4.1	13.3	35.8	0.1	3.0	1.1	0.0	0.0	13,143.8
<i>Project Year 2027</i>									
Year 2027 - Idling	0.7	2.0	11.3	0.0	0.0	0.0	0.0	0.0	549.3
Year 2027 - Driving	3.9	12.9	29.0	0.1	3.3	1.2	0.0	0.0	14,005.0
Subtotal	4.6	14.9	40.3	0.1	3.4	1.2	0.0	0.0	14,554.3

Table 1.7-36 Peak Day Truck Emissions without Mitigation - Alternative 5

Location/Project Scenario - Mode	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>Off-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	2.5	6.9	39.7	0.0	0.0	0.0	0.0	0.0	1,929.3
Year 2012 - Driving	14.6	45.5	157.0	0.4	10.6	3.2	0.1	0.1	50,251.3
Subtotal	17.1	52.4	196.7	0.5	10.7	3.2	0.1	0.1	52,180.6
<i>Project Year 2015</i>									
Year 2015 - Idling	3.5	9.8	56.3	0.0	0.0	0.0	0.0	0.0	2,735.1
Year 2015 - Driving	26.6	82.9	255.9	0.6	15.9	5.2	0.2	0.2	71,237.8
Subtotal	30.1	92.7	312.2	0.6	15.9	5.3	0.2	0.2	73,972.8
<i>Project Year 2020</i>									
Year 2020 - Idling	3.8	10.5	60.7	0.0	0.0	0.0	0.0	0.0	2,947.6
Year 2020 - Driving	30.4	99.1	259.2	0.7	18.1	6.6	0.2	0.2	75,153.4
Subtotal	34.2	109.7	319.9	0.7	18.2	6.6	0.2	0.2	78,101.0
<i>Project Year 2025</i>									
Year 2025 - Idling	4.8	13.4	77.2	0.0	0.1	0.1	0.0	0.0	3,753.1
Year 2025 - Driving	26.5	87.2	193.6	0.8	22.8	8.1	0.2	0.2	95,690.4
Subtotal	31.4	100.6	270.9	0.9	22.8	8.2	0.2	0.2	99,443.6
<i>Project Year 2027</i>									
Year 2027 - Idling	5.3	14.9	85.5	0.0	0.1	0.1	0.0	0.0	4,155.9
Year 2027 - Driving	29.7	97.6	219.0	0.9	25.3	9.1	0.3	0.2	105,959.2
Subtotal	35.0	112.5	304.6	1.0	25.4	9.1	0.3	0.3	110,115.1

Table 1.7-35 Annual Truck Emissions without Mitigation - Alternative 5

Location/Project Scenario - Mode	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>Local Community</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	1.5	4.2	24.3	0.0	0.0	0.0	0.0	0.0	1,182.4
Year 2012 - Driving	14.6	45.6	157.2	0.4	10.6	3.2	0.1	0.1	50,310.2
Subtotal	16.2	49.8	181.5	0.4	10.7	3.2	0.1	0.1	51,492.6
<i>Project Year 2015</i>									
Year 2015 - Idling	2.2	6.0	34.5	0.0	0.0	0.0	0.0	0.0	1,676.2
Year 2015 - Driving	26.6	83.0	256.2	0.6	15.9	5.2	0.2	0.2	71,321.4
Subtotal	28.8	89.0	290.7	0.6	15.9	5.3	0.2	0.2	72,997.6
<i>Project Year 2020</i>									
Year 2020 - Idling	2.3	6.5	37.2	0.0	0.0	0.0	0.0	0.0	1,806.4
Year 2020 - Driving	30.5	99.2	259.5	0.7	18.1	6.6	0.2	0.2	75,241.7
Subtotal	32.8	105.7	296.7	0.7	18.2	6.6	0.2	0.2	77,048.1
<i>Project Year 2025</i>									
Year 2025 - Idling	2.5	6.9	39.8	0.0	0.0	0.0	0.0	0.0	1,932.1
Year 2025 - Driving	22.0	72.5	161.0	0.7	18.9	6.7	0.2	0.2	79,537.2
Subtotal	24.5	79.4	200.7	0.7	19.0	6.8	0.2	0.2	81,469.3
<i>Project Year 2027</i>									
Year 2027 - Idling	2.5	7.1	40.8	0.0	0.0	0.0	0.0	0.0	1,981.8
Year 2027 - Driving	22.7	74.8	167.7	0.7	19.4	7.0	0.2	0.2	81,125.5
Subtotal	25.3	81.8	208.5	0.7	19.4	7.0	0.2	0.2	83,107.3

Table 1.7-36 Peak Day Truck Emissions without Mitigation - Alternative 5

Location/Project Scenario - Mode	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>Local Community</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	11.5	32.0	184.1	0.1	0.1	0.1	0.0	0.0	8,945.6
Year 2012 - Driving	110.7	344.9	1,189.1	3.3	80.5	24.0	0.9	0.9	380,638.3
Subtotal	122.2	376.9	1,373.2	3.4	80.7	24.2	0.9	0.9	389,584.0
<i>Project Year 2015</i>									
Year 2015 - Idling	16.3	45.4	261.0	0.1	0.2	0.2	0.0	0.0	12,681.6
Year 2015 - Driving	201.6	627.7	1,938.6	4.7	120.2	39.7	1.3	1.2	539,604.9
Subtotal	217.9	673.1	2,199.6	4.8	120.4	39.8	1.3	1.2	552,286.5
<i>Project Year 2020</i>									
Year 2020 - Idling	17.6	48.9	281.3	0.1	0.2	0.2	0.0	0.0	13,667.2
Year 2020 - Driving	230.5	750.8	1,963.3	5.0	137.2	49.8	1.4	1.3	569,264.5
Subtotal	248.1	799.7	2,244.6	5.2	137.5	50.0	1.4	1.3	582,931.7
<i>Project Year 2025</i>									
Year 2025 - Idling	18.8	52.3	300.9	0.1	0.2	0.2	0.0	0.0	14,618.2
Year 2025 - Driving	166.8	548.5	1,217.7	5.3	143.3	51.1	1.5	1.4	601,762.9
Subtotal	185.6	600.8	1,518.6	5.5	143.5	51.3	1.5	1.4	616,381.2
<i>Project Year 2027</i>									
Year 2027 - Idling	19.3	53.6	308.6	0.1	0.2	0.2	0.0	0.0	14,993.9
Year 2027 - Driving	171.9	565.6	1,268.8	5.4	146.7	52.6	1.5	1.4	613,781.0
Subtotal	191.2	619.2	1,577.4	5.6	147.0	52.8	1.5	1.4	628,775.0

Table 1.7-37 Driving Speed Distribution per Off-site Trip

Study Year	Off-site Trip		
	10 MPH	25 MPH	55 MPH
2008	0.1	0.6	0.3
2012	0.1	0.6	0.3
2015	0.1	0.6	0.3
2020	0.1	0.5	0.4
2025	0.1	0.5	0.4
2027	0.1	0.5	0.4

(1) Source: Iteris 2010.

Paved Road Dust, g/mi	
PM10	0.370000
PM2.5	0.062476

Table 1.7-38 On-Road Truck Operational & Road Dust Data - Alternative 6

Activity/Project Scenario	Idling Time/ Trip (Hrs)	Miles/ Trip	Idling Hrs/ Year	Miles/ Year	Idling Hrs/ Peakday	Miles/ Peakday
<i>On-Terminal</i>						
Corrected on-dock Idling Time for One-Way Trips (8/24/10, 8:09 am J. Pehrson)						
2012	0.09	1.60	156,011	2,723,104	590	10,301
2015	0.09	1.70	221,166	4,101,624	837	15,516
2020	0.09	1.70	238,355	4,420,408	902	16,722
2025	0.09	1.70	255,545	4,739,192	967	17,928
2027	0.09	1.70	262,420	4,866,692	993	18,410
<i>Near-Dock (Off-terminal railyard)</i>						
2012	0.16	9.05	49,858	2,849,780	189	10,780
2015	0.16	9.05	70,680	4,039,931	267	15,283
2020	0.16	9.05	76,174	4,353,920	288	16,470
2025	0.16	9.05	81,667	4,667,910	309	17,658
2027	0.16	9.05	83,864	4,793,492	317	18,133
<i>Local Truck Trip (non-railyard off-terminal)</i>						
2012	0.17	15.56	231,175	21,586,230	875	81,659
2015	0.17	15.56	327,720	30,601,272	1,240	115,762
2020	0.17	15.56	353,191	32,979,646	1,336	124,759
2025	0.17	15.56	378,661	35,358,020	1,432	133,756
2027	0.17	15.56	388,849	36,309,268	1,471	137,355

Driving Area	Year	(t/y)		Road Fugitive Dust (lb/d)	
		PM10	PM2.5	PM10	PM2.5
On-Terminal	2012	1.11	0.19	8.40	1.42
	2015	1.67	0.28	12.66	2.14
	2020	1.80	0.30	13.64	2.30
	2025	1.93	0.33	14.62	2.47
	2027	1.98	0.34	15.02	2.54
Off-Terminal Railyard	2012	1.16	0.20	8.79	1.48
	2015	1.65	0.28	12.47	2.10
	2020	1.78	0.30	13.43	2.27
	2025	1.90	0.32	14.40	2.43
	2027	1.96	0.33	14.79	2.50
Local Community	2012	8.80	1.49	66.61	11.25
	2015	12.48	2.11	94.43	15.94
	2020	13.45	2.27	101.77	17.18
	2025	14.42	2.43	109.10	18.42
	2027	14.81	2.50	112.04	18.92

Table 1.7-39 On-Road Truck Emission Factors Without Mitigation - Alternative 6

Project Year/Mode	Speed (mph)	Emission Factors								
		VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2012										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	3.38	6.65	15.01	0.02	0.09	0.08	0.01	0.00	3,845
	10	2.54	5.20	13.01	0.02	0.08	0.08	0.01	0.00	3,492
	15	1.29	3.02	9.80	0.02	0.08	0.07	0.01	0.00	2,867
	20	0.62	1.79	7.65	0.02	0.07	0.06	0.01	0.00	2,353
	25	0.48	1.54	6.63	0.02	0.06	0.06	0.01	0.00	2,110
	30	0.42	1.48	5.99	0.02	0.06	0.06	0.01	0.00	1,981
	35	0.37	1.44	5.45	0.02	0.07	0.06	0.01	0.00	1,873
	40	0.32	1.43	5.02	0.02	0.07	0.07	0.01	0.00	1,788
	45	0.29	1.45	4.70	0.02	0.08	0.07	0.01	0.00	1,724
	50	0.25	1.50	4.50	0.02	0.09	0.08	0.01	0.00	1,683
55	0.23	1.57	4.41	0.02	0.10	0.09	0.01	0.00	1,664	
Composite Efs		0.62	1.92	6.61	0.02	0.08	0.07	0.01	0.00	2,114
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										
Project Year 2015										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	4.34	8.56	17.29	0.02	0.11	0.10	0.01	0.00	3,845
	10	3.26	6.66	14.97	0.02	0.11	0.10	0.01	0.00	3,492
	15	1.66	3.87	11.27	0.02	0.10	0.09	0.01	0.00	2,867
	20	0.79	2.30	8.79	0.02	0.09	0.08	0.01	0.00	2,353
	25	0.62	1.98	7.63	0.02	0.08	0.08	0.01	0.00	2,110
	30	0.54	1.90	6.88	0.02	0.08	0.08	0.01	0.00	1,981
	35	0.47	1.85	6.26	0.02	0.09	0.08	0.01	0.00	1,873
	40	0.41	1.84	5.77	0.02	0.09	0.09	0.01	0.00	1,788
	45	0.37	1.86	5.40	0.02	0.10	0.09	0.01	0.00	1,724
	50	0.33	1.92	5.17	0.02	0.12	0.11	0.01	0.00	1,683
55	0.30	2.02	5.07	0.02	0.13	0.12	0.01	0.00	1,664	
Composite Efs		0.79	2.46	7.60	0.02	0.10	0.09	0.01	0.00	2,114
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-39 On-Road Truck Emission Factors Without Mitigation - Alternative 6

Project Year/Mode	Speed	Emission Factors									
	(mph)	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2	
Project Year 2020											
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640	
On-road Diesel Truck Transport (Grams/Mile)	5	4.81	9.44	16.82	0.02	0.14	0.13	0.01	0.00	3,845	
	10	3.61	7.39	14.56	0.02	0.13	0.12	0.01	0.00	3,492	
	15	1.83	4.29	10.96	0.02	0.12	0.11	0.01	0.00	2,867	
	20	0.88	2.55	8.55	0.02	0.11	0.10	0.01	0.00	2,353	
	25	0.69	2.19	7.42	0.02	0.10	0.09	0.01	0.00	2,110	
	30	0.60	2.10	6.69	0.02	0.10	0.09	0.01	0.00	1,981	
	35	0.52	2.05	6.09	0.02	0.11	0.10	0.01	0.00	1,873	
	40	0.46	2.04	5.61	0.02	0.11	0.10	0.01	0.00	1,788	
	45	0.40	2.06	5.26	0.02	0.13	0.12	0.01	0.00	1,724	
	50	0.36	2.13	5.03	0.02	0.14	0.13	0.01	0.00	1,683	
55	0.33	2.23	4.93	0.02	0.16	0.15	0.01	0.00	1,664		
Composite Efs		0.84	2.73	7.14	0.02	0.13	0.12	0.01	0.00	2,070	
LNG Trucks - Driving											
LNG Trucks - Idling (g/hr)											
Project Year 2025											
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640	
On-road Diesel Truck Transport (Grams/Mile)	5	3.29	6.53	9.86	0.02	0.13	0.12	0.01	0.00	3,845	
	10	2.47	5.11	8.55	0.02	0.13	0.12	0.01	0.00	3,492	
	15	1.26	2.96	6.42	0.02	0.11	0.11	0.01	0.00	2,867	
	20	0.60	1.77	5.02	0.02	0.10	0.10	0.01	0.00	2,353	
	25	0.47	1.52	4.35	0.02	0.10	0.09	0.01	0.00	2,110	
	30	0.41	1.45	3.93	0.02	0.10	0.09	0.01	0.00	1,981	
	35	0.36	1.42	3.57	0.02	0.10	0.09	0.01	0.00	1,873	
	40	0.31	1.41	3.29	0.02	0.11	0.10	0.01	0.00	1,788	
	45	0.28	1.43	3.08	0.02	0.12	0.11	0.01	0.00	1,724	
	50	0.25	1.47	2.95	0.02	0.13	0.12	0.01	0.00	1,683	
55	0.23	1.54	2.89	0.02	0.15	0.14	0.01	0.00	1,664		
Composite Efs		0.57	1.89	4.19	0.02	0.12	0.11	0.01	0.00	2,070	
LNG Trucks - Driving											
LNG Trucks - Idling (g/hr)											

Table 1.7-39 On-Road Truck Emission Factors Without Mitigation - Alternative 6

Project Year/Mode	Speed	Emission Factors								
	(mph)	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Project Year 2027										
On-road Diesel Truck - Idle (g/hr)	0	5.97	16.60	95.50	0.04	0.07	0.07	0.01	0.00	4,640
On-road Diesel Truck Transport (Grams/Mile)	5	3.32	6.61	10.08	0.02	0.13	0.12	0.01	0.00	3,845
	10	2.50	5.16	8.73	0.02	0.13	0.12	0.01	0.00	3,492
	15	1.27	2.99	6.56	0.02	0.12	0.11	0.01	0.00	2,867
	20	0.61	1.78	5.12	0.02	0.11	0.10	0.01	0.00	2,353
	25	0.48	1.53	4.45	0.02	0.10	0.09	0.01	0.00	2,110
	30	0.42	1.47	4.01	0.02	0.10	0.09	0.01	0.00	1,981
	35	0.36	1.43	3.65	0.02	0.10	0.09	0.01	0.00	1,873
	40	0.32	1.42	3.36	0.02	0.11	0.10	0.01	0.00	1,788
	45	0.28	1.44	3.15	0.02	0.12	0.11	0.01	0.00	1,724
	50	0.25	1.49	3.01	0.02	0.14	0.13	0.01	0.00	1,683
55	0.23	1.56	2.96	0.02	0.16	0.14	0.01	0.00	1,664	
Composite Efs		0.58	1.91	4.28	0.02	0.12	0.11	0.01	0.00	2,070
LNG Trucks - Driving										
LNG Trucks - Idling (g/hr)										

Table 1.7-40 Annual Truck Emissions without Mitigation - Alternative 6

Location/Project Scenario	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>On-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	1.0	2.9	16.4	0.0	0.0	0.0	0.0	0.0	797.9
Year 2012 - Driving	1.8	5.8	19.8	0.1	1.3	0.4	0.0	0.0	6,346.6
Subtotal	2.9	8.6	36.2	0.1	1.4	0.4	0.0	0.0	7,144.6
<i>Project Year 2015</i>									
Year 2015 - Idling	1.5	4.0	23.3	0.0	0.0	0.0	0.0	0.0	1,131.2
Year 2015 - Driving	3.6	11.1	34.3	0.1	2.1	0.7	0.0	0.0	9,559.5
Subtotal	5.0	15.2	57.6	0.1	2.1	0.7	0.0	0.0	10,690.7
<i>Project Year 2020</i>									
Year 2020 - Idling	1.6	4.4	25.1	0.0	0.0	0.0	0.0	0.0	1,219.1
Year 2020 - Driving	4.1	13.3	34.8	0.1	2.4	0.9	0.0	0.0	10,085.0
Subtotal	5.7	17.7	59.9	0.1	2.5	0.9	0.0	0.0	11,304.1
<i>Project Year 2025</i>									
Year 2025 - Idling	1.7	4.7	26.9	0.0	0.0	0.0	0.0	0.0	1,307.0
Year 2025 - Driving	3.0	9.9	21.9	0.1	2.6	0.9	0.0	0.0	10,812.3
Subtotal	4.7	14.5	48.8	0.1	2.6	0.9	0.0	0.0	12,119.3
<i>Project Year 2027</i>									
Year 2027 - Idling	1.7	4.8	27.6	0.0	0.0	0.0	0.0	0.0	1,342.2
Year 2027 - Driving	3.1	10.2	23.0	0.1	2.7	1.0	0.0	0.0	11,103.2
Subtotal	4.8	15.0	50.6	0.1	2.7	1.0	0.0	0.0	12,445.3

Table 1.7-41 Peak Day Truck Emissions without Mitigation - Alternative 6

Location/Project Scenario	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>On-Terminal</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	7.8	21.6	124.3	0.1	0.1	0.1	0.0	0.0	6,037.1
Year 2012 - Driving	14.0	43.5	150.0	0.4	10.2	3.0	0.1	0.1	48,017.5
Subtotal	21.7	65.1	274.3	0.5	10.3	3.1	0.1	0.1	54,054.6
<i>Project Year 2015</i>									
Year 2015 - Idling	11.0	30.6	176.1	0.1	0.1	0.1	0.0	0.0	8,558.3
Year 2015 - Driving	27.0	84.1	259.8	0.6	16.1	5.3	0.2	0.2	72,325.6
Subtotal	38.0	114.7	436.0	0.7	16.2	5.4	0.2	0.2	80,884.0
<i>Project Year 2020</i>									
Year 2020 - Idling	11.9	33.0	189.8	0.1	0.1	0.1	0.0	0.0	9,223.5
Year 2020 - Driving	30.9	100.6	263.2	0.7	18.4	6.7	0.2	0.2	76,301.0
Subtotal	42.8	133.6	453.0	0.8	18.5	6.8	0.2	0.2	85,524.5
<i>Project Year 2025</i>									
Year 2025 - Idling	12.7	35.4	203.5	0.1	0.2	0.1	0.0	0.0	9,888.6
Year 2025 - Driving	22.7	74.6	165.5	0.7	19.5	6.9	0.2	0.2	81,803.6
Subtotal	35.4	109.9	369.1	0.8	19.6	7.1	0.2	0.2	91,692.2
<i>Project Year 2027</i>									
Year 2027 - Idling	13.1	36.3	209.0	0.1	0.2	0.1	0.0	0.0	10,154.7
Year 2027 - Driving	23.5	77.4	173.7	0.7	20.1	7.2	0.2	0.2	84,004.5
Subtotal	36.6	113.7	382.7	0.8	20.2	7.3	0.2	0.2	94,159.2

Table 1.7-40 Annual Truck Emissions without Mitigation - Alternative 6

Location/Project Scenario	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
Off-Terminal Railyard									
<i>Project Year 2012</i>									
Year 2012 - Idling	0.3	0.9	5.2	0.0	0.0	0.0	0.0	0.0	255.0
Year 2012 - Driving	1.9	6.0	20.7	0.1	1.4	0.4	0.0	0.0	6,641.9
Subtotal	2.3	6.9	26.0	0.1	1.4	0.4	0.0	0.0	6,896.9
<i>Project Year 2015</i>									
Year 2015 - Idling	0.5	1.3	7.4	0.0	0.0	0.0	0.0	0.0	361.5
Year 2015 - Driving	3.5	11.0	33.8	0.1	2.1	0.7	0.0	0.0	9,415.7
Subtotal	4.0	12.2	41.3	0.1	2.1	0.7	0.0	0.0	9,777.2
<i>Project Year 2020</i>									
Year 2020 - Idling	0.5	1.4	8.0	0.0	0.0	0.0	0.0	0.0	389.6
Year 2020 - Driving	4.0	13.1	34.3	0.1	2.4	0.9	0.0	0.0	9,933.3
Subtotal	4.5	14.5	42.3	0.1	2.4	0.9	0.0	0.0	10,322.9
<i>Project Year 2025</i>									
Year 2025 - Idling	0.5	1.5	8.6	0.0	0.0	0.0	0.0	0.0	417.7
Year 2025 - Driving	3.0	9.7	21.6	0.1	2.5	0.9	0.0	0.0	10,649.6
Subtotal	3.5	11.2	30.1	0.1	2.5	0.9	0.0	0.0	11,067.3
<i>Project Year 2027</i>									
Year 2027 - Idling	0.6	1.5	8.8	0.0	0.0	0.0	0.0	0.0	428.9
Year 2027 - Driving	3.1	10.1	22.6	0.1	2.6	0.9	0.0	0.0	10,936.2
Subtotal	3.6	11.6	31.4	0.1	2.6	0.9	0.0	0.0	11,365.1

Table 1.7-41 Peak Day Truck Emissions without Mitigation - Alternative 6

Location/Project Scenario	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
Off-Terminal									
<i>Project Year 2012</i>									
Year 2012 - Idling	2.5	6.9	39.7	0.0	0.0	0.0	0.0	0.0	1,929.3
Year 2012 - Driving	14.6	45.5	157.0	0.4	10.6	3.2	0.1	0.1	50,251.3
Subtotal	17.1	52.4	196.7	0.5	10.7	3.2	0.1	0.1	52,180.6
<i>Project Year 2015</i>									
Year 2015 - Idling	3.5	9.8	56.3	0.0	0.0	0.0	0.0	0.0	2,735.1
Year 2015 - Driving	26.6	82.9	255.9	0.6	15.9	5.2	0.2	0.2	71,237.8
Subtotal	30.1	92.7	312.2	0.6	15.9	5.3	0.2	0.2	73,972.8
<i>Project Year 2020</i>									
Year 2020 - Idling	3.8	10.5	60.7	0.0	0.0	0.0	0.0	0.0	2,947.6
Year 2020 - Driving	30.4	99.1	259.2	0.7	18.1	6.6	0.2	0.2	75,153.4
Subtotal	34.2	109.7	319.9	0.7	18.2	6.6	0.2	0.2	78,101.0
<i>Project Year 2025</i>									
Year 2025 - Idling	4.1	11.3	65.0	0.0	0.0	0.0	0.0	0.0	3,160.2
Year 2025 - Driving	22.3	73.4	163.0	0.7	19.2	6.8	0.2	0.2	80,573.2
Subtotal	26.4	84.7	228.1	0.7	19.2	6.9	0.2	0.2	83,733.4
<i>Project Year 2027</i>									
Year 2027 - Idling	4.2	11.6	66.8	0.0	0.1	0.0	0.0	0.0	3,245.2
Year 2027 - Driving	23.2	76.2	171.0	0.7	19.8	7.1	0.2	0.2	82,741.0
Subtotal	27.4	87.9	237.8	0.8	19.8	7.1	0.2	0.2	85,986.2

Table 1.7-40 Annual Truck Emissions without Mitigation - Alternative 6

Location/Project Scenario	Tons per Year								
	VOC	CO	NOx	SOx	PM10 [1]	PM2.5[1]	CH4	N2O	CO2
<i>Local Community</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	1.5	4.2	24.3	0.0	0.0	0.0	0.0	0.0	1,182.4
Year 2012 - Driving	14.6	45.6	157.2	0.4	10.6	3.2	0.1	0.1	50,310.2
Subtotal	16.2	49.8	181.5	0.4	10.7	3.2	0.1	0.1	51,492.6
<i>Project Year 2015</i>									
Year 2015 - Idling	2.2	6.0	34.5	0.0	0.0	0.0	0.0	0.0	1,676.2
Year 2015 - Driving	26.6	83.0	256.2	0.6	15.9	5.2	0.2	0.2	71,321.4
Subtotal	28.8	89.0	290.7	0.6	15.9	5.3	0.2	0.2	72,997.6
<i>Project Year 2020</i>									
Year 2020 - Idling	2.3	6.5	37.2	0.0	0.0	0.0	0.0	0.0	1,806.4
Year 2020 - Driving	30.5	99.2	259.5	0.7	18.1	6.6	0.2	0.2	75,241.7
Subtotal	32.8	105.7	296.7	0.7	18.2	6.6	0.2	0.2	77,048.1
<i>Project Year 2025</i>									
Year 2025 - Idling	2.5	6.9	39.9	0.0	0.0	0.0	0.0	0.0	1,936.7
Year 2025 - Driving	22.4	73.5	163.2	0.7	19.2	6.8	0.2	0.2	80,667.9
Subtotal	24.9	80.5	203.1	0.7	19.2	6.9	0.2	0.2	82,604.6
<i>Project Year 2027</i>									
Year 2027 - Idling	2.6	7.1	40.9	0.0	0.0	0.0	0.0	0.0	1,988.8
Year 2027 - Driving	23.2	76.3	171.2	0.7	19.8	7.1	0.2	0.2	82,838.1
Subtotal	25.8	83.5	212.2	0.8	19.8	7.1	0.2	0.2	84,826.9

Table 1.7-41 Peak Day Truck Emissions without Mitigation - Alternative 6

Location/Project Scenario	Pounds per Day								
	VOC	CO	NOx	SOx	PM10	PM2.5	CH4	N2O	CO2
<i>Local Community</i>									
<i>Project Year 2012</i>									
Year 2012 - Idling	11.5	32.0	184.1	0.1	0.1	0.1	0.0	0.0	8,945.6
Year 2012 - Driving	110.7	344.9	1,189.1	3.3	80.5	24.0	0.9	0.9	380,638.3
Subtotal	122.2	376.9	1,373.2	3.4	80.7	24.2	0.9	0.9	389,584.0
<i>Project Year 2015</i>									
Year 2015 - Idling	16.3	45.4	261.0	0.1	0.2	0.2	0.0	0.0	12,681.6
Year 2015 - Driving	201.6	627.7	1,938.6	4.7	120.2	39.7	1.3	1.2	539,604.9
Subtotal	217.9	673.1	2,199.6	4.8	120.4	39.8	1.3	1.2	552,286.5
<i>Project Year 2020</i>									
Year 2020 - Idling	17.6	48.9	281.3	0.1	0.2	0.2	0.0	0.0	13,667.2
Year 2020 - Driving	230.5	750.8	1,963.3	5.0	137.2	49.8	1.4	1.3	569,264.5
Subtotal	248.1	799.7	2,244.6	5.2	137.5	50.0	1.4	1.3	582,931.7
<i>Project Year 2025</i>									
Year 2025 - Idling	18.9	52.4	301.6	0.1	0.2	0.2	0.0	0.0	14,652.8
Year 2025 - Driving	169.2	556.3	1,235.0	5.4	145.4	51.8	1.5	1.4	610,317.8
Subtotal	188.1	608.7	1,536.6	5.5	145.6	52.0	1.5	1.4	624,970.6
<i>Project Year 2027</i>									
Year 2027 - Idling	19.4	53.8	309.7	0.1	0.2	0.2	0.0	0.0	15,047.1
Year 2027 - Driving	175.6	577.5	1,295.6	5.5	149.8	53.7	1.5	1.5	626,738.4
Subtotal	194.9	631.4	1,605.3	5.7	150.1	53.9	1.6	1.5	641,785.4

Table 1.8-1 Electricity Consumption Methodology

The reading of each date is the amount of electricity used from the previous reading date to the current reading date (meter resets after each reading). So for instance, the amount of electricity used between 8/12/08 and 9/11/08 for Meter 304 is 285,600 kWh.

Because the reading dates are done halfway through the month and the inventory is between 4/1/08 and 3/31/09, we must pro-rate the electricity usage data to find the meter reading for 4/1/08 and 3/31/09.

In order to determine how much electricity was used between 3/14/08 and 4/1/08, we use the number of days between these dates and the electricity usage between 3/14/08 and 4/14/08 to find the meter reading on 4/1/08. Therefore:

$$\left(\frac{307,200 \text{ kWh}}{31 \text{ days}} \right) \times (17 \text{ days}) = 168,465 \text{ kWh}$$

This meter reading is the amount of electricity used between 3/14/08 and 4/1/08. Therefore to find the amount of electricity used between 4/1/08 and 4/14/08, subtract the reading on 4/1/08 from the reading on 4/14/08 since the 4/14/08 reading includes the electricity usage between 3/14/08 and 4/1/08.

$$(307,200 \text{ kWh}) - (168,465 \text{ kWh}) = \text{Amount of electricity used from April 1 to 14th.}$$

This plus the rest of the readings up until 3/31/09 (which is adjusted in the same manner as the 4/1/08 reading) are the total baseline kWh.

Table 1.8-2 Electricity Usage - CEQA Baseline

	Electricity Usage (kWh)			
	Meter 304	Meter 305	Meter 303	Meter 306
3/14/2008	276,000	319,200	820,800	513,600
1-Apr-08	168,465	131,613	490,916	247,432
4/14/2008	307,200	240,000	895,200	451,200
5/13/2008	218,400	338,400	981,600	504,000
6/12/2008	292,800	276,000	907,200	501,600
7/14/2008	343,200	254,400	1,003,200	513,600
8/12/2008	292,800	316,800	931,200	525,600
9/11/2008	285,600	300,000	873,600	1,046,400
10/10/2008	297,600	319,200	940,800	616,800
11/12/2008	319,200	348,000	1,092,000	480,000
12/12/2008	259,200	240,000	943,200	525,600
1/14/2009	266,400	254,400	792,000	489,600
2/13/2009	261,600	235,200	662,400	501,600
3/16/2009	249,600	201,600	813,600	436,800
31-Mar-09	103,034	98,069	338,897	223,448
4/14/2009	199,200	189,600	655,200	432,000
5/13/2009	220,800	201,600	741,600	7,538,400
Baseline kWh	3,328,170	3,290,456	10,683,980	6,568,816

Assumptions

365 days 1 yr
 2000 lbs 1 short ton
 1.1023 short tons 1 metric ton
 Baseline = July 1, 2008 to June 31, 2009

Table 1.8-3 Electricity Consumption Emissions - Proposed Project

A. Proposed Project Annual Electricity Usage Emissions										
		CO	ROG	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Year	MWh	tons	tons	tons	tons	tons	tons	metric tons	metric tons	metric tons
Baseline	23,871	2.39	0.12	13.73	1.43	0.48	0.48	13,286	0.35	0.09
2012	40,333	4.03	0.20	23.19	2.42	0.81	0.81	22,448	0.59	0.15
2015	57,177	5.72	0.29	32.88	3.43	1.14	1.14	31,823	0.83	0.21
2020	61,621	6.16	0.31	35.43	3.70	1.23	1.23	25,036	0.65	0.16
2025	66,065	6.61	0.33	37.99	3.96	1.32	1.32	26,842	0.70	0.18
2027	67,843	6.78	0.34	39.01	4.07	1.36	1.35	27,564	0.72	0.18
B. Proposed Project Daily Electricity Usage Emissions										
		CO	ROG	NOx	SOx	PM10	PM2.5			
		lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day			
Baseline		13.08	0.65	75.21	7.85	2.62	2.61			
2012		22.10	1.11	127.08	13.26	4.42	4.41			
2015		31.33	1.57	180.15	18.80	6.27	6.25			
2020		33.77	1.69	194.15	20.26	6.75	6.74			
2025		36.20	1.81	208.15	21.72	7.24	7.23			
2027		37.17	1.86	213.75	22.30	7.43	7.42			

Table 1.8-4 Electricity Consumption Emissions - Alternatives 1 through 6

A. Alternative 1 Annual Electricity Usage Emissions										
Year	MWh	CO tons	ROG tons	NOx tons	SOx tons	PM10 tons	PM2.5 tons	CO2 metric tons	CH4 metric tons	N2O metric tons
Baseline	23,871	2.39	0.12	13.73	1.43	0.48	0.48	13,286	0.35	0.09
2012	40,333	4.03	0.20	23.19	2.42	0.81	0.81	22,448	0.59	0.15
2015	41,226	4.12	0.21	23.71	2.47	0.82	0.82	22,945	0.60	0.15
2020	43,032	4.30	0.22	24.74	2.58	0.86	0.86	17,483	0.46	0.12
2025	44,838	4.48	0.22	25.78	2.69	0.90	0.89	18,217	0.48	0.12
2027	45,560	4.56	0.23	26.20	2.73	0.91	0.91	18,511	0.48	0.12
		<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>			
Baseline		13.08	0.65	75.21	7.85	2.62	2.61			
2012		22.10	1.11	127.08	13.26	4.42	4.41			
2015		22.59	1.13	129.89	13.55	4.52	4.51			
2020		23.58	1.18	135.58	14.15	4.72	4.71			
2025		24.57	1.23	141.27	14.74	4.91	4.90			
2027		24.96	1.25	143.54	14.98	4.99	4.98			

B. Alternative 2 Annual Electricity Usage Emissions										
Year	MWh	CO tons	ROG tons	NOx tons	SOx tons	PM10 tons	PM2.5 tons	CO2 metric tons	CH4 metric tons	N2O metric tons
Baseline	23,871	2.39	0.12	13.73	1.43	0.48	0.48	13,286	0.35	0.09
2012	40,333	4.03	0.20	23.19	2.42	0.81	0.81	22,448	0.59	0.15
2015	41,226	4.12	0.21	23.71	2.47	0.82	0.82	22,945	0.60	0.15
2020	43,032	4.30	0.22	24.74	2.58	0.86	0.86	17,483	0.46	0.12
2025	44,838	4.48	0.22	25.78	2.69	0.90	0.89	18,217	0.48	0.12
2027	45,560	4.56	0.23	26.20	2.73	0.91	0.91	18,511	0.48	0.12
		<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>			
Baseline		13.08	0.65	75.21	7.85	2.62	2.61			
2012		22.10	1.11	127.08	13.26	4.42	4.41			
2015		22.59	1.13	129.89	13.55	4.52	4.51			
2020		23.58	1.18	135.58	14.15	4.72	4.71			
2025		24.57	1.23	141.27	14.74	4.91	4.90			
2027		24.96	1.25	143.54	14.98	4.99	4.98			

C. Alternative 3 Annual Electricity Usage Emissions										
Year	MWh	CO tons	ROG tons	NOx tons	SOx tons	PM10 tons	PM2.5 tons	CO2 metric tons	CH4 metric tons	N2O metric tons
Baseline	23,871	2.39	0.12	13.73	1.43	0.48	0.48	13,286	0.35	0.09
2012	40,333	4.03	0.20	23.19	2.42	0.81	0.81	22,448	0.59	0.15
2015	44,481	4.45	0.22	25.58	2.67	0.89	0.89	24,756	0.65	0.16
2020	48,722	4.87	0.24	28.01	2.92	0.97	0.97	19,795	0.52	0.13
2025	52,963	5.30	0.26	30.45	3.18	1.06	1.06	21,518	0.56	0.14
2027	54,659	5.47	0.27	31.43	3.28	1.09	1.09	22,208	0.58	0.15
		<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>			
Baseline		13.08	0.65	75.21	7.85	2.62	2.61			
2012		22.10	1.11	127.08	13.26	4.42	4.41			
2015		24.37	1.22	140.14	14.62	4.87	4.86			
2020		26.70	1.33	153.51	16.02	5.34	5.33			
2025		29.02	1.45	166.87	17.41	5.80	5.79			
2027		29.95	1.50	172.21	17.97	5.99	5.98			

Table 1.8-4 Electricity Consumption Emissions - Alternatives 1 through 6

D. Alternative 4 Annual Electricity Usage Emissions										
Year	MWh	CO tons	ROG tons	NOx tons	SOx tons	PM10 tons	PM2.5 tons	CO2 metric tons	CH4 metric tons	N2O metric tons
Baseline	23,871	2.39	0.12	13.73	1.43	0.48	0.48	13,286	0.35	0.09
2012	40,333	4.03	0.20	23.19	2.42	0.81	0.81	22,448	0.59	0.15
2015	40,333	4.03	0.20	23.19	2.42	0.81	0.81	22,448	0.59	0.15
2020	47,888	4.79	0.24	27.54	2.87	0.96	0.96	19,456	0.51	0.13
2025	52,472	5.25	0.26	30.17	3.15	1.05	1.05	21,319	0.56	0.14
2027	57,057	5.71	0.29	32.81	3.42	1.14	1.14	23,182	0.61	0.15
		<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>			
Baseline		13.08	0.65	75.21	7.85	2.62	2.61			
2012		22.10	1.11	127.08	13.26	4.42	4.41			
2015		22.10	1.11	127.08	13.26	4.42	4.41			
2020		26.24	1.31	150.88	15.74	5.25	5.24			
2025		28.75	1.44	165.32	17.25	5.75	5.74			
2027		31.26	1.56	179.77	18.76	6.25	6.24			

E. Alternative 5 Annual Electricity Usage Emissions										
Year	MWh	CO tons	ROG tons	NOx tons	SOx tons	PM10 tons	PM2.5 tons	CO2 metric tons	CH4 metric tons	N2O metric tons
Baseline	23,871	2.39	0.12	13.73	1.43	0.48	0.48	13,286	0.35	0.09
2012	40,333	4.03	0.20	23.19	2.42	0.81	0.81	22,448	0.59	0.15
2015	57,177	5.72	0.29	32.88	3.43	1.14	1.14	31,823	0.83	0.21
2020	61,621	6.16	0.31	35.43	3.70	1.23	1.23	25,036	0.65	0.16
2025	66,065	6.61	0.33	37.99	3.96	1.32	1.32	26,842	0.70	0.18
2027	67,843	6.78	0.34	39.01	4.07	1.36	1.35	27,564	0.72	0.18
		<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>			
Baseline		13.08	0.65	75.21	7.85	2.62	2.61			
2012		22.10	1.11	127.08	13.26	4.42	4.41			
2015		31.33	1.57	180.15	18.80	6.27	6.25			
2020		33.77	1.69	194.15	20.26	6.75	6.74			
2025		36.20	1.81	208.15	21.72	7.24	7.23			
2027		37.17	1.86	213.75	22.30	7.43	7.42			

F. Alternative 6 Annual Electricity Usage Emissions										
Year	MWh	CO tons	ROG tons	NOx tons	SOx tons	PM10 tons	PM2.5 tons	CO2 metric tons	CH4 metric tons	N2O metric tons
Baseline	23,871	2.39	0.12	13.73	1.43	0.48	0.48	13,286	0.35	0.09
2012	40,333	4.03	0.20	23.19	2.42	0.81	0.81	22,448	0.59	0.15
2015	57,177	5.72	0.29	32.88	3.43	1.14	1.14	31,823	0.83	0.21
2020	61,621	6.16	0.31	35.43	3.70	1.23	1.23	25,036	0.65	0.16
2025	66,065	6.61	0.33	37.99	3.96	1.32	1.32	26,842	0.70	0.18
2027	67,843	6.78	0.34	39.01	4.07	1.36	1.35	27,564	0.72	0.18
		<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>	<i>lbs/day</i>			
Baseline		13.08	0.65	75.21	7.85	2.62	2.61			
2012		22.10	1.11	127.08	13.26	4.42	4.41			
2015		31.33	1.57	180.15	18.80	6.27	6.25			
2020		33.77	1.69	194.15	20.26	6.75	6.74			
2025		36.20	1.81	208.15	21.72	7.24	7.23			
2027		37.17	1.86	213.75	22.30	7.43	7.42			

Table 1.9-1. CEQA Baseline (July 2008 - June 2009) Average Daily Operational Emissions

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Ships – Transit and Anchoring	112	209	2,017	1,155	190	152
Ships – Hoteling	34	85	1,079	1,423	131	103
Tugboats	3	14	48	0	2	2
Trucks	252	1,104	2,311	2	174	129
Trains	72	219	1,335	9	39	36
Terminal Equipment	12	92	343	1	9	9
Worker Trips	14	143	12	0	17	3
Total – CEQA Baseline	499	1,866	7,145	2,590	562	434

Notes:
a) Emissions represent annual emissions divided by 365 days per year of operation.
b) Emissions might not add precisely due to rounding.
c) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared.

Table 1.9-2. CEQA Baseline (July 2008 - June 2009) Peak Daily Operational Emissions

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Ships – Transit and Anchoring	204	380	3,475	2,044	344	275
Ships – Hoteling	87	223	2,611	3,333	327	259
Tugboats	5	21	71	0	3	3
Trucks	470	2,054	4,301	3	324	248
Trains	92	280	1,719	12	51	47
Terminal Equipment	31	214	917	1	24	22
Worker Trips	35	367	32	0	43	9
Total - CEQA Baseline	924	3,539	13,126	5,394	1,115	863

Notes:
a) Emissions assume maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-terminal operations.
b) Emissions might not add precisely due to rounding.
c) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared.

Table 1.9-3. CEQA Baseline (July 2008 - June 2009) Annual Operational Emissions

Emission Source	Annual Emissions (tons/year)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Ships – Transit and Anchoring	20.40	38.15	368.09	210.85	34.70	27.73
Ships – Hoteling	6.15	15.55	196.85	259.68	23.84	18.80
Tugboats	0.60	2.60	8.78	0.00	0.38	0.35
Trucks	46.07	201.40	421.74	0.32	31.72	23.60
Trains	13.14	39.90	243.66	1.68	7.16	6.59
Terminal Equipment	2.23	16.83	62.59	0.09	1.71	1.57
Worker Trips	2.48	26.07	2.28	0.03	3.04	0.61
Total - CEQA Baseline	91.08	340.50	1,303.98	472.65	102.55	79.26

Notes:
a) Emissions might not add precisely due to rounding.
b) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared.

Table 1.9-4. Average Daily Operational Emissions Without Mitigation – NEPA Baseline^a

Emission Source	Average Daily Emissions (lbs/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	56	142	1,563	91	37	29
Tugboats	3	15	57	0	2	2
Trucks	117	358	1,336	3	74	22
Trains	75	280	1,495	1	42	39
Terminal Equipment	25	172	686	1	21	19
Worker Trips	20	208	17	0	33	7
Total – Project Year 2012	419	1,404	7,130	148	245	147
Project Year 2015						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	30	80	845	64	23	18
Tugboats	3	16	18	0	0	0
Trucks	149	457	1,531	3	79	26
Trains	62	283	1,363	1	36	33
Terminal Equipment	27	181	724	1	23	21
Worker Trips	17	173	14	0	34	7
Total – Project Year 2015	411	1,419	6,472	120	231	134
Project Year 2020						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	16	46	450	50	15	12
Tugboats	3	17	19	0	0	0
Trucks	163	525	1,518	3	88	32
Trains	47	323	1,214	1	28	26
Terminal Equipment	12	169	50	1	2	2
Worker Trips	14	128	9	0	37	8
Total – Project Year 2020	379	1,437	5,237	107	206	108
Project Year 2025						
Ships – Transit and Anchoring	157	291	2,501	64	46	37
Ships – Hoteling	15	43	420	47	14	11
Tugboats	4	22	25	0	1	1
Trucks	122	393	1,044	3	90	32
Trains	36	332	956	1	21	19
Terminal Equipment	14	184	54	1	2	2
Worker Trips	12	100	7	0	40	8
Total – Project Year 2025	360	1,364	5,007	118	213	110
Project Year 2027						
Ships – Transit and Anchoring	157	291	2,501	64	46	37
Ships – Hoteling	15	44	426	48	14	11
Tugboats	5	22	25	0	1	1
Trucks	125	403	1,078	4	92	33
Trains	33	335	859	1	19	17
Terminal Equipment	15	190	56	1	2	2
Worker Trips	10	88	6	0	39	8
Total – Project Year 2027	360	1,373	4,951	118	212	109

Notes:

a) Emissions represent annual emissions divided by 365 days per year of operation.

Table 1.9-5. Peak Daily Operational Emissions Without Mitigation – NEPA Baseline^a

Emission Source	Peak Daily Emissions (lbs/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	87	223	2,461	140	58	46
Tugboats	5	23	89	0	4	3
Trucks	161	494	1,844	4	102	30
Trains	86	319	1,703	1	48	44
Terminal Equipment	47	280	1,115	1	36	33
Worker Trips	29	296	24	0	47	10
Total – Project Year 2012	620	2,016	10,515	231	354	214
Project Year 2015						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	48	127	1,349	98	35	28
Tugboats	5	25	29	0	1	1
Trucks	205	631	2,114	4	109	36
Trains	70	319	1,535	1	40	37
Terminal Equipment	50	288	1,149	1	39	36
Worker Trips	24	241	19	0	48	10
Total – Project Year 2015	606	2,013	9,474	190	333	196
Project Year 2020						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	24	70	682	73	22	18
Tugboats	5	27	30	0	1	1
Trucks	226	724	2,096	5	121	44
Trains	50	346	1,297	1	30	28
Terminal Equipment	18	244	72	2	3	2
Worker Trips	19	173	13	0	50	10
Total – Project Year 2020	546	1,964	7,469	165	286	151
Project Year 2025						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	20	57	557	63	18	15
Tugboats	6	28	31	0	1	1
Trucks	169	542	1,442	5	124	44
Trains	39	362	1,038	1	23	21
Terminal Equipment	19	254	75	1	3	3
Worker Trips	15	130	9	1	52	11
Total – Project Year 2025	504	1,803	6,810	162	288	148
Project Year 2027						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	20	57	557	63	18	15
Tugboats	6	29	32	0	1	1
Trucks	173	556	1,488	5	127	46
Trains	36	376	957	1	21	19
Terminal Equipment	21	268	79	2	3	3
Worker Trips	14	118	8	1	52	11
Total – Project Year 2027	506	1,834	6,780	163	289	147

Notes:

- a) Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal, would occur infrequently, and are based upon a set of conservative assumptions.

Table 1.9-6. Annual Operational Emissions Without Mitigation – NEPA Baseline

Emission Source	Annual Emissions (tons/year)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	22	42	361	9	7	5
Ships – Hoteling	10	26	285	17	7	5
Tugboats	1	3	10	0	0	0
Trucks	21	65	244	1	13	4
Trains	14	51	273	0	8	7
Terminal Equipment	5	31	125	0	4	3
Worker Trips	4	38	3	0	6	1
Total – Project Year 2012	76	256	1,301	27	45	27
Project Year 2015						
Ships – Transit and Anchoring	22	42	361	9	7	5
Ships – Hoteling	5	15	154	12	4	3
Tugboats	1	3	3	0	0	0
Trucks	27	83	279	1	14	5
Trains	11	52	249	0	7	6
Terminal Equipment	5	33	132	0	4	4
Worker Trips	3	32	2	0	6	1
Total – Project Year 2015	75	259	1,181	22	42	25
Project Year 2020						
Ships – Transit and Anchoring	22	42	361	9	7	5
Ships – Hoteling	3	8	82	9	3	2
Tugboats	1	3	4	0	0	0
Trucks	30	96	277	1	16	6
Trains	9	59	222	0	5	5
Terminal Equipment	2	31	9	0	0	0
Worker Trips	3	23	2	0	7	1
Total – Project Year 2020	69	262	956	20	38	20
Project Year 2025						
Ships – Transit and Anchoring	29	53	456	12	8	7
Ships – Hoteling	3	8	77	9	3	2
Tugboats	1	4	4	0	0	0
Trucks	22	72	191	1	16	6
Trains	7	61	174	0	4	4
Terminal Equipment	3	34	10	0	0	0
Worker Trips	2	18	1	0	7	2
Total – Project Year 2025	66	249	914	21	39	20
Project Year 2027						
Ships – Transit and Anchoring	29	53	456	12	8	7
Ships – Hoteling	3	8	78	9	3	2
Tugboats	1	4	5	0	0	0
Trucks	23	74	197	1	17	6
Trains	6	61	157	0	3	3
Terminal Equipment	3	35	10	0	0	0
Worker Trips	2	16	1	0	7	1
Total – Project Year 2027	66	251	904	22	39	20

Table 1.9-7. Average Daily Operational Emissions Without Mitigation – Proposed Project^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	56	142	1,563	91	37	29
Tugboats	3	15	57	0	2	2
Trucks	117	358	1,336	3	74	22
Trains	75	280	1,495	1	42	39
Terminal Equipment	25	172	686	1	21	19
Worker Trips	20	208	17	0	33	7
Total – Project Year 2012	419	1,404	7,130	148	245	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(80)	(462)	(15)	(2,442)	(317)	(287)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	419	1,404	7,130	148	245	147
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	143	268	2,312	60	42	34
Ships – Hoteling	40	106	1,126	85	30	24
Tugboats	4	20	23	0	0	0
Trucks	207	638	2,135	4	110	37
Trains	89	410	1,977	2	52	48
Terminal Equipment	43	262	1,069	1	35	32
Worker Trips	26	260	20	1	52	11
Total – Project Year 2015	553	1,963	8,662	153	322	185
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	54	97	1,517	(2,437)	(240)	(249)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	411	1,419	6,472	120	231	134
Project minus NEPA Baseline	141	544	2,190	32	91	51
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
Project Year 2020						
Ships – Transit and Anchoring	177	329	2,836	73	52	42
Ships – Hoteling	21	61	597	67	20	16
Tugboats	5	25	28	0	1	1
Trucks	235	755	2,185	5	126	46
Trains	63	440	1,648	2	38	35
Terminal Equipment	18	244	73	2	3	2
Worker Trips	21	192	14	1	55	11
Total – Project Year 2020	540	2,046	7,382	149	294	153
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	41	180	237	(2,441)	(268)	(281)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	379	1,437	5,237	107	206	108
Project minus NEPA Baseline	161	609	2,145	41	89	45
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No

Table 1.9-7. Average Daily Operational Emissions Without Mitigation – Proposed Project^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	212	393	3,366	86	62	49
Ships – Hoteling	17	48	474	53	16	12
Tugboats	6	28	31	0	1	1
Trucks	184	590	1,572	5	135	48
Trains	48	449	1,281	2	28	26
Terminal Equipment	21	276	83	2	3	3
Worker Trips	18	149	10	1	59	12
Total – Project Year 2025	505	1,933	6,818	148	304	152
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	6	67	(327)	(2,442)	(258)	(283)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,364	5,007	118	213	110
Project minus NEPA Baseline	145	568	1,812	30	91	42
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No
Project Year 2027						
Ships – Transit and Anchoring	232	428	3,667	94	67	54
Ships – Hoteling	17	50	492	54	16	13
Tugboats	6	30	34	0	1	1
Trucks	192	616	1,654	5	140	50
Trains	44	461	1,166	2	25	23
Terminal Equipment	23	289	87	2	3	3
Worker Trips	17	139	10	1	62	13
Total – Project Year 2027	530	2,014	7,109	158	315	157
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	31	149	(36)	(2,432)	(247)	(277)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,373	4,951	118	212	109
Project minus NEPA Baseline	170	641	2,158	39	103	48
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No

Notes:

- a) Average daily emissions represent annual emissions divided by 365 days per year of operation.

Table 1.9-8. Peak Daily Operational Emissions Without Mitigation – Proposed Project^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	87	223	2,461	140	58	46
Tugboats	5	23	89	0	4	3
Trucks	161	494	1,844	4	102	30
Trains	86	319	1,703	1	48	44
Terminal Equipment	47	280	1,115	1	36	33
Worker Trips	29	296	24	0	47	10
Total – Project Year 2012	620	2,016	10,515	231	354	214
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Project minus CEQA Baseline	(304)	(1,523)	(2,611)	(5,163)	(761)	(648)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	620	2,016	10,515	231	354	214
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	409	762	6,556	168	120	96
Ships – Hoteling	60	159	1,686	123	44	35
Tugboats	9	50	58	0	1	1
Trucks	286	880	2,948	6	153	51
Trains	99	453	2,186	2	57	53
Terminal Equipment	66	374	1,515	2	52	48
Worker Trips	35	347	27	1	69	14
Total – Project Year 2015	965	3,026	14,976	301	496	297
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Project minus CEQA Baseline	40	(513)	1,850	(5,093)	(619)	(565)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	606	2,013	9,474	190	333	196
Project minus NEPA Baseline	358	1,013	5,502	111	163	102
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes
Project Year 2020						
Ships – Transit and Anchoring	471	860	7,316	183	134	107
Ships – Hoteling	25	71	697	78	23	18
Tugboats	10	53	60	0	1	1
Trucks	325	1,043	3,017	7	174	63
Trains	68	480	1,797	2	42	38
Terminal Equipment	26	344	104	2	4	3
Worker Trips	29	263	19	1	76	16
Total – Project Year 2020	955	3,115	13,011	273	454	248
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Project minus CEQA Baseline	30	(424)	(115)	(5,121)	(662)	(615)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	546	1,964	7,469	165	286	151
Project minus NEPA Baseline	408	1,151	5,542	108	168	97
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes

Table 1.9-8. Peak Daily Operational Emissions Without Mitigation – Proposed Project^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	578	1,054	8,956	222	164	131
Ships – Hoteling	28	82	806	84	26	21
Tugboats	11	56	63	0	2	1
Trucks	254	815	2,171	7	187	67
Trains	54	509	1,448	2	31	29
Terminal Equipment	30	387	117	2	4	4
Worker Trips	24	204	14	1	81	17
Total – Project Year 2025	978	3,107	13,575	319	495	269
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Project minus CEQA Baseline	54	(432)	449	(5,075)	(621)	(593)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	504	1,803	6,810	162	288	148
Project minus NEPA Baseline	475	1,304	6,765	156	207	122
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	Yes	Yes	Yes
Project Year 2027						
Ships – Transit and Anchoring	578	1,054	8,956	222	164	131
Ships – Hoteling	28	82	806	84	26	21
Tugboats	12	57	64	0	2	1
Trucks	265	851	2,283	7	194	70
Trains	50	537	1,351	2	29	27
Terminal Equipment	32	401	121	2	5	4
Worker Trips	22	188	13	1	84	17
Total – Project Year 2027	987	3,170	13,594	319	502	271
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Project minus CEQA Baseline	62	(369)	469	(5,075)	(614)	(592)
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	506	1,834	6,780	163	289	147
Project minus NEPA Baseline	481	1,336	6,815	156	212	124
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	Yes	Yes	Yes

Notes:

- a) Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal, would occur infrequently, and are based upon a set of conservative assumptions.

Table 1.9-9. Average Daily Operational Emissions With Mitigation – Proposed Project^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	56	142	1,563	91	37	29
Tugboats	3	15	57	0	2	2
Trucks	117	358	1,336	3	74	22
Trains	75	280	1,495	1	42	39
Terminal Equipment	25	172	686	1	21	19
Worker Trips	20	208	17	0	33	7
Total – Project Year 2012	419	1,404	7,130	148	245	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(80)	(462)	(15)	(2,442)	(317)	(287)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	419	1,404	7,130	148	245	147
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	149	270	1,946	49	38	31
Ships – Hoteling	40	106	1,126	85	30	24
Tugboats	4	20	23	0	0	0
Trucks	207	638	2,135	4	110	37
Trains	89	410	1,977	2	52	48
Terminal Equipment	29	246	270	1	12	11
Worker Trips	26	260	20	1	52	11
Total – Project Year 2015	545	1,949	7,496	142	295	161
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	46	84	351	(2,448)	(267)	(274)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	411	1,419	6,472	120	231	134
Project minus NEPA Baseline	134	530	1,025	21	63	26
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
Project Year 2020						
Ships – Transit and Anchoring	184	331	2,364	59	47	37
Ships – Hoteling	21	61	597	67	20	16
Tugboats	5	25	28	0	1	1
Trucks	235	755	2,185	5	126	46
Trains	63	440	1,648	2	38	35
Terminal Equipment	19	249	75	2	3	2
Worker Trips	21	192	14	1	55	11
Total – Project Year 2020	548	2,052	6,911	135	289	149
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	49	186	(234)	(2,455)	(273)	(286)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	379	1,437	5,237	107	206	108
Project minus NEPA Baseline	169	615	1,674	27	84	40
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No

Table 1.9-9. Average Daily Operational Emissions With Mitigation – Proposed Project^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	221	392	2,757	68	55	44
Ships – Hoteling	17	48	474	53	16	12
Tugboats	6	28	31	0	1	1
Trucks	184	590	1,572	5	135	48
Trains	48	449	1,281	2	28	26
Terminal Equipment	22	281	84	2	3	3
Worker Trips	18	149	10	1	59	12
Total – Project Year 2025	514	1,936	6,211	130	297	146
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	15	71	(935)	(2,460)	(265)	(288)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,364	5,007	118	213	110
Project minus NEPA Baseline	154	572	1,204	12	84	36
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No
Project Year 2027						
Ships – Transit and Anchoring	241	426	2,994	73	59	47
Ships – Hoteling	9	30	255	45	11	9
Tugboats	6	30	34	0	1	1
Trucks	192	616	1,654	5	140	50
Trains	44	461	1,166	2	25	23
Terminal Equipment	19	264	80	2	3	2
Worker Trips	17	139	10	1	62	13
Total – Project Year 2027	527	1,967	6,192	128	302	146
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	28	101	(953)	(2,462)	(260)	(288)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,373	4,951	118	212	109
Project minus NEPA Baseline	168	594	1,241	10	89	37
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No

Notes:

- a) Average daily emissions represent annual emissions divided by 365 days per year of operation.

Table 1.9-10. Peak Daily Operational Emissions With Mitigation – Proposed Project^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	87	223	2,461	140	58	46
Tugboats	5	23	89	0	4	3
Trucks	161	494	1,844	4	102	30
Trains	86	319	1,703	1	48	44
Terminal Equipment	47	280	1,115	1	36	33
Worker Trips	29	296	24	0	47	10
Total – Project Year 2012	620	2,016	10,515	231	354	214
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Project minus CEQA Baseline	(304)	(1,523)	(2,611)	(5,163)	(761)	(648)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	620	2,016	10,515	231	354	214
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	425	761	5,411	133	107	85
Ships – Hoteling	59	157	1,663	121	44	35
Tugboats	9	50	58	0	1	1
Trucks	286	880	2,948	6	153	51
Trains	99	453	2,186	2	57	53
Terminal Equipment	48	354	486	2	22	20
Worker Trips	35	347	27	1	69	14
Total – Project Year 2015	962	3,002	12,779	264	452	258
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Project minus CEQA Baseline	37	(537)	(347)	(5,130)	(663)	(604)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	606	2,013	9,474	190	333	196
Project minus NEPA Baseline	355	989	3,306	75	120	63
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	Yes
Project Year 2020						
Ships – Transit and Anchoring	488	849	5,827	138	116	93
Ships – Hoteling	25	70	687	77	23	18
Tugboats	10	53	60	0	1	1
Trucks	325	1,043	3,017	7	174	63
Trains	68	480	1,797	2	42	38
Terminal Equipment	26	350	106	2	4	4
Worker Trips	29	263	19	1	76	16
Total – Project Year 2020	972	3,109	11,513	227	436	233
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Project minus CEQA Baseline	47	(430)	(1,613)	(5,167)	(680)	(629)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	546	1,964	7,469	165	286	151
Project minus NEPA Baseline	425	1,144	4,044	62	150	83
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	Yes

Table 1.9-10. Peak Daily Operational Emissions With Mitigation – Proposed Project^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	598	1,039	7,122	166	142	113
Ships – Hoteling	27	65	700	73	22	17
Tugboats	11	56	63	0	2	1
Trucks	254	815	2,171	7	187	67
Trains	54	509	1,448	2	31	29
Terminal Equipment	31	393	118	2	5	4
Worker Trips	24	204	14	1	81	17
Total – Project Year 2025	998	3,081	11,637	251	469	248
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Project minus CEQA Baseline	74	(458)	(1,489)	(5,143)	(646)	(614)
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	504	1,803	6,810	162	288	148
Project minus NEPA Baseline	495	1,278	4,827	89	182	101
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes
Project Year 2027						
Ships – Transit and Anchoring	598	1,039	7,122	166	142	113
Ships – Hoteling	14	47	400	68	17	14
Tugboats	12	57	64	0	2	1
Trucks	265	851	2,283	7	194	70
Trains	50	537	1,351	2	29	27
Terminal Equipment	27	369	112	2	4	4
Worker Trips	22	188	13	1	84	17
Total – Project Year 2027	988	3,088	11,345	247	471	246
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Project minus CEQA Baseline	64	(451)	(1,781)	(5,147)	(645)	(617)
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	506	1,834	6,780	163	289	147
Project minus NEPA Baseline	482	1,254	4,565	84	181	98
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes

Notes:

- a) Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal, would occur infrequently, and are based upon a set of conservative assumptions.

Table 1.9-11. Average Daily Operational Emissions Without Mitigation – Alternative 1^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	56	142	1,563	91	37	29
Tugboats	3	15	57	0	2	2
Trucks	117	358	1,336	3	74	22
Trains	75	280	1,495	1	42	39
Terminal Equipment	25	172	686	1	21	19
Worker Trips	20	208	17	0	33	7
Total – Project Year 2012	419	1,404	7,130	148	245	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(80)	(462)	(15)	(2,442)	(317)	(287)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	419	1,404	7,130	148	245	147
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	30	80	845	64	23	18
Tugboats	3	16	18	0	0	0
Trucks	149	457	1,531	3	79	26
Trains	62	283	1,363	1	36	33
Terminal Equipment	27	181	724	1	23	21
Worker Trips	17	173	14	0	34	7
Total – Project Year 2015	411	1,419	6,472	120	231	134
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(88)	(447)	(673)	(2,469)	(331)	(300)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	411	1,419	6,472	120	231	134
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2020						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	16	46	450	50	15	12
Tugboats	3	17	19	0	0	0
Trucks	163	525	1,518	3	88	32
Trains	47	323	1,214	1	28	26
Terminal Equipment	12	169	50	1	2	2
Worker Trips	14	128	9	0	37	8
Total – Project Year 2020	379	1,437	5,237	107	206	108
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(120)	(429)	(1,908)	(2,483)	(356)	(326)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	379	1,437	5,237	107	206	108
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No

Table 1.9-11. Average Daily Operational Emissions Without Mitigation – Alternative 1^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	157	291	2,501	64	46	37
Ships – Hoteling	15	43	420	47	14	11
Tugboats	4	22	25	0	1	1
Trucks	122	393	1,044	3	90	32
Trains	36	332	956	1	21	19
Terminal Equipment	14	184	54	1	2	2
Worker Trips	12	100	7	0	40	8
Total – Project Year 2025	360	1,364	5,007	118	213	110
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(139)	(501)	(2,138)	(2,472)	(349)	(324)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,364	5,007	118	213	110
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2027						
Ships – Transit and Anchoring	157	291	2,501	64	46	37
Ships – Hoteling	15	44	426	48	14	11
Tugboats	5	22	25	0	1	1
Trucks	125	403	1,078	4	92	33
Trains	33	335	859	1	19	17
Terminal Equipment	15	190	56	1	2	2
Worker Trips	10	88	6	0	39	8
Total – Project Year 2027	360	1,373	4,951	118	212	109
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(139)	(492)	(2,194)	(2,471)	(349)	(325)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,373	4,951	118	212	109
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No

Notes:

a) Average daily emissions represent annual emissions divided by 365 days per year of operation.

Table 1.9-12. Peak Daily Operational Emissions Without Mitigation – Alternative 1^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 1 Year 2012						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	87	223	2,461	140	58	46
Tugboats	5	23	89	0	4	3
Trucks	161	494	1,844	4	102	30
Trains	86	319	1,703	1	48	44
Terminal Equipment	47	280	1,115	1	36	33
Worker Trips	29	296	24	0	47	10
Total – Alt 1 Year 2012	620	2,016	10,515	231	354	214
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 1 minus CEQA Baseline	(304)	(1,523)	(2,611)	(5,163)	(761)	(648)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	620	2,016	10,515	231	354	214
Alt 1 minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 1 Year 2015						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	48	127	1,349	98	35	28
Tugboats	5	25	29	0	1	1
Trucks	205	631	2,114	4	109	36
Trains	70	319	1,535	1	40	37
Terminal Equipment	50	288	1,149	1	39	36
Worker Trips	24	241	19	0	48	10
Total – Alt 1 Year 2015	606	2,013	9,474	190	333	196
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 1 minus CEQA Baseline	(318)	(1,526)	(3,652)	(5,204)	(783)	(667)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	606	2,013	9,474	190	333	196
Alt 1 minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 1 Year 2020						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	24	70	682	73	22	18
Tugboats	5	27	30	0	1	1
Trucks	226	724	2,096	5	121	44
Trains	50	346	1,297	1	30	28
Terminal Equipment	18	244	72	2	3	2
Worker Trips	19	173	13	0	50	10
Total – Alt 1 Year 2020	546	1,964	7,469	165	286	151
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 1 minus CEQA Baseline	(378)	(1,574)	(5,657)	(5,229)	(829)	(712)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	546	1,964	7,469	165	286	151
Alt 1 minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No

Table 1.9-12. Peak Daily Operational Emissions Without Mitigation – Alternative 1^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 1 Year 2025						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	20	57	557	63	18	15
Tugboats	6	28	31	0	1	1
Trucks	169	542	1,442	5	124	44
Trains	39	362	1,038	1	23	21
Terminal Equipment	19	254	75	1	3	3
Worker Trips	15	130	9	1	52	11
Total – Alt 1 Year 2025	504	1,803	6,810	162	288	148
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 1 minus CEQA Baseline	(421)	(1,736)	(6,316)	(5,231)	(828)	(715)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	504	1,803	6,810	162	288	148
Alt 1 minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 1 Year 2027						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	20	57	557	63	18	15
Tugboats	6	29	32	0	1	1
Trucks	173	556	1,488	5	127	46
Trains	36	376	957	1	21	19
Terminal Equipment	21	268	79	2	3	3
Worker Trips	14	118	8	1	52	11
Total – Alt 1 Year 2027	506	1,834	6,780	163	289	147
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 1 minus CEQA Baseline	(419)	(1,705)	(6,346)	(5,231)	(826)	(715)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	506	1,834	6,780	163	289	147
Alt 1 minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No

Notes:

- a) Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal, would occur infrequently, and are based upon a set of conservative assumptions.

Table 1.9-13. Average Daily Operational Emissions Without Mitigation – Alternative 2^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	56	142	1,563	91	37	29
Tugboats	3	15	57	0	2	2
Trucks	117	358	1,336	3	74	22
Trains	75	280	1,495	1	42	39
Terminal Equipment	25	172	686	1	21	19
Worker Trips	20	208	17	0	33	7
Total – Project Year 2012	419	1,404	7,130	148	245	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(80)	(462)	(15)	(2,442)	(317)	(287)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	30	80	845	64	23	18
Tugboats	3	16	18	0	0	0
Trucks	149	457	1,531	3	79	26
Trains	62	283	1,363	1	36	33
Terminal Equipment	27	181	724	1	23	21
Worker Trips	17	173	14	0	34	7
Total – Project Year 2015	411	1,419	6,472	120	231	134
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(88)	(447)	(673)	(2,469)	(331)	(300)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2020						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	16	46	450	50	15	12
Tugboats	3	17	19	0	0	0
Trucks	163	525	1,518	3	88	32
Trains	47	323	1,214	1	28	26
Terminal Equipment	12	169	50	1	2	2
Worker Trips	14	128	9	0	37	8
Total – Project Year 2020	379	1,437	5,237	107	206	108
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(120)	(429)	(1,908)	(2,483)	(356)	(326)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No

Table 1.9-13. Average Daily Operational Emissions Without Mitigation – Alternative 2^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	157	291	2,501	64	46	37
Ships – Hoteling	15	43	420	47	14	11
Tugboats	4	22	25	0	1	1
Trucks	122	393	1,044	3	90	32
Trains	36	332	956	1	21	19
Terminal Equipment	14	184	54	1	2	2
Worker Trips	12	100	7	0	40	8
Total – Project Year 2025	360	1,364	5,007	118	213	110
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(139)	(501)	(2,138)	(2,472)	(349)	(324)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2027						
Ships – Transit and Anchoring	157	291	2,501	64	46	37
Ships – Hoteling	15	44	426	48	14	11
Tugboats	5	22	25	0	1	1
Trucks	125	403	1,078	4	92	33
Trains	33	335	859	1	19	17
Terminal Equipment	15	190	56	1	2	2
Worker Trips	10	88	6	0	39	8
Total – Project Year 2027	360	1,373	4,951	118	212	109
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(139)	(492)	(2,194)	(2,471)	(349)	(325)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No

Notes:

- a) Average daily emissions represent annual emissions divided by 365 days per year of operation.

Table 1.9-14. Peak Daily Operational Emissions Without Mitigation – Alternative 2^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 2 Year 2012						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	87	223	2,461	140	58	46
Tugboats	5	23	89	0	4	3
Trucks	161	494	1,844	4	102	30
Trains	86	319	1,703	1	48	44
Terminal Equipment	47	280	1,115	1	36	33
Worker Trips	29	296	24	0	47	10
Total – Alt 2 Year 2012	620	2,016	10,515	231	354	214
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 2 minus CEQA Baseline	(304)	(1,523)	(2,611)	(5,163)	(761)	(648)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 2 Year 2015						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	48	127	1,349	98	35	28
Tugboats	5	25	29	0	1	1
Trucks	205	631	2,114	4	109	36
Trains	70	319	1,535	1	40	37
Terminal Equipment	50	288	1,149	1	39	36
Worker Trips	24	241	19	0	48	10
Total – Alt 2 Year 2015	606	2,013	9,474	190	333	196
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 2 minus CEQA Baseline	(318)	(1,526)	(3,652)	(5,204)	(783)	(667)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 2 Year 2020						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	24	70	682	73	22	18
Tugboats	5	27	30	0	1	1
Trucks	226	724	2,096	5	121	44
Trains	50	346	1,297	1	30	28
Terminal Equipment	18	244	72	2	3	2
Worker Trips	19	173	13	0	50	10
Total – Alt 2 Year 2020	546	1,964	7,469	165	286	151
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 2 minus CEQA Baseline	(378)	(1,574)	(5,657)	(5,229)	(829)	(712)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No

Table 1.9-14. Peak Daily Operational Emissions Without Mitigation – Alternative 2^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 2 Year 2025						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	20	57	557	63	18	15
Tugboats	6	28	31	0	1	1
Trucks	169	542	1,442	5	124	44
Trains	39	362	1,038	1	23	21
Terminal Equipment	19	254	75	1	3	3
Worker Trips	15	130	9	1	52	11
Total – Alt 2 Year 2025	504	1,803	6,810	162	288	148
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 2 minus CEQA Baseline	(421)	(1,736)	(6,316)	(5,231)	(828)	(715)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 2 Year 2027						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	20	57	557	63	18	15
Tugboats	6	29	32	0	1	1
Trucks	173	556	1,488	5	127	46
Trains	36	376	957	1	21	19
Terminal Equipment	21	268	79	2	3	3
Worker Trips	14	118	8	1	52	11
Total – Alt 2 Year 2027	506	1,834	6,780	163	289	147
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 2 minus CEQA Baseline	(419)	(1,705)	(6,346)	(5,231)	(826)	(715)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No

Notes:

- a) Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal, would occur infrequently, and are based upon a set of conservative assumptions.

Table 1.9-15. Average Daily Operational Emissions Without Mitigation – Alternative 3^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	56	142	1,563	91	37	29
Tugboats	3	15	57	0	2	2
Trucks	117	358	1,336	3	74	22
Trains	75	280	1,495	1	42	39
Terminal Equipment	25	172	686	1	21	19
Worker Trips	20	208	17	0	33	7
Total – Project Year 2012	419	1,404	7,130	148	245	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(80)	(462)	(15)	(2,442)	(317)	(287)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	419	1,404	7,130	148	245	147
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	127	237	2,033	52	37	30
Ships – Hoteling	29	77	819	62	22	17
Tugboats	3	16	18	0	0	0
Trucks	160	493	1,652	3	85	28
Trains	72	329	1,582	1	41	38
Terminal Equipment	31	200	805	1	26	24
Worker Trips	18	175	14	0	35	7
Total – Project Year 2015	441	1,526	6,922	121	247	145
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(58)	(339)	(223)	(2,469)	(315)	(289)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	411	1,419	6,472	120	231	134
Project minus NEPA Baseline	29	107	450	0	16	11
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
Project Year 2020						
Ships – Transit and Anchoring	157	291	2,501	64	46	37
Ships – Hoteling	17	48	469	52	15	12
Tugboats	4	21	24	0	1	0
Trucks	185	594	1,719	4	99	36
Trains	54	378	1,419	1	33	30
Terminal Equipment	14	195	58	1	2	2
Worker Trips	16	140	10	0	40	8
Total – Project Year 2020	447	1,667	6,199	124	236	126
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(52)	(198)	(946)	(2,466)	(326)	(308)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	379	1,437	5,237	107	206	108
Project minus NEPA Baseline	68	230	962	16	31	18
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No

Table 1.9-15. Average Daily Operational Emissions Without Mitigation – Alternative 3^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	186	345	2,970	76	54	43
Ships – Hoteling	15	43	425	47	14	11
Tugboats	5	26	29	0	1	1
Trucks	144	464	1,233	4	106	38
Trains	42	394	1,129	2	25	23
Terminal Equipment	17	224	67	1	3	2
Worker Trips	14	116	8	0	46	10
Total – Project Year 2025	424	1,613	5,861	131	249	128
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(75)	(253)	(1,284)	(2,459)	(313)	(306)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,364	5,007	118	213	110
Project minus NEPA Baseline	64	249	854	13	36	18
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
Project Year 2027						
Ships – Transit and Anchoring	186	345	2,970	76	54	43
Ships – Hoteling	16	45	438	49	14	12
Tugboats	5	26	30	0	1	1
Trucks	150	483	1,293	4	110	40
Trains	39	401	1,019	2	22	20
Terminal Equipment	18	236	70	1	3	3
Worker Trips	13	112	8	0	50	10
Total – Project Year 2027	427	1,649	5,827	133	254	129
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(72)	(217)	(1,318)	(2,457)	(308)	(306)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,373	4,951	118	212	109
Project minus NEPA Baseline	68	276	876	14	42	20
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No

Notes:

a) Average daily emissions represent annual emissions divided by 365 days per year of operation.

Table 1.9-16. Peak Daily Operational Emissions Without Mitigation – Alternative 3^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 3 Year 2012						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	87	223	2,461	140	58	46
Tugboats	5	23	89	0	4	3
Trucks	161	494	1,844	4	102	30
Trains	86	319	1,703	1	48	44
Terminal Equipment	47	280	1,115	1	36	33
Worker Trips	29	296	24	0	47	10
Total – Alt 3 Year 2012	620	2,016	10,515	231	354	214
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 3 minus CEQA Baseline	(304)	(1,523)	(2,611)	(5,163)	(761)	(648)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	620	2,016	10,515	231	354	214
Alt 3 minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 3 Year 2015						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	39	103	1,089	83	29	23
Tugboats	5	25	29	0	1	1
Trucks	221	681	2,281	5	118	39
Trains	76	346	1,665	1	44	40
Terminal Equipment	57	325	1,306	2	45	41
Worker Trips	26	257	20	1	51	11
Total – Alt 3 Year 2015	659	2,167	10,049	182	354	208
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 3 minus CEQA Baseline	(265)	(1,372)	(3,077)	(5,211)	(761)	(655)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	606	2,013	9,474	190	333	196
Alt 3 minus NEPA Baseline	53	155	575	(7)	22	12
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
Alt 3 Year 2020						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	20	57	557	63	18	15
Tugboats	5	27	30	0	1	1
Trucks	256	820	2,374	5	137	50
Trains	64	453	1,697	2	39	36
Terminal Equipment	21	279	84	2	3	3
Worker Trips	22	194	14	1	56	12
Total – Alt 3 Year 2020	623	2,260	8,413	164	321	169
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 3 minus CEQA Baseline	(301)	(1,279)	(4,713)	(5,230)	(794)	(693)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	546	1,964	7,469	165	286	151
Alt 3 minus NEPA Baseline	76	295	944	(1)	35	19
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No

Table 1.9-16. Peak Daily Operational Emissions Without Mitigation – Alternative 3^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 3 Year 2025						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	20	57	557	63	18	15
Tugboats	6	28	31	0	1	1
Trucks	199	641	1,703	6	147	53
Trains	48	456	1,299	2	28	26
Terminal Equipment	23	303	91	2	3	3
Worker Trips	18	151	11	1	60	12
Total – Alt 3 Year 2025	550	2,065	7,349	164	325	163
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 3 minus CEQA Baseline	(374)	(1,474)	(5,776)	(5,230)	(790)	(699)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	504	1,803	6,810	162	288	148
Alt 3 minus NEPA Baseline	46	263	540	2	37	16
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
Alt 3 Year 2027						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	20	57	557	63	18	15
Tugboats	6	29	32	0	1	1
Trucks	207	667	1,785	6	152	55
Trains	43	456	1,154	2	25	23
Terminal Equipment	25	318	95	2	4	3
Worker Trips	17	144	10	1	64	13
Total – Alt 3 Year 2027	554	2,101	7,291	164	331	163
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 3 minus CEQA Baseline	(370)	(1,438)	(5,835)	(5,230)	(784)	(699)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	506	1,834	6,780	163	289	147
Alt 3 minus NEPA Baseline	49	267	511	2	42	16
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No

Notes:

- a) Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal, would occur infrequently, and are based upon a set of conservative assumptions.

Table 1.9-17. Average Daily Operational Emissions With Mitigation – Alternative 3^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	56	142	1,563	91	37	29
Tugboats	3	15	57	0	2	2
Trucks	117	358	1,336	3	74	22
Trains	75	280	1,495	1	42	39
Terminal Equipment	25	172	686	1	21	19
Worker Trips	20	208	17	0	33	7
Total – Project Year 2012	419	1,404	7,130	148	245	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(80)	(462)	(15)	(2,442)	(317)	(287)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	419	1,404	7,130	148	245	147
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	133	237	1,678	42	33	27
Ships – Hoteling	29	77	819	62	22	17
Tugboats	3	16	18	0	0	0
Trucks	160	493	1,652	3	85	28
Trains	72	329	1,582	1	41	38
Terminal Equipment	31	200	805	1	26	24
Worker Trips	18	175	14	0	35	7
Total – Project Year 2015	446	1,526	6,567	110	243	142
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(53)	(339)	(578)	(2,480)	(319)	(293)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	411	1,419	6,472	120	231	134
Project minus NEPA Baseline	35	108	96	(10)	12	7
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
Project Year 2020						
Ships – Transit and Anchoring	163	291	2,065	51	41	33
Ships – Hoteling	17	48	469	52	15	12
Tugboats	4	21	24	0	1	0
Trucks	185	594	1,719	4	99	36
Trains	54	378	1,419	1	33	30
Terminal Equipment	14	195	58	1	2	2
Worker Trips	16	140	10	0	40	8
Total – Project Year 2020	453	1,667	5,763	111	231	122
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(46)	(198)	(1,382)	(2,479)	(331)	(312)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	379	1,437	5,237	107	206	108
Project minus NEPA Baseline	74	230	526	3	26	14
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No

Table 1.9-17. Average Daily Operational Emissions With Mitigation – Alternative 3^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	193	345	2,452	61	48	39
Ships – Hoteling	15	43	425	47	14	11
Tugboats	5	26	29	0	1	1
Trucks	144	464	1,233	4	106	38
Trains	42	394	1,129	2	25	23
Terminal Equipment	17	224	67	1	3	2
Worker Trips	14	116	8	0	46	10
Total – Project Year 2025	431	1,613	5,343	115	243	123
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(68)	(253)	(1,802)	(2,474)	(319)	(311)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,364	5,007	118	213	110
Project minus NEPA Baseline	71	249	336	(2)	30	13
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
Project Year 2027						
Ships – Transit and Anchoring	193	345	2,452	61	48	39
Ships – Hoteling	8	27	227	41	10	8
Tugboats	5	26	30	0	1	1
Trucks	150	483	1,293	4	110	40
Trains	39	401	1,019	2	22	20
Terminal Equipment	18	236	70	1	3	3
Worker Trips	13	112	8	0	50	10
Total – Project Year 2027	427	1,631	5,099	109	244	120
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(72)	(235)	(2,046)	(2,481)	(318)	(314)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,373	4,951	118	212	109
Project minus NEPA Baseline	68	257	148	(9)	32	12
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No

Notes:

a) Average daily emissions represent annual emissions divided by 365 days per year of operation.

Table 1.9-18. Peak Daily Operational Emissions With Mitigation – Alternative 3^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 3 Year 2012						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	87	223	2,461	140	58	46
Tugboats	5	23	89	0	4	3
Trucks	161	494	1,844	4	102	30
Trains	86	319	1,703	1	48	44
Terminal Equipment	47	280	1,115	1	36	33
Worker Trips	29	296	24	0	47	10
Total – Alt 3 Year 2012	620	2,016	10,515	231	354	214
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 3 minus CEQA Baseline	(304)	(1,523)	(2,611)	(5,163)	(761)	(648)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	620	2,016	10,515	231	354	214
Alt 3 minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 3 Year 2015						
Ships – Transit and Anchoring	244	424	2,913	69	58	46
Ships – Hoteling	38	102	1,079	82	29	23
Tugboats	5	25	29	0	1	1
Trucks	221	681	2,281	5	118	39
Trains	76	346	1,665	1	44	40
Terminal Equipment	42	307	423	2	19	17
Worker Trips	26	257	20	1	51	11
Total – Alt 3 Year 2015	652	2,143	8,411	159	319	177
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 3 minus CEQA Baseline	(273)	(1,396)	(4,714)	(5,235)	(796)	(686)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	606	2,013	9,474	190	333	196
Alt 3 minus NEPA Baseline	45	130	(1,062)	(30)	(13)	(19)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 3 Year 2020						
Ships – Transit and Anchoring	244	424	2,913	69	58	46
Ships – Hoteling	20	56	552	62	18	15
Tugboats	5	27	30	0	1	1
Trucks	256	820	2,374	5	137	50
Trains	64	453	1,697	2	39	36
Terminal Equipment	21	284	85	2	3	3
Worker Trips	22	194	14	1	56	12
Total – Alt 3 Year 2020	632	2,258	7,665	141	312	162
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 3 minus CEQA Baseline	(293)	(1,281)	(5,461)	(5,253)	(803)	(700)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	546	1,964	7,469	165	286	151
Alt 3 minus NEPA Baseline	85	294	196	(24)	26	12
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No

Table 1.9-18. Peak Daily Operational Emissions With Mitigation – Alternative 3^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 3 Year 2025						
Ships – Transit and Anchoring	244	424	2,913	69	58	46
Ships – Hoteling	20	56	552	62	18	15
Tugboats	6	28	31	0	1	1
Trucks	199	641	1,703	6	147	53
Trains	48	456	1,299	2	28	26
Terminal Equipment	24	308	92	2	4	3
Worker Trips	18	151	11	1	60	12
Total – Alt 3 Year 2025	559	2,064	6,601	141	316	156
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 3 minus CEQA Baseline	(366)	(1,475)	(6,525)	(5,253)	(799)	(706)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	504	1,803	6,810	162	288	148
Alt 3 minus NEPA Baseline	55	261	(209)	(21)	29	9
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	No	No	No	No
Alt 3 Year 2027						
Ships – Transit and Anchoring	244	424	2,913	69	58	46
Ships – Hoteling	10	34	288	52	13	10
Tugboats	6	29	32	0	1	1
Trucks	207	667	1,785	6	152	55
Trains	43	456	1,154	2	25	23
Terminal Equipment	22	293	88	2	3	3
Worker Trips	17	144	10	1	64	13
Total – Alt 3 Year 2027	550	2,047	6,270	131	316	151
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 3 minus CEQA Baseline	(375)	(1,492)	(6,856)	(5,262)	(799)	(711)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	506	1,834	6,780	163	289	147
Alt 3 minus NEPA Baseline	44	213	(509)	(31)	27	4
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No

Notes:

- a) Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal, would occur infrequently, and are based upon a set of conservative assumptions.

Table 1.9-19. Average Daily Operational Emissions Without Mitigation – Alternative 4^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	56	142	1,563	91	37	29
Tugboats	3	15	57	0	2	2
Trucks	117	358	1,336	3	74	22
Trains	75	280	1,495	1	42	39
Terminal Equipment	25	172	686	1	21	19
Worker Trips	20	208	17	0	33	7
Total – Project Year 2012	419	1,404	7,130	148	245	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(80)	(462)	(15)	(2,442)	(317)	(287)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	419	1,404	7,130	148	245	147
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	127	237	2,033	52	37	30
Ships – Hoteling	29	77	811	62	22	17
Tugboats	3	16	18	0	0	0
Trucks	174	535	1,790	4	93	31
Trains	82	375	1,807	1	47	44
Terminal Equipment	37	226	917	1	30	28
Worker Trips	21	205	16	0	41	8
Total – Project Year 2015	473	1,670	7,392	121	270	158
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(26)	(196)	247	(2,469)	(292)	(277)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	411	1,419	6,472	120	231	134
Project minus NEPA Baseline	61	251	920	0	39	23
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
Project Year 2020						
Ships – Transit and Anchoring	157	291	2,501	64	46	37
Ships – Hoteling	17	47	465	52	15	12
Tugboats	4	21	24	0	1	0
Trucks	201	644	1,863	4	108	39
Trains	56	391	1,464	2	34	31
Terminal Equipment	16	218	65	1	2	2
Worker Trips	19	168	12	0	48	10
Total – Project Year 2020	469	1,780	6,394	124	254	132
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(30)	(86)	(752)	(2,466)	(308)	(302)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	379	1,437	5,237	107	206	108
Project minus NEPA Baseline	90	343	1,157	16	48	24
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No

Table 1.9-19. Average Daily Operational Emissions Without Mitigation – Alternative 4^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	186	345	2,970	76	54	43
Ships – Hoteling	15	44	427	48	14	11
Tugboats	5	26	29	0	1	1
Trucks	156	503	1,336	4	116	41
Trains	42	391	1,120	2	24	22
Terminal Equipment	20	253	76	2	3	3
Worker Trips	17	141	10	1	56	12
Total – Project Year 2025	441	1,703	5,968	132	268	133
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(58)	(163)	(1,177)	(2,458)	(294)	(301)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,364	5,007	118	213	110
Project minus NEPA Baseline	81	339	961	14	55	24
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
Project Year 2027						
Ships – Transit and Anchoring	190	353	3,025	78	55	44
Ships – Hoteling	15	43	424	47	14	11
Tugboats	5	26	30	0	1	1
Trucks	163	524	1,401	5	120	43
Trains	39	404	1,026	2	22	21
Terminal Equipment	21	267	80	2	3	3
Worker Trips	15	123	9	1	55	11
Total – Project Year 2027	448	1,741	5,994	133	270	134
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(51)	(125)	(1,151)	(2,456)	(292)	(300)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,373	4,951	118	212	109
Project minus NEPA Baseline	89	367	1,043	15	58	25
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No

Notes:

- a) Average daily emissions represent annual emissions divided by 365 days per year of operation.

Table 1.9-20. Peak Daily Operational Emissions Without Mitigation – Alternative 4^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NOX	SOX	PM10	PM2.5
Alt 4 Year 2012						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	87	223	2,461	140	58	46
Tugboats	5	23	89	0	4	3
Trucks	161	494	1,844	4	102	30
Trains	86	319	1,703	1	48	44
Terminal Equipment	47	280	1,115	1	36	33
Worker Trips	29	296	24	0	47	10
Total – Alt 4 Year 2012	620	2,016	10,515	231	354	214
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 4 minus CEQA Baseline	(304)	(1,523)	(2,611)	(5,163)	(761)	(648)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	620	2,016	10,515	231	354	214
Alt 4 minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 4 Year 2015						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	39	103	1,089	83	29	23
Tugboats	5	25	29	0	1	1
Trucks	240	738	2,471	5	128	42
Trains	99	453	2,186	2	57	53
Terminal Equipment	64	351	1,412	2	49	45
Worker Trips	29	288	23	1	57	12
Total – Alt 4 Year 2015	711	2,388	10,868	183	388	229
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 4 minus CEQA Baseline	(214)	(1,151)	(2,258)	(5,210)	(727)	(634)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	606	2,013	9,474	190	333	196
Alt 4 minus NEPA Baseline	104	376	1,394	(6)	56	33
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
Alt 4 Year 2020						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	20	57	557	63	18	15
Tugboats	5	27	30	0	1	1
Trucks	277	889	2,572	6	148	54
Trains	64	453	1,697	2	39	36
Terminal Equipment	22	298	90	2	3	3
Worker Trips	25	222	16	1	64	13
Total – Alt 4 Year 2020	649	2,377	8,620	164	341	175
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 4 minus CEQA Baseline	(275)	(1,162)	(4,506)	(5,230)	(774)	(687)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	546	1,964	7,469	165	286	151
Alt 4 minus NEPA Baseline	103	412	1,151	(1)	55	25
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No

Table 1.9-20. Peak Daily Operational Emissions Without Mitigation – Alternative 4^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NOX	SOX	PM10	PM2.5
Alt 4 Year 2025						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	20	57	557	63	18	15
Tugboats	6	28	31	0	1	1
Trucks	216	695	1,845	6	160	57
Trains	48	456	1,299	2	28	26
Terminal Equipment	26	334	100	2	4	4
Worker Trips	21	181	13	1	72	15
Total – Alt 4 Year 2025	573	2,180	7,503	165	350	170
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 4 minus CEQA Baseline	(352)	(1,359)	(5,623)	(5,229)	(766)	(692)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	504	1,803	6,810	162	288	148
Alt 4 minus NEPA Baseline	69	378	693	2	62	23
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
Alt 4 Year 2027						
Ships – Transit and Anchoring	236	430	3,658	92	67	54
Ships – Hoteling	20	57	557	63	18	15
Tugboats	6	29	32	0	1	1
Trucks	225	724	1,934	6	165	59
Trains	46	483	1,220	2	26	24
Terminal Equipment	29	372	112	2	4	4
Worker Trips	20	168	12	1	75	15
Total – Alt 4 Year 2027	581	2,263	7,524	165	357	172
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 4 minus CEQA Baseline	(343)	(1,276)	(5,602)	(5,229)	(758)	(690)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	506	1,834	6,780	163	289	147
Alt 4 minus NEPA Baseline	76	429	745	3	68	25
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No

Notes:

- a) Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal, would occur infrequently, and are based upon a set of conservative assumptions.

Table 1.9-21. Average Daily Operational Emissions With Mitigation – Alternative 4^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	56	142	1,563	91	37	29
Tugboats	3	15	57	0	2	2
Trucks	117	358	1,336	3	74	22
Trains	75	280	1,495	1	42	39
Terminal Equipment	25	172	686	1	21	19
Worker Trips	20	208	17	0	33	7
Total – Project Year 2012	419	1,404	7,130	148	245	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(80)	(462)	(15)	(2,442)	(317)	(287)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	419	1,404	7,130	148	245	147
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	133	237	1,678	42	33	27
Ships – Hoteling	29	77	811	62	22	17
Tugboats	3	16	18	0	0	0
Trucks	174	535	1,790	4	93	31
Trains	82	375	1,807	1	47	44
Terminal Equipment	25	212	228	1	10	9
Worker Trips	21	205	16	0	41	8
Total – Project Year 2015	466	1,656	6,349	110	246	136
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(33)	(210)	(797)	(2,480)	(316)	(298)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	411	1,419	6,472	120	231	134
Project minus NEPA Baseline	55	237	(123)	(10)	15	2
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2020						
Ships – Transit and Anchoring	163	291	2,065	51	41	33
Ships – Hoteling	17	47	465	52	15	12
Tugboats	4	21	24	0	1	0
Trucks	201	644	1,863	4	108	39
Trains	56	391	1,464	2	34	31
Terminal Equipment	17	222	66	1	2	2
Worker Trips	19	168	12	0	48	10
Total – Project Year 2020	475	1,784	5,958	111	249	128
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(24)	(82)	(1,187)	(2,479)	(313)	(306)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	379	1,437	5,237	107	206	108
Project minus NEPA Baseline	96	347	722	3	43	20
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No

Table 1.9-21. Average Daily Operational Emissions With Mitigation – Alternative 4^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	193	345	2,452	61	48	39
Ships – Hoteling	15	44	427	48	14	11
Tugboats	5	26	29	0	1	1
Trucks	156	503	1,336	4	116	41
Trains	42	391	1,120	2	24	22
Terminal Equipment	20	257	77	2	3	3
Worker Trips	17	141	10	1	56	12
Total – Project Year 2025	449	1,707	5,451	116	262	129
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(50)	(158)	(1,694)	(2,474)	(299)	(305)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,364	5,007	118	213	110
Project minus NEPA Baseline	89	343	444	(1)	49	19
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
Project Year 2027						
Ships – Transit and Anchoring	198	352	2,483	61	49	39
Ships – Hoteling	8	26	221	40	10	8
Tugboats	5	26	30	0	1	1
Trucks	163	524	1,401	5	120	43
Trains	39	404	1,026	2	22	21
Terminal Equipment	18	245	74	2	3	2
Worker Trips	15	123	9	1	55	11
Total – Project Year 2027	446	1,700	5,243	109	259	125
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(54)	(166)	(1,903)	(2,480)	(303)	(309)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,373	4,951	118	212	109
Project minus NEPA Baseline	86	327	292	(9)	47	16
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No

Notes:

- a) Average daily emissions represent annual emissions divided by 365 days per year of operation.

Table 1.9-22. Peak Daily Operational Emissions With Mitigation – Alternative 4^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NOX	SOX	PM10	PM2.5
Alt 4 Year 2012						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	87	223	2,461	140	58	46
Tugboats	5	23	89	0	4	3
Trucks	161	494	1,844	4	102	30
Trains	86	319	1,703	1	48	44
Terminal Equipment	47	280	1,115	1	36	33
Worker Trips	29	296	24	0	47	10
Total – Alt 4 Year 2012	620	2,016	10,515	231	354	214
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 4 minus CEQA Baseline	(304)	(1,523)	(2,611)	(5,163)	(761)	(648)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	620	2,016	10,515	231	354	214
Alt 4 minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 4 Year 2015						
Ships – Transit and Anchoring	244	424	2,913	69	58	46
Ships – Hoteling	38	102	1,079	82	29	23
Tugboats	5	25	29	0	1	1
Trucks	240	738	2,471	5	128	42
Trains	99	453	2,186	2	57	53
Terminal Equipment	47	332	490	2	22	20
Worker Trips	29	288	23	1	57	12
Total – Alt 4 Year 2015	702	2,363	9,192	160	352	197
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 4 minus CEQA Baseline	(222)	(1,176)	(3,934)	(5,234)	(763)	(666)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	606	2,013	9,474	190	333	196
Alt 4 minus NEPA Baseline	96	350	(282)	(29)	20	1
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	No	No	No	No
Alt 4 Year 2020						
Ships – Transit and Anchoring	244	424	2,913	69	58	46
Ships – Hoteling	20	56	552	62	18	15
Tugboats	5	27	30	0	1	1
Trucks	277	889	2,572	6	148	54
Trains	64	453	1,697	2	39	36
Terminal Equipment	23	303	91	2	3	3
Worker Trips	25	222	16	1	64	13
Total – Alt 4 Year 2020	658	2,375	7,872	141	332	168
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 4 minus CEQA Baseline	(266)	(1,163)	(5,254)	(5,253)	(783)	(694)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	546	1,964	7,469	165	286	151
Alt 4 minus NEPA Baseline	111	411	402	(24)	46	18
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No

Table 1.9-22. Peak Daily Operational Emissions With Mitigation – Alternative 4^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NOX	SOX	PM10	PM2.5
Alt 4 Year 2025						
Ships – Transit and Anchoring	244	424	2,913	69	58	46
Ships – Hoteling	20	56	552	62	18	15
Tugboats	6	28	31	0	1	1
Trucks	216	695	1,845	6	160	57
Trains	48	456	1,299	2	28	26
Terminal Equipment	27	340	102	2	4	4
Worker Trips	21	181	13	1	72	15
Total – Alt 4 Year 2025	581	2,179	6,755	142	341	163
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 4 minus CEQA Baseline	(343)	(1,360)	(6,371)	(5,252)	(774)	(699)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	504	1,803	6,810	162	288	148
Alt 4 minus NEPA Baseline	78	377	(55)	(21)	53	16
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	No	No	No	No
Alt 4 Year 2027						
Ships – Transit and Anchoring	244	424	2,913	69	58	46
Ships – Hoteling	10	34	288	52	13	10
Tugboats	6	29	32	0	1	1
Trucks	225	724	1,934	6	165	59
Trains	46	483	1,220	2	26	24
Terminal Equipment	25	343	104	2	4	3
Worker Trips	20	168	12	1	75	15
Total – Alt 4 Year 2027	576	2,204	6,502	133	342	160
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 4 minus CEQA Baseline	(348)	(1,334)	(6,624)	(5,261)	(774)	(702)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	506	1,834	6,780	163	289	147
Alt 4 minus NEPA Baseline	71	371	(277)	(30)	53	13
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	No	No	No	No

Notes:

- a) Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal, would occur infrequently, and are based upon a set of conservative assumptions.

Table 1.9-23. Average Daily Operational Emissions Without Mitigation – Alternative 5^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	56	142	1,563	91	37	29
Tugboats	3	15	57	0	2	2
Trucks	117	358	1,336	3	74	22
Trains	75	280	1,495	1	42	39
Terminal Equipment	25	172	686	1	21	19
Worker Trips	20	208	17	0	33	7
Total – Project Year 2012	419	1,404	7,130	148	245	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(80)	(462)	(15)	(2,442)	(317)	(287)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	419	1,404	7,130	148	245	147
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	143	268	2,312	60	42	34
Ships – Hoteling	40	106	1,126	85	30	24
Tugboats	4	20	23	0	0	0
Trucks	207	638	2,137	4	111	37
Trains	89	410	1,977	2	52	48
Terminal Equipment	47	272	1,110	1	37	34
Worker Trips	27	269	21	1	54	11
Total – Project Year 2015	557	1,983	8,706	153	326	188
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	58	118	1,561	(2,437)	(236)	(247)
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	411	1,419	6,472	120	231	134
Project minus NEPA Baseline	146	564	2,234	32	95	53
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No
Project Year 2020						
Ships – Transit and Anchoring	177	329	2,836	73	52	42
Ships – Hoteling	21	61	597	67	20	16
Tugboats	5	25	28	0	1	1
Trucks	236	756	2,188	5	126	46
Trains	63	440	1,648	2	38	35
Terminal Equipment	19	255	77	2	3	2
Worker Trips	22	194	14	1	56	12
Total – Project Year 2020	541	2,060	7,388	149	295	153
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	42	194	243	(2,441)	(266)	(281)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	379	1,437	5,237	107	206	108
Project minus NEPA Baseline	162	623	2,151	41	90	45
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No

Table 1.9-23. Average Daily Operational Emissions Without Mitigation – Alternative 5^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	212	393	3,366	86	62	49
Ships – Hoteling	17	48	474	53	16	12
Tugboats	6	28	31	0	1	1
Trucks	184	591	1,574	5	135	48
Trains	48	449	1,281	2	28	26
Terminal Equipment	23	294	88	2	3	3
Worker Trips	18	151	11	1	60	12
Total – Project Year 2025	507	1,953	6,826	148	305	152
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	8	88	(319)	(2,442)	(257)	(282)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,364	5,007	118	213	110
Project minus NEPA Baseline	147	589	1,819	31	92	42
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No
Project Year 2027						
Ships – Transit and Anchoring	232	428	3,667	94	67	54
Ships – Hoteling	17	50	492	54	16	13
Tugboats	6	30	34	0	1	1
Trucks	192	617	1,655	5	140	50
Trains	44	461	1,166	2	25	23
Terminal Equipment	24	310	93	2	4	3
Worker Trips	17	142	10	1	63	13
Total – Project Year 2027	532	2,039	7,118	158	317	158
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	33	173	(27)	(2,432)	(245)	(277)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,373	4,951	118	212	109
Project minus NEPA Baseline	173	666	2,167	39	104	49
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No

Notes:

- a) Average daily emissions represent annual emissions divided by 365 days per year of operation.

Table 1.9-24. Peak Daily Operational Emissions Without Mitigation – Alternative 5^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 5 Year 2012						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	87	223	2,461	140	58	46
Tugboats	5	23	89	0	4	3
Trucks	161	494	1,844	4	102	30
Trains	86	319	1,703	1	48	44
Terminal Equipment	47	280	1,115	1	36	33
Worker Trips	29	296	24	0	47	10
Total – Alt 5 Year 2012	620	2,016	10,515	231	354	214
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 5 minus CEQA Baseline	(304)	(1,523)	(2,611)	(5,163)	(761)	(648)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	620	2,016	10,515	231	354	214
Alt 5 minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 5 Year 2015						
Ships – Transit and Anchoring	409	762	6,556	168	120	96
Ships – Hoteling	60	159	1,686	123	44	35
Tugboats	9	50	58	0	1	1
Trucks	286	881	2,951	6	153	51
Trains	99	453	2,186	2	57	53
Terminal Equipment	69	375	1,503	2	52	48
Worker Trips	34	340	27	1	68	14
Total – Alt 5 Year 2015	967	3,021	14,967	301	496	298
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 5 minus CEQA Baseline	42	(518)	1,841	(5,093)	(620)	(565)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	606	2,013	9,474	190	333	196
Alt 5 minus NEPA Baseline	360	1,008	5,494	111	163	102
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes
Alt 5 Year 2020						
Ships – Transit and Anchoring	471	860	7,316	183	134	107
Ships – Hoteling	25	71	697	78	23	18
Tugboats	10	53	60	0	1	1
Trucks	325	1,044	3,021	7	174	64
Trains	68	480	1,797	2	42	38
Terminal Equipment	26	348	105	2	4	3
Worker Trips	29	263	19	1	76	16
Total – Alt 5 Year 2020	955	3,120	13,015	273	454	248
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 5 minus CEQA Baseline	31	(419)	(111)	(5,121)	(662)	(615)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	546	1,964	7,469	165	286	151
Alt 5 minus NEPA Baseline	409	1,155	5,546	108	168	97
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes

Table 1.9-24. Peak Daily Operational Emissions Without Mitigation – Alternative 5^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 5 Year 2025						
Ships – Transit and Anchoring	578	1,054	8,956	222	164	131
Ships – Hoteling	28	82	806	84	26	21
Tugboats	11	56	63	0	2	1
Trucks	254	816	2,173	7	187	67
Trains	54	509	1,448	2	31	29
Terminal Equipment	32	408	124	3	5	4
Worker Trips	24	207	15	1	83	17
Total – Alt 5 Year 2025	981	3,132	13,584	319	496	270
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 5 minus CEQA Baseline	57	(407)	459	(5,075)	(619)	(593)
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	504	1,803	6,810	162	288	148
Alt 5 minus NEPA Baseline	477	1,330	6,775	156	209	122
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	Yes	Yes	Yes
Alt 5 Year 2027						
Ships – Transit and Anchoring	578	1,054	8,956	222	164	131
Ships – Hoteling	28	82	806	84	26	21
Tugboats	12	57	64	0	2	1
Trucks	265	852	2,286	7	194	70
Trains	50	537	1,351	2	29	27
Terminal Equipment	33	423	128	3	5	5
Worker Trips	23	192	13	1	85	18
Total – Alt 5 Year 2027	989	3,197	13,604	319	504	272
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 5 minus CEQA Baseline	65	(342)	478	(5,075)	(611)	(591)
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	506	1,834	6,780	163	289	147
Alt 5 minus NEPA Baseline	484	1,363	6,824	156	215	124
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	Yes	Yes	Yes

Notes:

- a) Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal, would occur infrequently, and are based upon a set of conservative assumptions.

Table 1.9-25. Average Daily Operational Emissions With Mitigation – Alternative 5^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	56	142	1,563	91	37	29
Tugboats	3	15	57	0	2	2
Trucks	117	358	1,336	3	74	22
Trains	75	280	1,495	1	42	39
Terminal Equipment	25	172	686	1	21	19
Worker Trips	20	208	17	0	33	7
Total – Project Year 2012	419	1,404	7,130	148	245	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(80)	(462)	(15)	(2,442)	(317)	(287)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	419	1,404	7,130	148	245	147
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	149	270	1,946	49	38	31
Ships – Hoteling	40	106	1,126	85	30	24
Tugboats	4	20	23	0	0	0
Trucks	207	638	2,137	4	111	37
Trains	89	410	1,977	2	52	48
Terminal Equipment	33	256	315	1	14	13
Worker Trips	27	269	21	1	54	11
Total – Project Year 2015	550	1,970	7,544	142	299	163
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	51	104	399	(2,448)	(263)	(271)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	411	1,419	6,472	120	231	134
Project minus NEPA Baseline	138	551	1,073	21	67	29
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No
Project Year 2020						
Ships – Transit and Anchoring	184	331	2,364	59	47	37
Ships – Hoteling	21	61	597	67	20	16
Tugboats	5	25	28	0	1	1
Trucks	236	756	2,188	5	126	46
Trains	63	440	1,648	2	38	35
Terminal Equipment	20	259	78	2	3	3
Worker Trips	22	194	14	1	56	12
Total – Project Year 2020	550	2,066	6,917	135	290	149
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	50	200	(228)	(2,455)	(272)	(285)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	379	1,437	5,237	107	206	108
Project minus NEPA Baseline	171	629	1,680	27	85	41
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No

Table 1.9-25. Average Daily Operational Emissions With Mitigation – Alternative 5^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	221	392	2,757	68	55	44
Ships – Hoteling	17	48	474	53	16	12
Tugboats	6	28	31	0	1	1
Trucks	184	591	1,574	5	135	48
Trains	48	449	1,281	2	28	26
Terminal Equipment	23	299	90	2	4	3
Worker Trips	18	151	11	1	60	12
Total – Project Year 2025	516	1,957	6,218	130	298	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	17	92	(927)	(2,460)	(264)	(288)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,364	5,007	118	213	110
Project minus NEPA Baseline	156	593	1,211	12	85	37
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No
Project Year 2027						
Ships – Transit and Anchoring	241	426	2,994	73	59	47
Ships – Hoteling	9	30	255	45	11	9
Tugboats	6	30	34	0	1	1
Trucks	192	617	1,655	5	140	50
Trains	44	461	1,166	2	25	23
Terminal Equipment	21	284	86	2	3	3
Worker Trips	17	142	10	1	63	13
Total – Project Year 2027	529	1,991	6,200	128	303	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	30	125	(945)	(2,461)	(259)	(287)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,373	4,951	118	212	109
Project minus NEPA Baseline	170	618	1,249	10	91	38
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No

Notes:

- a) Average daily emissions represent annual emissions divided by 365 days per year of operation.

Table 1.9-26. Peak Daily Operational Emissions With Mitigation – Alternative 5^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 5 Year 2012						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	87	223	2,461	140	58	46
Tugboats	5	23	89	0	4	3
Trucks	161	494	1,844	4	102	30
Trains	86	319	1,703	1	48	44
Terminal Equipment	47	280	1,115	1	36	33
Worker Trips	29	296	24	0	47	10
Total – Alt 5 Year 2012	620	2,016	10,515	231	354	214
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 5 minus CEQA Baseline	(304)	(1,523)	(2,611)	(5,163)	(761)	(648)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	620	2,016	10,515	231	354	214
Alt 5 minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 5 Year 2015						
Ships – Transit and Anchoring	425	761	5,411	133	107	85
Ships – Hoteling	59	157	1,663	121	44	35
Tugboats	9	50	58	0	1	1
Trucks	286	881	2,951	6	153	51
Trains	99	453	2,186	2	57	53
Terminal Equipment	52	356	546	2	24	22
Worker Trips	34	340	27	1	68	14
Total – Alt 5 Year 2015	965	2,998	12,842	264	454	261
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 5 minus CEQA Baseline	41	(541)	(284)	(5,130)	(662)	(602)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	606	2,013	9,474	190	333	196
Alt 5 minus NEPA Baseline	358	986	3,368	75	121	65
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	Yes
Alt 5 Year 2020						
Ships – Transit and Anchoring	488	849	5,827	138	116	93
Ships – Hoteling	25	70	687	77	23	18
Tugboats	10	53	60	0	1	1
Trucks	325	1,044	3,021	7	174	64
Trains	68	480	1,797	2	42	38
Terminal Equipment	27	354	107	2	4	4
Worker Trips	29	263	19	1	76	16
Total – Alt 5 Year 2020	972	3,113	11,517	227	436	233
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 5 minus CEQA Baseline	48	(426)	(1,609)	(5,167)	(679)	(629)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	546	1,964	7,469	165	286	151
Alt 5 minus NEPA Baseline	426	1,149	4,048	62	150	83
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes

Table 1.9-26. Peak Daily Operational Emissions With Mitigation – Alternative 5^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 5 Year 2025						
Ships – Transit and Anchoring	598	1,039	7,122	166	142	113
Ships – Hoteling	27	65	700	73	22	17
Tugboats	11	56	63	0	2	1
Trucks	254	816	2,173	7	187	67
Trains	54	509	1,448	2	31	29
Terminal Equipment	33	415	125	3	5	5
Worker Trips	24	207	15	1	83	17
Total – Alt 5 Year 2025	1,001	3,107	11,646	252	471	249
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 5 minus CEQA Baseline	76	(432)	(1,480)	(5,142)	(644)	(614)
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	504	1,803	6,810	162	288	148
Alt 5 minus NEPA Baseline	497	1,304	4,836	89	183	101
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes
Alt 5 Year 2027						
Ships – Transit and Anchoring	598	1,039	7,122	166	142	113
Ships – Hoteling	14	47	400	68	17	14
Tugboats	12	57	64	0	2	1
Trucks	265	852	2,286	7	194	70
Trains	50	537	1,351	2	29	27
Terminal Equipment	29	389	118	3	4	4
Worker Trips	23	192	13	1	85	18
Total – Alt 5 Year 2027	990	3,114	11,354	247	473	247
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 5 minus CEQA Baseline	66	(425)	(1,772)	(5,147)	(642)	(616)
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	506	1,834	6,780	163	289	147
Alt 5 minus NEPA Baseline	485	1,280	4,574	84	184	99
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes

Notes:

- a) Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal, would occur infrequently, and are based upon a set of conservative assumptions.

Table 1.9-27. Average Daily Operational Emissions Without Mitigation – Alternative 6^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	56	142	1,563	91	37	29
Tugboats	3	15	57	0	2	2
Trucks	117	358	1,336	3	74	22
Trains	75	280	1,495	1	42	39
Terminal Equipment	25	172	686	1	21	19
Worker Trips	20	208	17	0	33	7
Total – Project Year 2012	419	1,404	7,130	148	245	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(80)	(462)	(15)	(2,442)	(317)	(287)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	419	1,404	7,130	148	245	147
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	143	268	2,312	60	42	34
Ships – Hoteling	40	106	1,126	85	30	24
Tugboats	4	20	23	0	0	0
Trucks	207	638	2,135	4	110	37
Trains	89	410	1,977	2	52	48
Terminal Equipment	44	263	1,074	1	35	32
Worker Trips	26	260	20	1	52	11
Total – Project Year 2015	553	1,965	8,667	153	322	186
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	54	99	1,522	(2,437)	(239)	(249)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	411	1,419	6,472	120	231	134
Project minus NEPA Baseline	142	546	2,195	32	91	51
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
Project Year 2020						
Ships – Transit and Anchoring	177	329	2,836	73	52	42
Ships – Hoteling	21	61	597	67	20	16
Tugboats	5	25	28	0	1	1
Trucks	235	755	2,185	5	126	46
Trains	63	440	1,648	2	38	35
Terminal Equipment	18	245	73	2	3	2
Worker Trips	21	192	14	1	55	11
Total – Project Year 2020	540	2,047	7,382	149	294	153
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	41	181	237	(2,441)	(267)	(281)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	379	1,437	5,237	107	206	108
Project minus NEPA Baseline	161	610	2,145	41	89	45
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No

Table 1.9-27. Average Daily Operational Emissions Without Mitigation – Alternative 6^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	212	393	3,366	86	62	49
Ships – Hoteling	17	48	474	53	16	12
Tugboats	6	28	31	0	1	1
Trucks	181	582	1,545	5	134	48
Trains	48	449	1,281	2	28	26
Terminal Equipment	21	277	83	2	3	3
Worker Trips	18	151	11	1	60	12
Total – Project Year 2025	503	1,927	6,792	148	303	151
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	4	62	(353)	(2,442)	(259)	(283)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,364	5,007	118	213	110
Project minus NEPA Baseline	143	563	1,785	30	90	41
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No
Project Year 2027						
Ships – Transit and Anchoring	232	428	3,667	94	67	54
Ships – Hoteling	17	50	492	54	16	13
Tugboats	6	30	34	0	1	1
Trucks	188	603	1,612	5	138	50
Trains	44	461	1,166	2	25	23
Terminal Equipment	23	291	87	2	3	3
Worker Trips	17	141	10	1	62	13
Total – Project Year 2027	526	2,005	7,068	157	313	156
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	27	139	(77)	(2,432)	(249)	(278)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,373	4,951	118	212	109
Project minus NEPA Baseline	167	632	2,117	39	101	47
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No

Notes:

a) Average daily emissions represent annual emissions divided by 365 days per year of operation.

Table 1.9-28. Peak Daily Operational Emissions Without Mitigation – Alternative 6^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 6 Year 2012						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	87	223	2,461	140	58	46
Tugboats	5	23	89	0	4	3
Trucks	161	494	1,844	4	102	30
Trains	86	319	1,703	1	48	44
Terminal Equipment	47	280	1,115	1	36	33
Worker Trips	29	296	24	0	47	10
Total – Alt 6 Year 2012	620	2,016	10,515	231	354	214
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 6 minus CEQA Baseline	(304)	(1,523)	(2,611)	(5,163)	(761)	(648)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	620	2,016	10,515	231	354	214
Alt 6 minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 6 Year 2015						
Ships – Transit and Anchoring	409	762	6,556	168	120	96
Ships – Hoteling	60	159	1,686	123	44	35
Tugboats	9	50	58	0	1	1
Trucks	286	880	2,948	6	153	51
Trains	99	453	2,186	2	57	53
Terminal Equipment	66	374	1,515	2	52	48
Worker Trips	35	347	27	1	69	14
Total – Alt 6 Year 2015	965	3,026	14,976	301	496	297
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 6 minus CEQA Baseline	40	(513)	1,850	(5,093)	(619)	(565)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	606	2,013	9,474	190	333	196
Alt 6 minus NEPA Baseline	358	1,013	5,502	111	163	102
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes
Alt 6 Year 2020						
Ships – Transit and Anchoring	471	860	7,316	183	134	107
Ships – Hoteling	25	71	697	78	23	18
Tugboats	10	53	60	0	1	1
Trucks	325	1,043	3,017	7	174	63
Trains	68	480	1,797	2	42	38
Terminal Equipment	26	344	104	2	4	3
Worker Trips	29	263	19	1	76	16
Total – Alt 6 Year 2020	955	3,115	13,011	273	454	248
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 6 minus CEQA Baseline	30	(424)	(115)	(5,121)	(662)	(615)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	546	1,964	7,469	165	286	151
Alt 6 minus NEPA Baseline	408	1,151	5,542	108	168	97
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes

Table 1.9-28. Peak Daily Operational Emissions Without Mitigation – Alternative 6^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 6 Year 2025						
Ships – Transit and Anchoring	578	1,054	8,956	222	164	131
Ships – Hoteling	28	82	806	84	26	21
Tugboats	11	56	63	0	2	1
Trucks	250	803	2,134	7	184	66
Trains	56	536	1,523	2	33	30
Terminal Equipment	30	387	117	2	4	4
Worker Trips	24	206	15	1	82	17
Total – Alt 6 Year 2025	978	3,124	13,613	319	495	270
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 6 minus CEQA Baseline	53	(414)	487	(5,075)	(620)	(592)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	504	1,803	6,810	162	288	148
Alt 6 minus NEPA Baseline	474	1,322	6,803	156	207	123
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	Yes	Yes	Yes
Alt 6 Year 2027						
Ships – Transit and Anchoring	578	1,054	8,956	222	164	131
Ships – Hoteling	28	82	806	84	26	21
Tugboats	12	57	64	0	2	1
Trucks	259	833	2,226	7	190	68
Trains	50	537	1,351	2	29	27
Terminal Equipment	32	406	123	2	5	4
Worker Trips	23	191	13	1	85	18
Total – Alt 6 Year 2027	982	3,160	13,539	319	500	270
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 6 minus CEQA Baseline	57	(379)	413	(5,075)	(615)	(592)
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	506	1,834	6,780	163	289	147
Alt 6 minus NEPA Baseline	476	1,327	6,759	156	211	123
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	Yes	Yes	Yes

Notes:

- a) Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal, would occur infrequently, and are based upon a set of conservative assumptions.

Table 1.9-29. Average Daily Operational Emissions With Mitigation – Alternative 6^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2012						
Ships – Transit and Anchoring	123	229	1,977	51	36	29
Ships – Hoteling	56	142	1,563	91	37	29
Tugboats	3	15	57	0	2	2
Trucks	117	358	1,336	3	74	22
Trains	75	280	1,495	1	42	39
Terminal Equipment	25	172	686	1	21	19
Worker Trips	20	208	17	0	33	7
Total – Project Year 2012	419	1,404	7,130	148	245	147
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	(80)	(462)	(15)	(2,442)	(317)	(287)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	419	1,404	7,130	148	245	147
Project minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Project Year 2015						
Ships – Transit and Anchoring	149	270	1,946	49	38	31
Ships – Hoteling	40	106	1,126	85	30	24
Tugboats	4	20	23	0	0	0
Trucks	207	638	2,135	4	110	37
Trains	89	410	1,977	2	52	48
Terminal Equipment	30	247	274	1	12	11
Worker Trips	26	260	20	1	52	11
Total – Project Year 2015	546	1,951	7,501	142	295	161
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	46	85	356	(2,448)	(267)	(273)
Thresholds	55	550	55	150	150	55
Significant?	No	No	Yes	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	411	1,419	6,472	120	231	134
Project minus NEPA Baseline	134	532	1,029	21	64	26
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	Yes	No	No	No
Project Year 2020						
Ships – Transit and Anchoring	184	331	2,364	59	47	37
Ships – Hoteling	21	61	597	67	20	16
Tugboats	5	25	28	0	1	1
Trucks	235	755	2,185	5	126	46
Trains	63	440	1,648	2	38	35
Terminal Equipment	19	249	75	2	3	2
Worker Trips	21	192	14	1	55	11
Total – Project Year 2020	548	2,053	6,911	135	289	149
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	49	187	(234)	(2,455)	(273)	(286)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	379	1,437	5,237	107	206	108
Project minus NEPA Baseline	169	616	1,674	27	84	40
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No

Table 1.9-29. Average Daily Operational Emissions With Mitigation – Alternative 6^a

Emission Source	Average Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Project Year 2025						
Ships – Transit and Anchoring	221	392	2,757	68	55	44
Ships – Hoteling	17	48	474	53	16	12
Tugboats	6	28	31	0	1	1
Trucks	181	582	1,545	5	134	48
Trains	48	449	1,281	2	28	26
Terminal Equipment	22	282	84	2	3	3
Worker Trips	18	151	11	1	60	12
Total – Project Year 2025	512	1,931	6,184	130	296	146
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	13	65	(961)	(2,460)	(266)	(289)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,364	5,007	118	213	110
Project minus NEPA Baseline	152	567	1,177	12	83	36
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No
Project Year 2027						
Ships – Transit and Anchoring	241	426	2,994	73	59	47
Ships – Hoteling	9	30	255	45	11	9
Tugboats	6	30	34	0	1	1
Trucks	188	603	1,612	5	138	50
Trains	44	461	1,166	2	25	23
Terminal Equipment	20	266	80	2	3	3
Worker Trips	17	141	10	1	62	13
Total – Project Year 2027	523	1,957	6,151	128	300	146
CEQA Impacts						
CEQA Baseline Emissions	499	1,866	7,145	2,590	562	434
Project minus CEQA Baseline	24	92	(994)	(2,462)	(262)	(289)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	360	1,373	4,951	118	212	109
Project minus NEPA Baseline	164	584	1,200	10	87	37
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	No

Notes:

- a) Average daily emissions represent annual emissions divided by 365 days per year of operation.

Table 1.9-30. Peak Daily Operational Emissions With Mitigation – Alternative 6^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 6 Year 2012						
Ships – Transit and Anchoring	205	381	3,278	84	60	48
Ships – Hoteling	87	223	2,461	140	58	46
Tugboats	5	23	89	0	4	3
Trucks	161	494	1,844	4	102	30
Trains	86	319	1,703	1	48	44
Terminal Equipment	47	280	1,115	1	36	33
Worker Trips	29	296	24	0	47	10
Total – Alt 6 Year 2012	620	2,016	10,515	231	354	214
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 6 minus CEQA Baseline	(304)	(1,523)	(2,611)	(5,163)	(761)	(648)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	620	2,016	10,515	231	354	214
Alt 6 minus NEPA Baseline	-	-	-	-	-	-
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
Alt 6 Year 2015						
Ships – Transit and Anchoring	425	761	5,411	133	107	85
Ships – Hoteling	59	157	1,663	121	44	35
Tugboats	9	50	58	0	1	1
Trucks	286	880	2,948	6	153	51
Trains	99	453	2,186	2	57	53
Terminal Equipment	48	354	486	2	22	20
Worker Trips	35	347	27	1	69	14
Total – Alt 6 Year 2015	962	3,002	12,779	264	452	258
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 6 minus CEQA Baseline	37	(537)	(347)	(5,130)	(663)	(604)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	606	2,013	9,474	190	333	196
Alt 6 minus NEPA Baseline	355	989	3,306	75	120	63
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	Yes
Alt 6 Year 2020						
Ships – Transit and Anchoring	488	849	5,827	138	116	93
Ships – Hoteling	25	70	687	77	23	18
Tugboats	10	53	60	0	1	1
Trucks	325	1,043	3,017	7	174	63
Trains	68	480	1,797	2	42	38
Terminal Equipment	26	350	106	2	4	4
Worker Trips	29	263	19	1	76	16
Total – Alt 6 Year 2020	972	3,109	11,513	227	436	233
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 6 minus CEQA Baseline	47	(430)	(1,613)	(5,167)	(680)	(629)
Thresholds	55	550	55	150	150	55
Significant?	No	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	546	1,964	7,469	165	286	151
Alt 6 minus NEPA Baseline	425	1,144	4,044	62	150	83
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	No	Yes

Table 1.9-30. Peak Daily Operational Emissions With Mitigation – Alternative 6^a

Emission Source	Peak Daily Emissions (lb/day)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Alt 6 Year 2025						
Ships – Transit and Anchoring	598	1,039	7,122	166	142	113
Ships – Hoteling	27	65	700	73	22	17
Tugboats	11	56	63	0	2	1
Trucks	250	803	2,134	7	184	66
Trains	56	536	1,523	2	33	30
Terminal Equipment	31	393	118	2	5	4
Worker Trips	24	206	15	1	82	17
Total – Alt 6 Year 2025	997	3,099	11,675	251	470	249
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 6 minus CEQA Baseline	73	(440)	(1,451)	(5,143)	(646)	(613)
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	504	1,803	6,810	162	288	148
Alt 6 minus NEPA Baseline	494	1,296	4,865	89	182	102
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes
Alt 6 Year 2027						
Ships – Transit and Anchoring	598	1,039	7,122	166	142	113
Ships – Hoteling	14	47	400	68	17	14
Tugboats	12	57	64	0	2	1
Trucks	259	833	2,226	7	190	68
Trains	50	537	1,351	2	29	27
Terminal Equipment	26	336	108	2	4	4
Worker Trips	23	191	13	1	85	18
Total – Alt 6 Year 2027	981	3,040	11,284	247	469	245
CEQA Impacts						
CEQA Baseline Emissions	924	3,539	13,126	5,394	1,115	863
Alt 6 minus CEQA Baseline	57	(499)	(1,842)	(5,147)	(647)	(618)
Thresholds	55	550	55	150	150	55
Significant?	Yes	No	No	No	No	No
NEPA Impacts						
NEPA Baseline Emissions	506	1,834	6,780	163	289	147
Alt 6 minus NEPA Baseline	476	1,206	4,504	84	179	98
Thresholds	55	550	55	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes

Notes:

- a) Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal, would occur infrequently, and are based upon a set of conservative

Appendix AQ1.10

GHG Emission Calculation Methodology and Results

Appendix AQ1.10
**GHG Emission Calculation Methodology
and Results**

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Calculation Methodology for GHG

1.0 Stationary Source Combustion

1.1 Description

Stationary combustion includes the following sources operated at the project location.

Category Assumptions:

- Cargo handling equipment (CHE) and construction equipment within terminal boundaries.¹
- The fuel used for this equipment will be diesel or diesel liquefied propane gas (LPG).

Diesel emission factors for CO₂ were provided directly by the OFFROAD2007 emission factor program in units of grams per horsepower-hour (g/hp-hr). CH₄ and N₂O emission factors for diesel equipment were taken from the The Climate Registry (TCR) General Reporting Protocol (GRP), Table 13.6 in units of grams per gallon. LPG emission factors for LPG forklifts for CO₂ were taken from the TCR GRP, Table 13.1 in units of kg CO₂ per gallon. LPG CH₄ and N₂O emission factors were not available from TCR and were therefore taken from the California Climate Action Registry (CCAR) General Reporting Protocol (GRP), Table C.5 in units of kg CH₄ or N₂O per gallon. The brake-specific fuel consumption (BSFC) for forklifts was taken from the OFFROAD2007 model to convert all CO₂, CH₄, and N₂O emission factors in g/gal or kg/gal to g/hp-hr.

1.2 Equations

1.2.1 Mass Emissions Estimates

General Equation:

$$\begin{aligned} \text{Total Emissions} &= \text{Emission Factor (g GHG/hp-hr)} \\ &\quad \times \text{Work Produced (hp-hr)} \\ &\quad \times 0.000001 \text{ (metric tons per gram)} \end{aligned}$$

Example:

$$\begin{aligned} \text{Given: Equipment power output of } &140,000 \text{ hp-hr per year} \\ \text{Total Emissions CO}_2 &= 568.3 \text{ g/hp-hr [from OFFROAD2007]} \\ &\quad \times 1,350,000 \text{ (hp-hr/year)} \\ &\quad \times 0.000001 \text{ (metric tons per gram)} \\ \text{Total Emissions CO}_2 &= 767 \text{ metric tons} \end{aligned}$$

1.2.2 Converting Mass Estimates to Carbon Dioxide Equivalent (CO₂e)

General Equation

¹ Although most CHE sources are mobile, they are classified as stationary for the purposes of GHG reporting because they remain onsite.

1 *Metric Tons of CO₂e = Metric Tons of GHG x GWP*
2 *Global warming potentials (GWPs) are listed in Table AQ1.10.1-1.*

3 Example:

4 *Given: GHG Emission Rate = 0.014 metric tons of CH₄;*

5 *GWP = 21 (from Table AQ1.10.1-1)*

6 *Metric Tons of CO₂e = Metric Tons of GHG x GWP*

7 *Metric Tons of CO₂e = 0.014 Metric Tons of Methane x 21*

8 *Metric Tons of CO₂e = 0.29*

9 **1.3 Data Requirements – Cargo Handling and Construction** 10 **Equipment**

11 Fuel Usage:

12 LPG _____ gallons²

13 OR

14 Diesel _____ hp-hr

15 **1.4 Emission Factors**

16 OFFROAD2007 for Diesel and LPG CO₂ emission factors (g/hp-hr)

17 Table AQ1.10.2-1 for original CH₄ and N₂O and LNG CO₂ emission factors (kg/gal)

18 Table AQ1.10.2-5 for converted CH₄ and N₂O and LNG CO₂ emission factors (g/hp-hr)

19 **2.0 Mobile Source Combustion**

20 **2.1 Description**

21 This source category includes mobile sources that travel both on- and off-site.

22 Category Assumptions:

- 23 ■ Primarily consists of locomotives, trucks, worker commute vehicles, ships, and
24 tugboats.
- 25 ■ The fuel used will be diesel/distillate/residual fuel or gasoline.

26 For line haul locomotives and on-dock locomotives and switching operations, emission
27 factors from the 2009 Port of Los Angeles Emissions Inventory (EI) (g/hp-hr) were used
28 for all GHGs.

29 For diesel trucks, CO₂ emission factors in units of grams per mile (g/mi) were obtained
30 directly from the EMFAC2007 emission factor program. Emission factors from the TCR
31 GRP (g/mi), Table 13.4, for diesel heavy-duty vehicles were used for CH₄ and N₂O.

² LPG offroad equipment usage is provided in gallons of fuel consumed rather than hp-hr. In this case, the gallons of fuel consumed must be derived from the hp-hr by using a brake-specific fuel consumption (BSFC) value (in lb fuel per bhp-hr), which depends on the type of equipment. Offroad 2007 provides typical BSFC values by equipment horsepower category.

1 For worker commute vehicles, CO₂ and CH₄ emission factors were obtained from
2 EMFAC2007 in g/mi. Emission factors from the TCR GRP (g/mi), Table 13.4, for
3 gasoline passenger cars were used for N₂O.

4 **2.2 Equations**

5 **2.2.1 Mass Emissions Estimates**

6 General Equations:

7 *GHGs of Source Category CO₂, CH₄, N₂O*

8 *Total Emissions = Emission Factor (g GHG/hp-hr)*

9 *x Work Produced (hp-hr)*

10 *x 0.000001 (metric tons per gram)*

11
12 *OR*

13 *Total Emissions = Emission Factor (g GHG/kWh)*

14 *x Power Output (kWh)*

15 *x 0.000001 (metric tons per gram)*

16
17 Example:

18 *Given: 1,000 truck trips and an average trip length of 15 miles.*

19 *Total VMT = 1,000 trips x 15 miles/trip = 15,000 miles*

20 *Total Emissions N₂O = 0.05 (g/mile) [from Table AQ1.10.2-3]*

21 *x 20,000 miles*

22 *x 0.000001 (metric tons per gram)*

23 **2.3 Data Requirements**

24 **2.3.1 Data Requirements – Locomotives**

25 Fuel Usage:

26 Diesel _____ hp-hr

27 **2.3.2 Data Requirements – Truck and Worker Commute Vehicles**

28 Miles traveled by fuel type:

29 Diesel _____ miles

30 Gasoline _____ miles

31 **2.3.3 Data Requirements – Ships and Tugboats**

32 Main and Auxiliary Engines and Boilers:

33 Residual Fuel _____ kWh engine/boiler output

34 Distillate Fuel _____ kWh engine/boiler output

1 **2.4 Emission Factors**

2 Locomotives:

3 See Table AQ1.10.4-6. GHG Emission Factors for Locomotives

4 Trucks:

5 EMFAC2007 for CO₂ and CH₄ emission factors (g/mile); in Table AQ1.10.2-1

6 Table AQ1.10.2-3 for N₂O emission factors (g/mile)

7 Worker Commute Vehicles:

8 See Table AQ1.10.2-1. GHG Emission Factors for U.S. Transport Fuels and

9 Table AQ1.10.2-3. CH₄ and N₂O Emission Factors for Mobile Sources

10 Marine Vessel Main and Auxiliary Engines and Boilers:

11 See Table AQ1.10.2-4. GHG Emission Factors for Marine Vessels

12 **3.0 Electricity Usage**

13 **3.1 Description**

14 Electrical usage directly related to terminal operations.

15 Category Summary:

- 16 ■ Includes alternative maritime power (AMP) usage during ship hoteling, and on-
- 17 terminal electricity consumption.
- 18 ■ Assumes all electricity consumed is provided by the Los Angeles Department of
- 19 Water and Power (LADWP).

20 Emission factors for CO₂ for electricity usage were obtained from LADWP. Emission
21 factors for CH₄ and N₂O were obtained from the TCR GRP.

22 **3.2 Equations**

23 **3.2.1 Mass Emissions Estimates**

24 General Equation:

25 *GHGs of Source Category CO₂, CH₄, N₂O*

26 *Total Emissions = Emission Factor (lbs GHG/Megawatt-hour [MWh])*

27 *x Electricity Used (kWh)*

28 *x 0.001MWh per kWh*

29 *÷ 2,204.62 lbs/metric ton*

30 Example:

31 *Given: Electricity Usage = 1,000,000 kWh*

32 *Total Emissions CO₂ = 724.12 (lbs CO₂/MWh) [from Table AQ1.10.2-2]*

33 *x 1,000,000 kWh*

34 *x 0.001 MWh per kWh*

1 $\div 2,204.62 \text{ lbs/metric ton}$

2 *Total Emissions CO₂ = 328.46 metric tons*

3 **3.3 Data Requirements – Electricity Usage**

4 Electricity Usage _____ kilowatt-hours (kWh)

5 **3.4 Emission Factors**

6 Table AQ1.10.2-2 for emission factors

7 **4.0 Refrigeration**

8 **4.1 Description**

9 Fugitive emissions of hydrofluorocarbons (HFCs) from refrigerant leakage in refrigerated
10 containers (reefers) while within Port boundaries.

11 Category Summary:

- 12 ■ Primarily consist of refrigerated container operation
- 13 ■ Does not include combustion or electric sources to power refrigeration (calculated
14 elsewhere)

15 Refrigeration losses were calculated using a mass balance approach. The TCR GRP
16 screening methodology for transport refrigeration in Section 16.1 using the values in
17 Table 16.3 was used to estimate fugitive emissions from the use of HFC-134a in reefers
18 while in Port boundaries. The average refer dwell time inside California boundaries was
19 assumed to be 3 days per one-way trip. This estimate assumes an on-terminal reefer
20 dwell time of 2 days and 1 additional day for transport in and out of the terminal. Each
21 reefer unit has a capacity of 8lbs (3.63 kg) of refrigerant.

22 Reefer calls were provided for the CEQA baseline period. The ratio of reefer calls to
23 total TEU throughput is assumed to remain constant for all future project and alternative
24 years. Therefore to determine reefer calls for the future years, the same ratio for the
25 baseline is applied to the TEU throughput for the future years.

26 **4.2 Equations**

27 **4.2.1 Mass Emissions Estimates**

28 General Equation

29 *HFC Emissions from Refrigeration Leakage (kg) =*

30 *Total Annual Refrigerant Charge (kg)*

31 *x Dwell time (days) / 365*

32 *x Operating Emission Factor (%)*

33 *where the operating emission factor for transport refrigeration is 50%.*

34
35 Example:

1 *Given: Annual throughput of 1,000 reefers with an average refrigerant charge of 3.6 kg*
2 *HFC 134a per reefer (i.e. total annual refrigerant charge of 3,630 kg of HFC 134a)*

3 *HFC Emissions from Refrigeration Leakage (kg) =*

4 *3,630 kg HFC 134a*

5 *x 3 days/365 days*

6 *x 50% Operating Emission Factor*

7 *HFC Emissions from Refrigeration Leakage = 14.9 kg HFC 134a.*

8 **4.3 Data Requirements - Refrigeration**

9 Refrigerant Charge _____ kg per reefer

10 Refrigerant GWP _____ (by HFC listed in Attachment 1)

11 Total Reefer Calls _____ as a % of TEU throughput per year

12

13

Attachment 1

Global Warming Potentials

Table AQ1.10.1-1 Global Warming Potentials

Greenhouse Gas	Global Warming Potential
CO ₂	1
CH ₄	21
N ₂ O	310
SF ₆	23,900
HFC-23	11,700
HFC-32	650
HFC-41	150
HFC-43-10mee	1,300
HFC-125	2,800
HFC-134	1,000
HFC-134a	1,300
HFC-143	300
HFC-143a	3,800
HFC-152	43*
HFC-152a	140
HFC-161	12*
HFC-227ea	2,900
HFC-236cb	1,300*
HFC-236ea	1,200*
HFC-236fa	6,300
HFC-245ca	560
HFC-245fa	950*
HFC-365mfc	890*
Perfluoromethane	6,500
Perfluoroethane	9,200
Perfluoropropane	7,000
Perfluorobutane	7,000
Perfluorocyclobutane	8,700
Perfluoropentane	7,500
Perfluorohexane	7,400

Source: Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report published in 1995, unless no value was assigned in the document. In that case, the GWP values are from the IPCC Third Assessment Report published in 2001 (those marked with *). GWP values are from the Second Assessment Report (unless otherwise noted) to be consistent with international practices. Values are 100-year GWP values.

Note: This information is found in Table B.1 of the TCR GRP.

Attachment 2

Emission Factors

Table AQ1.10.2-1. GHG Emission Factors for U.S. Transport Fuels

Fuel	Carbon Content	Emission Factor		
		CO ₂	CH ₄	N ₂ O
Gasoline	19.33 kg C/ MMBtu	8.81 kg/gal	0.0172 g/mi ¹	0.0038 g/mi ¹
Diesel Fuel	19.95 kg C/ MMBtu	10.15 kg/gal	0.0051 g/mi ²	0.0048 g/mi ²
Residual Fuel Oil (#5,6)	21.49 kg C/ MMBtu	11.80 kg/gal	0.74 g/gal ³	0.30 g/gal ³
Liquefied Petroleum Gas (LPG)	17.23 kg C/ MMBtu	5.79 kg/gal	0.066 g/mi ⁴	0.175 g/mi ⁴

Source: The Climate Registry, *General Reporting Protocol v.1.1*, May 2008; *GRP Updates and Clarifications*, August 2010

1. Emission factor given for 2008 model-year passenger cars.
2. Emission factor given for heavy-duty vehicles.
3. Emission factor given for ships and boats.
4. Emission factor given for heavy-duty vehicles.

Table AQ1.10.2-2. GHG Indirect Emission Factors for Electricity Consumption

Region	Emission Factor		
	CO ₂ (lb/MWh)	CH ₄ (lb/GWh)	N ₂ O (lb/GWh)
CAMX – WECC California	724.12	30.24	8.08

Source: The Climate Registry, *General Reporting Protocol v.1.1*, May 2008; *GRP Updates and Clarifications*, August 2010

Table AQ1.10.2-3. CH₄ and N₂O Emission Factors for Mobile Sources

Vehicle Type and Year	N ₂ O (g/mile)	CH ₄ (g/mile)
<i>Gasoline Passenger Cars</i>		
Model Years 1984-1993	0.0647	0.0704
Model Year 1994	0.056	0.0531
Model Year 1995	0.0473	0.0358
Model Year 1996	0.0426	0.0272
Model Year 1997	0.0422	0.0268
Model Year 1998	0.0393	0.0249
Model Year 1999	0.0337	0.0216
Model Year 2000	0.0273	0.0178
Model Year 2001	0.0158	0.011
Model Year 2002	0.0153	0.0107

Model Year 2003	0.0135	0.0114
Model Year 2004	0.0083	0.0145
Model Year 2005	0.0079	0.0147
<i>Diesel Heavy-Duty Vehicles</i>		
All Model Years	0.0048	0.0051
Source: The Climate Registry, <i>General Reporting Protocol v.1.1</i> , May 2008; <i>GRP Updates and Clarifications</i> , August 2010		

1

2 **Table AQ1.10.2-4.** GHG Emission Factors for Marine Vessels

Source	Engine Type	Fuel	Emission Factor		
			CO2 (g/kWh)	CH4 (g/kWh)	N2O (g/kWh)
Container Ship	Main ¹	MGO ²	620	0.012	0.029
Container Ship	Main ¹	Residual ³	620	0.012	0.031
Container Ship	Auxiliary	MGO ²	683	0.008	0.029
Container Ship	Auxiliary	Residual ³	683	0.008	0.031
Container Ship	Boiler	MGO ²	970	0.002	0.075
Container Ship	Boiler	Residual ³	970	0.002	0.080
Tugboat	Main	Diesel ⁴	486	0.015	0.023
Tugboat	Auxiliary	Diesel ⁴	486	0.013	0.023
¹ Slow speed diesel main engine					
² Marine gas oil (0.1% sulfur content)					
³ Residual oil (2.7% sulfur content)					
⁴ High speed diesel engines (15ppm sulfur content)					
Source: Starcrest, Port of Los Angeles Emissions Inventory, 2009					

3

4 **Table AQ1.10.2-5.** GHG Emission Factors for Offroad Equipment

Source	Fuel	Emission Factor		
		CO2 (g/hp-hr)	CH4 (g/hp-hr)	N2O (g/hp-hr)
All Equipment	Diesel	568.3		
Forklifts	LPG	84.56	0.0146	0.0015

5

6

7 **Table AQ1.10.2-6.** GHG Emission Factors for Locomotives

Source	Fuel	Emission Factor		
		CO2 (g/bhp-hr)	CH4 (g/bhp-hr)	N2O (g/bhp-hr)
Switch Locomotive	Diesel ¹	670	0.050	0.017
Line Haul Locomotives	Diesel ¹	487	0.040	0.013
¹ Diesel engines (15ppm sulfur content)				
Source: Starcrest, Port of Los Angeles Emissions Inventory, 2009				

8

Attachment 3

GHG Descriptions

Water Vapor (H₂O). Overall, the most abundant and dominant greenhouse gas in the atmosphere is water vapor. Water vapor is neither long-lived nor well mixed in the atmosphere, varying spatially from 0 to 2 percent. In addition, atmospheric water can exist in several physical states including gaseous, liquid, and solid. Human activities are not believed to affect directly the average global concentration of water vapor, but, the radiative forcing produced by the increased concentrations of other greenhouse gases may indirectly affect the hydrologic cycle. While a warmer atmosphere has increased water holding capacity, increased concentrations of water vapor affects the formation of clouds, which can both absorb and reflect solar and terrestrial radiation. Aircraft contrails, which consist of water vapor and other aircraft emittants, are similar to clouds in their radiative forcing effects .

Carbon Dioxide (CO₂). In nature, carbon is cycled between various atmospheric, oceanic, land biotic, marine biotic and mineral reservoirs. The largest fluxes occur between the atmosphere and terrestrial biota, and between the atmosphere and surface water of the oceans. In the atmosphere, carbon predominantly exists in its oxidized form as CO₂. Atmospheric CO₂ is part of this global carbon cycle, and therefore its fate is a complex function of geochemical and biological processes. CO₂ concentrations in the atmosphere increased from approximately 280 parts per million by volume (ppmv) in pre-industrial times to 385 ppmv in 2008, a 37.5 percent increase. The IPCC definitively states that “the present atmospheric CO₂ increase is caused by anthropogenic emissions of CO₂”. The predominant source of anthropogenic CO₂ emissions is the combustion of fossil fuels. Forest clearing, other biomass burning, and some non-energy production processes (e.g., cement production) also emit notable quantities of CO₂. In it’s fourth assessment, the IPCC stated “most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increased in anthropogenic greenhouse gas concentrations,” of which CO₂ is the most important.

Methane (CH₄). CH₄ is primarily produced through anaerobic decomposition of organic matter in biological systems. Agricultural processes such as wetland rice cultivation, enteric fermentation in animals, and the decomposition of animal wastes emit CH₄, as does the decomposition of municipal solid wastes. CH₄ is also emitted during the production and distribution of natural gas and petroleum, and is released as a by-product of coal mining and incomplete fossil fuel combustion. Atmospheric concentrations of CH₄ have increased by about 143 percent since 1750, from a pre-industrial value of about 722 ppb to 1,741-1,865 ppb in 2007, although the rate of increase has been declining. The IPCC has estimated that slightly more than half of the current CH₄ flux to the atmosphere is anthropogenic, from human activities such as agriculture, fossil fuel use, and waste disposal.

CH₄ is removed from the atmosphere through a reaction with the hydroxyl radical (OH) and is ultimately converted to CO₂. Minor removal processes also include reaction with chlorine in the marine boundary layer, a soil sink, and stratospheric reactions. Increasing emissions of CH₄ reduce the concentration of OH, a feedback that may increase the atmospheric lifetime of CH₄.

Nitrous Oxide (N₂O). Anthropogenic sources of N₂O emissions include agricultural soils, especially production of nitrogen-fixing crops and forages, the use of synthetic and

1 manure fertilizers, and manure deposition by livestock; fossil fuel combustion, especially
2 from mobile combustion; adipic (nylon) and nitric acid production; wastewater treatment
3 and waste incineration; and biomass burning. The atmospheric concentration of N₂O has
4 increased by 18 percent since 1750, from a pre-industrial value of about 270 ppb to 321-
5 322 ppb in 2007, a concentration that has not been exceeded during the last thousand
6 years. N₂O is primarily removed from the atmosphere by the photolytic action of sunlight
7 in the stratosphere.

8 **Ozone (O₃).** Ozone is present in both the upper stratosphere, where it shields the Earth
9 from harmful levels of ultraviolet radiation, and at lower concentrations in the
10 troposphere, where it is the main component of anthropogenic photochemical “smog.”
11 During the last two decades, emissions of anthropogenic chlorine and bromine-containing
12 halocarbons, such as CFCs, have depleted stratospheric ozone concentrations. This loss
13 of ozone in the stratosphere has resulted in negative radiative forcing, representing an
14 indirect effect of anthropogenic emissions of chlorine and bromine compounds. The
15 depletion of stratospheric ozone and its radiative forcing was expected to reach a
16 maximum in about 2000 before starting to recover. As of IPCC’s fourth
17 assessment, “whether or not recently observed changes in ozone trends are already
18 indicative of recovery of the global ozone layer is not yet clear.”

19 The past increase in tropospheric ozone, which is also a greenhouse gas, is estimated to
20 provide the third largest increase in direct radiative forcing since the pre-industrial era,
21 behind CO₂ and CH₄. Tropospheric ozone is produced from complex chemical reactions
22 of volatile organic compounds mixing with NO_x in the presence of sunlight. The
23 tropospheric concentrations of ozone and these other pollutants are short-lived and,
24 therefore, spatially variable.

25 **Halocarbons, Perfluorocarbons, and Sulfur Hexafluoride.** Halocarbons are, for the
26 most part, man-made chemicals that have both direct and indirect radiative forcing
27 effects. Halocarbons that contain chlorine (CFCs, HCFCs, methyl chloroform, and carbon
28 tetrachloride) and bromine (halons, methyl bromide, and hydrobromofluorocarbons
29 [HFCs]) result in stratospheric ozone depletion and are therefore controlled under the
30 Montreal Protocol on Substances that Deplete the Ozone Layer. Although CFCs and
31 HCFCs include potent global warming gases, their net radiative forcing effect on the
32 atmosphere is reduced because they cause stratospheric ozone depletion, which itself is
33 an important greenhouse gas in addition to shielding the Earth from harmful levels of
34 ultraviolet radiation. Under the Montreal Protocol, the United States phased out the
35 production and importation of halons by 1994 and of CFCs by 1996. Under the
36 Copenhagen Amendments to the Protocol, a cap was placed on the production and
37 importation of HCFCs by non-Article 530 countries beginning in 1996, and then
38 followed by a complete phase-out by the year 2030. While ozone depleting gases covered
39 under the Montreal Protocol and its Amendments are not covered by the UNFCCC; they
40 are reported in this inventory under Annex 6.2 of this report for informational purposes.

41 HFCs, PFCs, and SF₆ are not ozone depleting substances, and therefore are not covered
42 under the Montreal Protocol. They are, however, powerful greenhouse gases. HFCs are
43 primarily used as replacements for ozone depleting substances but also emitted as a by-
44 product of the HCFC-22 manufacturing process. Currently, they have a small aggregate
45 radiative forcing impact, but it is anticipated that their contribution to overall radiative
46 forcing will increase. PFCs and SF₆ are predominantly emitted from various industrial
47 processes including aluminum smelting, semiconductor manufacturing, electric power
48 transmission and distribution, and magnesium casting. Currently, the radiative forcing
49 impact of PFCs and SF₆ is also small, but they have a significant growth rate, extremely

1 long atmospheric lifetimes, and are strong absorbers of infrared radiation, and therefore
2 have the potential to influence climate far into the future.

3 **Aerosols.** Aerosols are extremely small particles or liquid droplets found in the
4 atmosphere. They can be produced by natural events such as dust storms and volcanic
5 activity, or by anthropogenic processes such as fuel combustion and biomass burning.
6 Aerosols affect radiative forcing differently than greenhouse gases, and their radiative
7 effects occur through direct and indirect mechanisms: directly by scattering and
8 absorbing solar radiation; and indirectly by increasing droplet counts that modify the
9 formation, precipitation efficiency, and radiative properties of clouds. Aerosols are
10 removed from the atmosphere relatively rapidly by precipitation. Because aerosols
11 generally have short atmospheric lifetimes, and have concentrations and compositions
12 that vary regionally, spatially, and temporally, their contributions to radiative forcing are
13 difficult to quantify.

14 Source: *USEPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008*,
15 April 2010

16

1
2
3
4

Attachment 4 GHG Inventory Tables

Table AQ.1.10.4-1 CEQA Baseline (July 2008 - June 2009)
Annual Operational Emissions

Emission Source	Annual Emissions (metric tons/year)				
	CO2	CH4	N2O	HFC-134a	CO2e
Ships – Transit and Anchoring	43,960	0.96	2.27	-	44,684
Ships – Hoteling	14,056	0.11	0.86	-	14,325
Tugboats	359	0.01	0.02	-	364
Trucks	34,633	0.08	0.08	-	34,659
Trains	33,253	2.72	0.89	-	33,585
Terminal Equipment	6,848	0.17	0.08	-	6,878
Reefer Refrigerant Losses	-	-	-	0.38	498
Worker Trips	2,846	0.24	0.32	-	2,952
On-Terminal Electricity Usage	13,286	0.35	0.09	-	13,320
Total - CEQA Baseline	149,241	4.63	4.61	0.38	151,264

Table AQ.1.10.4-2 NEPA Baseline Operational Emissions Without Mitigation

Emission Source	Annual Emissions (metric tons/year)				
	CO2	CH4	N2O	HFC-134a	CO2e
Project Year 2012					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	21,378	0	1	-	21,749
Tugboats	340	0	0	-	345
Trucks	59,452	0	0	-	59,497
Trains	43,445	1	4	-	44,572
Terminal Equipment	13,376	0	0	-	13,429
Reefer Refrigerant Losses	-	-	-	1	841
AMP Usage	-	-	-	-	-
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,340	0	1	-	5,525
Total – Project Year 2012	214,440	4	8	1	217,876
CEQA Baseline Emissions	149,241	5	5	0	151,264
Project minus CEQA Baseline	65,198	(1)	4	0	66,612
Project Year 2015					
Ships – Transit and Anchoring	48,661	1	2	-	49,414
Ships – Hoteling	14,331	0	1	-	14,606
Tugboats	340	0	0	-	345
Trucks	60,769	0	0	-	60,814
Trains	43,938	1	4	-	45,078
Terminal Equipment	13,669	0	0	-	13,723
Reefer Refrigerant Losses	-	-	-	1	859
AMP Usage	5,431	0	0	-	5,442
On-Terminal Electricity Usage	22,945	1	0	-	23,004
Worker Trips	5,059	0	0	-	5,184
Total – Project Year 2015	215,143	4	8	1	218,469
CEQA Baseline Emissions	149,241	5	5	0	151,264
Project minus CEQA Baseline	65,902	(1)	3	0	67,205
Project Year 2020					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	10,764	0	1	-	10,994
Tugboats	340	0	0	-	345
Trucks	62,137	0	0	-	62,184
Trains	50,485	1	4	-	51,795
Terminal Equipment	14,157	0	0	-	14,213
Reefer Refrigerant Losses	-	-	-	1	897
AMP Usage	6,608	0	0	-	6,621
On-Terminal Electricity Usage	17,483	0	0	-	17,529
Worker Trips	4,410	0	0	-	4,477
Total – Project Year 2020	215,045	4	8	1	218,469
CEQA Baseline Emissions	149,241	5	5	0	151,264
Project minus CEQA Baseline	65,804	(1)	3	0	67,204
Project Year 2025					
Ships – Transit and Anchoring	61,848	1	3	-	62,805
Ships – Hoteling	10,075	0	1	-	10,290
Tugboats	416	0	0	-	422
Trucks	64,745	0	0	-	64,794
Trains	51,670	1	4	-	53,011
Terminal Equipment	14,645	0	0	-	14,703
Reefer Refrigerant Losses	-	-	-	1	935
AMP Usage	6,171	0	0	-	6,183
On-Terminal Electricity Usage	18,217	0	0	-	18,264
Worker Trips	4,380	0	0	-	4,461
Total – Project Year 2025	232,166	4	9	1	235,867
CEQA Baseline Emissions	149,241	5	5	0	151,264
Project minus CEQA Baseline	82,925	(1)	4	0	84,603
Project Year 2027					
Ships – Transit and Anchoring	61,848	1	3	-	62,805
Ships – Hoteling	10,228	0	1	-	10,446
Tugboats	416	0	0	-	422
Trucks	65,788	0	0	-	65,837
Trains	52,118	1	4	-	53,471
Terminal Equipment	14,840	0	0	-	14,899
Reefer Refrigerant Losses	-	-	-	1	950
AMP Usage	6,264	0	0	-	6,277
On-Terminal Electricity Usage	18,511	0	0	-	18,559
Worker Trips	4,204	0	0	-	4,274
Total – Project Year 2027	234,217	4	9	1	237,940
CEQA Baseline Emissions	149,241	5	5	0	151,264
Project minus CEQA Baseline	84,975	(1)	4	0	86,676

Table AQ.1.10.4-3 Proposed Project Operational Emissions Without Mitigation

Emission Source	Annual Emissions (metric/year)				
	CO2	CH4	N2O	HFC-134a	CO2e
Project Year 2012					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	21,378	0	1	-	21,749
Tugboats	340	0	0	-	345
Trucks	59,452	0	0	-	59,497
Trains	43,445	1	4	-	44,572
Terminal Equipment	13,376	0	0	-	13,429
Reefer Refrigerant Losses	-	-	-	1	841
AMP Usage	-	-	-	-	-
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,340	0	1	-	5,525
Total – Project Year 2012	214,440	4	8	1	217,876
CEQA Baseline Emissions	149,241	5	5	0	151,264
<i>Project minus CEQA Baseline</i>	<i>65,198</i>	<i>(1)</i>	<i>4</i>	<i>0</i>	<i>66,612</i>
NEPA Baseline Emissions	214,440	4	8	1	217,876
<i>Project minus NEPA Baseline</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Project Year 2015					
Ships – Transit and Anchoring	56,648	1	3	-	57,523
Ships – Hoteling	19,029	0	1	-	19,393
Tugboats	416	0	0	-	422
Trucks	84,792	0	0	-	84,855
Trains	64,649	2	5	-	66,327
Terminal Equipment	19,680	0	0	-	19,757
Reefer Refrigerant Losses	-	-	-	1	1,192
AMP Usage	7,244	0	0	-	7,259
On-Terminal Electricity Usage	31,823	1	0	-	31,905
Worker Trips	7,621	0	1	-	7,810
Total – Project Year 2015	291,901	5	10	1	296,443
CEQA Baseline Emissions	149,241	5	5	0	151,264
<i>Project minus CEQA Baseline</i>	<i>142,659</i>	<i>1</i>	<i>6</i>	<i>1</i>	<i>145,179</i>
NEPA Baseline Emissions	215,143	4	8	1	218,469
<i>Project minus NEPA Baseline</i>	<i>76,758</i>	<i>1</i>	<i>3</i>	<i>0</i>	<i>77,974</i>
Project Year 2020					
Ships – Transit and Anchoring	69,834	2	3	-	70,915
Ships – Hoteling	14,265	0	1	-	14,569
Tugboats	491	0	0	-	499
Trucks	89,518	0	0	-	89,586
Trains	69,560	2	6	-	71,367
Terminal Equipment	21,343	1	0	-	21,427
Reefer Refrigerant Losses	-	-	-	1	1,284
AMP Usage	8,785	0	0	-	8,803
On-Terminal Electricity Usage	25,036	1	0	-	25,101
Worker Trips	6,623	0	0	-	6,724
Total – Project Year 2020	305,455	5	11	1	310,273
CEQA Baseline Emissions	149,241	5	5	0	151,264
<i>Project minus CEQA Baseline</i>	<i>156,213</i>	<i>1</i>	<i>6</i>	<i>1</i>	<i>159,009</i>
NEPA Baseline Emissions	215,045	4	8	1	218,469
<i>Project minus NEPA Baseline</i>	<i>90,410</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>91,804</i>
Project Year 2025					
Ships – Transit and Anchoring	83,563	2	4	-	84,858
Ships – Hoteling	11,243	0	1	-	11,483
Tugboats	529	0	0	-	537
Trucks	97,188	0	0	-	97,262
Trains	70,775	2	6	-	72,613
Terminal Equipment	23,006	1	0	-	23,097
Reefer Refrigerant Losses	-	-	-	1	1,377
AMP Usage	7,004	0	0	-	7,018
On-Terminal Electricity Usage	26,842	1	0	-	26,911
Worker Trips	6,534	0	0	-	6,655
Total – Project Year 2025	326,684	6	12	1	331,809
CEQA Baseline Emissions	149,241	5	5	0	151,264
<i>Project minus CEQA Baseline</i>	<i>177,443</i>	<i>1</i>	<i>7</i>	<i>1</i>	<i>180,545</i>
NEPA Baseline Emissions	232,166	4	9	1	235,867
<i>Project minus NEPA Baseline</i>	<i>94,518</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>95,942</i>
Project Year 2027					
Ships – Transit and Anchoring	91,160	2	4	-	92,573
Ships – Hoteling	11,607	0	1	-	11,854
Tugboats	567	0	0	-	575
Trucks	100,443	0	0	-	100,519
Trains	72,673	2	6	-	74,560
Terminal Equipment	23,672	1	0	-	23,764
Reefer Refrigerant Losses	-	-	-	1	1,414
AMP Usage	7,269	0	0	-	7,284
On-Terminal Electricity Usage	27,564	1	0	-	27,635
Worker Trips	6,647	0	0	-	6,758
Total – Project Year 2027	341,600	6	12	1	346,935
CEQA Baseline Emissions	149,241	5	5	0	151,264
<i>Project minus CEQA Baseline</i>	<i>192,358</i>	<i>1</i>	<i>8</i>	<i>1</i>	<i>195,671</i>
NEPA Baseline Emissions	234,217	4	9	1	237,940
<i>Project minus NEPA Baseline</i>	<i>107,383</i>	<i>2</i>	<i>4</i>	<i>0</i>	<i>108,996</i>

Table AQ.1.10.4-4 Proposed Project Operational Emissions With Mitigation

Emission Source	Annual Emissions (metric/year)				
	CO2	CH4	N2O	HFC-134a	CO2e
Project Year 2012					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	21,378	0	1	-	21,749
Tugboats	340	0	0	-	345
Trucks	59,452	0	0	-	59,497
Trains	43,445	1	4	-	44,572
Terminal Equipment	13,376	0	0	-	13,429
Reefer Refrigerant Losses	-	-	-	1	841
AMP Usage	-	-	-	-	-
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,340	0	1	-	5,525
Total – Project Year 2012	214,440	4	8	1	217,876
CEQA Baseline Emissions	149,241	5	5	0	151,264
<i>Project minus CEQA Baseline</i>	<i>65,198</i>	<i>(1)</i>	<i>4</i>	<i>0</i>	<i>66,612</i>
NEPA Baseline Emissions	214,440	4	8	1	217,876
<i>Project minus NEPA Baseline</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Project Year 2015					
Ships – Transit and Anchoring	54,041	1	3	-	54,880
Ships – Hoteling	19,029	0	1	-	19,393
Tugboats	416	0	0	-	422
Trucks	84,792	0	0	-	84,855
Trains	64,649	2	5	-	66,327
Terminal Equipment	19,680	0	0	-	19,757
Reefer Refrigerant Losses	-	-	-	1	1,192
AMP Usage	7,244	0	0	-	7,259
On-Terminal Electricity Usage	31,823	1	0	-	31,905
Worker Trips	7,621	0	1	-	7,810
Total – Project Year 2015	289,295	5	10	1	293,800
CEQA Baseline Emissions	149,241	5	5	0	151,264
<i>Project minus CEQA Baseline</i>	<i>140,053</i>	<i>1</i>	<i>6</i>	<i>1</i>	<i>142,536</i>
NEPA Baseline Emissions	215,143	4	8	1	218,469
<i>Project minus NEPA Baseline</i>	<i>74,152</i>	<i>1</i>	<i>3</i>	<i>0</i>	<i>75,331</i>
Project Year 2020					
Ships – Transit and Anchoring	66,471	1	3	-	67,504
Ships – Hoteling	14,265	0	1	-	14,569
Tugboats	491	0	0	-	499
Trucks	89,518	0	0	-	89,586
Trains	69,560	2	6	-	71,367
Terminal Equipment	21,343	1	0	-	21,427
Reefer Refrigerant Losses	-	-	-	1	1,284
AMP Usage	8,785	0	0	-	8,803
On-Terminal Electricity Usage	25,036	1	0	-	25,101
Worker Trips	6,623	0	0	-	6,724
Total – Project Year 2020	302,092	5	11	1	306,863
CEQA Baseline Emissions	149,241	5	5	0	151,264
<i>Project minus CEQA Baseline</i>	<i>152,851</i>	<i>1</i>	<i>6</i>	<i>1</i>	<i>155,598</i>
NEPA Baseline Emissions	215,045	4	8	1	218,469
<i>Project minus NEPA Baseline</i>	<i>87,047</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>88,394</i>
Project Year 2025					
Ships – Transit and Anchoring	79,204	2	4	-	80,437
Ships – Hoteling	11,243	0	1	-	11,483
Tugboats	529	0	0	-	537
Trucks	97,188	0	0	-	97,262
Trains	70,775	2	6	-	72,613
Terminal Equipment	23,006	1	0	-	23,097
Reefer Refrigerant Losses	-	-	-	1	1,377
AMP Usage	7,004	0	0	-	7,018
On-Terminal Electricity Usage	26,842	1	0	-	26,911
Worker Trips	6,534	0	0	-	6,655
Total – Project Year 2025	322,325	6	12	1	327,388
CEQA Baseline Emissions	149,241	5	5	0	151,264
<i>Project minus CEQA Baseline</i>	<i>173,084</i>	<i>1</i>	<i>7</i>	<i>1</i>	<i>176,124</i>
NEPA Baseline Emissions	232,166	4	9	1	235,867
<i>Project minus NEPA Baseline</i>	<i>90,159</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>91,521</i>
Project Year 2027					
Ships – Transit and Anchoring	86,335	2	4	-	87,679
Ships – Hoteling	9,316	0	1	-	9,532
Tugboats	567	0	0	-	575
Trucks	100,443	0	0	-	100,519
Trains	72,673	2	6	-	74,560
Terminal Equipment	23,672	1	0	-	23,764
Reefer Refrigerant Losses	-	-	-	1	1,414
AMP Usage	8,632	0	0	-	8,649
On-Terminal Electricity Usage	27,564	1	0	-	27,635
Worker Trips	6,647	0	0	-	6,758
Total – Project Year 2027	335,847	6	12	1	341,085
CEQA Baseline Emissions	149,241	5	5	0	151,264
<i>Project minus CEQA Baseline</i>	<i>186,605</i>	<i>1</i>	<i>7</i>	<i>1</i>	<i>189,821</i>
NEPA Baseline Emissions	234,217	4	9	1	237,940
<i>Project minus NEPA Baseline</i>	<i>101,630</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>103,146</i>

Table AQ1.10.4-5 Annual Operational Emissions Without Mitigation – Alternative 1

Emission Source	Annual Emissions (metric/year)				
	CO2	CH4	N2O	HFC-134a	CO2e
Alt 1 Year 2012					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	21,378	0	1	-	21,749
Tugboats	340	0	0	-	345
Trucks	59,452	0	0	-	59,497
Trains	43,445	1	4	-	44,572
Terminal Equipment	13,376	0	0	-	13,429
Reefer Refrigerant Losses	-	-	-	1	841
AMP Usage	-	-	-	-	-
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,340	0	1	-	5,525
Total – Alt 1 Year 2012	214,440	4	8	1	217,876
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 1 minus CEQA Baseline	65,198	(1)	4	0	66,612
NEPA Baseline Emissions	214,440	4	8	1	217,876
Alt 1 minus NEPA Baseline	-	-	-	-	-
Alt 1 Year 2015					
Ships – Transit and Anchoring	48,661	1	2	-	49,414
Ships – Hoteling	14,331	0	1	-	14,606
Tugboats	340	0	0	-	345
Trucks	60,769	0	0	-	60,814
Trains	43,938	1	4	-	45,078
Terminal Equipment	13,669	0	0	-	13,723
Reefer Refrigerant Losses	-	-	-	1	859
AMP Usage	5,431	0	0	-	5,442
On-Terminal Electricity Usage	22,945	1	0	-	23,004
Worker Trips	5,059	0	0	-	5,184
Total – Alt 1 Year 2015	215,143	4	8	1	218,469
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 1 minus CEQA Baseline	65,902	(1)	3	0	67,205
NEPA Baseline Emissions	215,143	4	8	1	218,469
Alt 1 minus NEPA Baseline	-	-	-	-	-
Alt 1 Year 2020					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	10,764	0	1	-	10,994
Tugboats	340	0	0	-	345
Trucks	62,137	0	0	-	62,184
Trains	50,485	1	4	-	51,795
Terminal Equipment	14,157	0	0	-	14,213
Reefer Refrigerant Losses	-	-	-	1	897
AMP Usage	6,608	0	0	-	6,621
On-Terminal Electricity Usage	17,483	0	0	-	17,529
Worker Trips	4,410	0	0	-	4,477
Total – Alt 1 Year 2020	215,045	4	8	1	218,469
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 1 minus CEQA Baseline	65,804	(1)	3	0	67,204
NEPA Baseline Emissions	215,045	4	8	1	218,469
Alt 1 minus NEPA Baseline	-	-	-	-	-
Alt 1 Year 2025					
Ships – Transit and Anchoring	61,848	1	3	-	62,805
Ships – Hoteling	10,075	0	1	-	10,290
Tugboats	416	0	0	-	422
Trucks	64,745	0	0	-	64,794
Trains	51,670	1	4	-	53,011
Terminal Equipment	14,645	0	0	-	14,703
Reefer Refrigerant Losses	-	-	-	1	935
AMP Usage	6,171	0	0	-	6,183
On-Terminal Electricity Usage	18,217	0	0	-	18,264
Worker Trips	4,380	0	0	-	4,461
Total – Alt 1 Year 2025	232,166	4	9	1	235,867
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 1 minus CEQA Baseline	82,925	(1)	4	0	84,603
NEPA Baseline Emissions	232,166	4	9	1	235,867
Alt 1 minus NEPA Baseline	-	-	-	-	-
Alt 1 Year 2027					
Ships – Transit and Anchoring	61,848	1	3	-	62,805
Ships – Hoteling	10,228	0	1	-	10,446
Tugboats	416	0	0	-	422
Trucks	65,788	0	0	-	65,837
Trains	52,118	1	4	-	53,471
Terminal Equipment	14,840	0	0	-	14,899
Reefer Refrigerant Losses	-	-	-	1	950
AMP Usage	6,264	0	0	-	6,277
On-Terminal Electricity Usage	18,511	0	0	-	18,559
Worker Trips	4,204	0	0	-	4,274
Total – Alt 1 Year 2027	234,217	4	9	1	237,940
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 1 minus CEQA Baseline	84,975	(1)	4	0	86,676
NEPA Baseline Emissions	234,217	4	9	1	237,940
Alt 1 minus NEPA Baseline	-	-	-	-	-

Table AQ1.10.4-6 Annual Operational Emissions Without Mitigation – Alternative 3

Emission Source	Annual Emissions (metric/year)				
	CO2	CH4	N2O	HFC-134a	CO2e
Alt 3 Year 2012					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	21,378	0	1	-	21,749
Tugboats	340	0	0	-	345
Trucks	59,452	0	0	-	59,497
Trains	43,445	1	4	-	44,572
Terminal Equipment	13,376	0	0	-	13,429
Reefer Refrigerant Losses	-	-	-	1	841
AMP Usage	-	-	-	-	-
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,340	0	1	-	5,525
Total – Alt 3 Year 2012	214,440	4	8	1	217,876
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 3 minus CEQA Baseline	65,198	(1)	4	0	66,612
NEPA Baseline Emissions	214,440	4	8	1	217,876
Alt 3 minus NEPA Baseline	-	-	-	-	-
Alt 3 Year 2015					
Ships – Transit and Anchoring	50,258	1	2	-	51,037
Ships – Hoteling	14,026	0	1	-	14,296
Tugboats	340	0	0	-	345
Trucks	65,566	0	0	-	65,615
Trains	51,327	1	4	-	52,659
Terminal Equipment	15,052	0	0	-	15,112
Reefer Refrigerant Losses	-	-	-	1	927
AMP Usage	5,245	0	0	-	5,256
On-Terminal Electricity Usage	24,756	1	0	-	24,820
Worker Trips	5,130	0	0	-	5,257
Total – Alt 3 Year 2015	231,702	4	8	1	235,324
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 3 minus CEQA Baseline	82,461	(0)	4	0	84,060
NEPA Baseline Emissions	215,143	4	8	1	218,469
Alt 3 minus NEPA Baseline	16,559	0	1	0	16,855
Alt 3 Year 2020					
Ships – Transit and Anchoring	61,848	1	3	-	62,805
Ships – Hoteling	11,239	0	1	-	11,479
Tugboats	416	0	0	-	422
Trucks	70,353	0	0	-	70,406
Trains	59,478	2	5	-	61,023
Terminal Equipment	16,766	0	0	-	16,833
Reefer Refrigerant Losses	-	-	-	1	1,015
AMP Usage	6,884	0	0	-	6,898
On-Terminal Electricity Usage	19,795	1	0	-	19,846
Worker Trips	4,848	0	0	-	4,922
Total – Alt 3 Year 2020	251,628	5	9	1	255,650
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 3 minus CEQA Baseline	102,387	(0)	5	0	104,386
NEPA Baseline Emissions	215,045	4	8	1	218,469
Alt 3 minus NEPA Baseline	36,583	1	2	0	37,181
Alt 3 Year 2025					
Ships – Transit and Anchoring	73,438	2	4	-	74,575
Ships – Hoteling	10,414	0	1	-	10,636
Tugboats	491	0	0	-	499
Trucks	76,477	0	0	-	76,535
Trains	61,841	2	5	-	63,447
Terminal Equipment	18,480	0	0	-	18,553
Reefer Refrigerant Losses	-	-	-	1	1,104
AMP Usage	6,450	0	0	-	6,463
On-Terminal Electricity Usage	21,518	1	0	-	21,574
Worker Trips	5,096	0	0	-	5,190
Total – Alt 3 Year 2025	274,207	5	10	1	278,576
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 3 minus CEQA Baseline	124,966	0	6	0	127,312
NEPA Baseline Emissions	232,166	4	9	1	235,867
Alt 3 minus NEPA Baseline	42,041	1	2	0	42,709
Alt 3 Year 2027					
Ships – Transit and Anchoring	73,438	2	4	-	74,575
Ships – Hoteling	10,414	0	1	-	10,636
Tugboats	491	0	0	-	499
Trucks	78,927	0	0	-	78,986
Trains	62,837	2	5	-	64,468
Terminal Equipment	19,166	0	0	-	19,242
Reefer Refrigerant Losses	-	-	-	1	1,139
AMP Usage	6,450	0	0	-	6,463
On-Terminal Electricity Usage	22,208	1	0	-	22,265
Worker Trips	5,325	0	0	-	5,414
Total – Alt 3 Year 2027	279,256	5	10	1	283,687
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 3 minus CEQA Baseline	130,014	0	6	0	132,423
NEPA Baseline Emissions	234,217	4	9	1	237,940
Alt 3 minus NEPA Baseline	45,039	1	2	0	45,747

Table AQ1.10.4-7 Annual Operational Emissions With Mitigation – Alternative 3

Emission Source	Annual Emissions (metric/year)				
	CO2	CH4	N2O	HFC-134a	CO2e
Alt 3 Year 2012					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	21,378	0	1	-	21,749
Tugboats	340	0	0	-	345
Trucks	59,452	0	0	-	59,497
Trains	43,445	1	4	-	44,572
Terminal Equipment	13,376	0	0	-	13,429
Reefer Refrigerant Losses	-	-	-	1	841
AMP Usage	-	-	-	-	-
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,340	0	1	-	5,525
Total – Alt 3 Year 2012	214,440	4	8	1	217,876
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 3 minus CEQA Baseline	65,198	(1)	4	0	66,612
NEPA Baseline Emissions	214,440	4	8	1	217,876
Alt 3 minus NEPA Baseline	-	-	-	-	-
Alt 3 Year 2015					
Ships – Transit and Anchoring	47,727	1	2	-	48,469
Ships – Hoteling	14,026	0	1	-	14,296
Tugboats	340	0	0	-	345
Trucks	65,566	0	0	-	65,615
Trains	51,327	1	4	-	52,659
Terminal Equipment	15,052	0	0	-	15,112
Reefer Refrigerant Losses	-	-	-	1	927
AMP Usage	5,245	0	0	-	5,256
On-Terminal Electricity Usage	24,756	1	0	-	24,820
Worker Trips	5,130	0	0	-	5,257
Total – Alt 3 Year 2015	229,170	4	8	1	232,756
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 3 minus CEQA Baseline	79,929	(1)	4	0	81,492
NEPA Baseline Emissions	215,143	4	8	1	218,469
Alt 3 minus NEPA Baseline	14,027	0	1	0	14,287
Alt 3 Year 2020					
Ships – Transit and Anchoring	58,729	1	3	-	59,642
Ships – Hoteling	11,239	0	1	-	11,479
Tugboats	416	0	0	-	422
Trucks	70,353	0	0	-	70,406
Trains	59,478	2	5	-	61,023
Terminal Equipment	16,766	0	0	-	16,833
Reefer Refrigerant Losses	-	-	-	1	1,015
AMP Usage	6,884	0	0	-	6,898
On-Terminal Electricity Usage	19,795	1	0	-	19,846
Worker Trips	4,848	0	0	-	4,922
Total – Alt 3 Year 2020	248,509	4	9	1	252,487
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 3 minus CEQA Baseline	99,268	(0)	5	0	101,223
NEPA Baseline Emissions	215,045	4	8	1	218,469
Alt 3 minus NEPA Baseline	33,464	1	1	0	34,018
Alt 3 Year 2025					
Ships – Transit and Anchoring	69,731	2	3	-	70,815
Ships – Hoteling	8,381	0	1	-	8,576
Tugboats	491	0	0	-	499
Trucks	76,477	0	0	-	76,535
Trains	61,841	2	5	-	63,447
Terminal Equipment	18,480	0	0	-	18,553
Reefer Refrigerant Losses	-	-	-	1	1,104
AMP Usage	7,659	0	0	-	7,675
On-Terminal Electricity Usage	21,518	1	0	-	21,574
Worker Trips	5,096	0	0	-	5,190
Total – Alt 3 Year 2025	269,677	5	10	1	273,968
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 3 minus CEQA Baseline	120,435	0	5	0	122,704
NEPA Baseline Emissions	232,166	4	9	1	235,867
Alt 3 minus NEPA Baseline	37,511	1	1	0	38,101
Alt 3 Year 2027					
Ships – Transit and Anchoring	69,731	2	3	-	70,815
Ships – Hoteling	8,381	0	1	-	8,576
Tugboats	491	0	0	-	499
Trucks	78,927	0	0	-	78,986
Trains	62,837	2	5	-	64,468
Terminal Equipment	19,166	0	0	-	19,242
Reefer Refrigerant Losses	-	-	-	1	1,139
AMP Usage	7,659	0	0	-	7,675
On-Terminal Electricity Usage	22,208	1	0	-	22,265
Worker Trips	5,325	0	0	-	5,414
Total – Alt 3 Year 2027	274,726	5	10	1	279,079
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 3 minus CEQA Baseline	125,484	0	5	0	127,815
NEPA Baseline Emissions	234,217	4	9	1	237,940
Alt 3 minus NEPA Baseline	40,509	1	1	0	41,139

Table AQ1.10.4-8 Annual Operational Emissions Without Mitigation – Alternative 4

Emission Source	Annual Emissions (metric/year)				
	CO2	CH4	N2O	HFC-134a	CO2e
Alt 4 Year 2012					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	21,378	0	1	-	21,749
Tugboats	340	0	0	-	345
Trucks	59,452	0	0	-	59,497
Trains	43,445	1	4	-	44,572
Terminal Equipment	13,376	0	0	-	13,429
Reefer Refrigerant Losses	-	-	-	1	841
AMP Usage	-	-	-	-	-
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,340	0	1	-	5,525
Total – Alt 4 Year 2012	214,440	4	8	1	217,876
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 4 minus CEQA Baseline	65,198	(1)	4	0	66,612
NEPA Baseline Emissions	214,440	4	8	1	217,876
Alt 4 minus NEPA Baseline	-	-	-	-	-
Alt 4 Year 2015					
Ships – Transit and Anchoring	50,258	1	2	-	51,037
Ships – Hoteling	13,899	0	1	-	14,166
Tugboats	340	0	0	-	345
Trucks	71,101	0	0	-	71,154
Trains	58,920	2	5	-	60,449
Terminal Equipment	16,832	0	0	-	16,898
Reefer Refrigerant Losses	-	-	-	1	998
AMP Usage	5,197	0	0	-	5,208
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,998	0	0	-	6,147
Total – Alt 4 Year 2015	244,993	4	9	1	248,908
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 4 minus CEQA Baseline	95,752	(0)	5	0	97,643
NEPA Baseline Emissions	215,143	4	8	1	218,469
Alt 4 minus NEPA Baseline	29,850	1	1	0	30,439
Alt 4 Year 2020					
Ships – Transit and Anchoring	61,848	1	3	-	62,805
Ships – Hoteling	11,142	0	1	-	11,379
Tugboats	416	0	0	-	422
Trucks	76,320	0	0	-	76,377
Trains	61,462	2	5	-	63,058
Terminal Equipment	18,930	0	0	-	19,004
Reefer Refrigerant Losses	-	-	-	1	1,094
AMP Usage	6,824	0	0	-	6,838
On-Terminal Electricity Usage	19,456	1	0	-	19,507
Worker Trips	5,813	0	0	-	5,902
Total – Alt 4 Year 2020	262,211	5	10	1	266,387
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 4 minus CEQA Baseline	112,970	0	5	0	115,123
NEPA Baseline Emissions	215,045	4	8	1	218,469
Alt 4 minus NEPA Baseline	47,166	1	2	0	47,918
Alt 4 Year 2025					
Ships – Transit and Anchoring	73,438	2	4	-	74,575
Ships – Hoteling	10,164	0	1	-	10,380
Tugboats	491	0	0	-	499
Trucks	82,988	0	0	-	83,051
Trains	61,337	2	5	-	62,929
Terminal Equipment	21,028	1	0	-	21,110
Reefer Refrigerant Losses	-	-	-	1	1,189
AMP Usage	6,294	0	0	-	6,307
On-Terminal Electricity Usage	21,319	1	0	-	21,374
Worker Trips	6,207	0	0	-	6,322
Total – Alt 4 Year 2025	283,267	5	10	1	287,736
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 4 minus CEQA Baseline	134,025	0	6	1	136,471
NEPA Baseline Emissions	232,166	4	9	1	235,867
Alt 4 minus NEPA Baseline	51,101	1	2	0	51,869
Alt 4 Year 2027					
Ships – Transit and Anchoring	75,035	2	4	-	76,198
Ships – Hoteling	10,176	0	1	-	10,393
Tugboats	491	0	0	-	499
Trucks	85,655	0	0	-	85,720
Trains	63,300	2	5	-	64,943
Terminal Equipment	21,867	1	0	-	21,952
Reefer Refrigerant Losses	-	-	-	1	1,227
AMP Usage	16,399	0	1	-	16,629
On-Terminal Electricity Usage	23,182	1	0	-	23,242
Worker Trips	5,882	0	0	-	5,981
Total – Alt 4 Year 2027	301,989	5	11	1	306,784
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 4 minus CEQA Baseline	152,747	1	7	1	155,520
NEPA Baseline Emissions	234,217	4	9	1	237,940
Alt 4 minus NEPA Baseline	67,772	1	2	0	68,845

Table AQ1.10.4-9 Annual Operational Emissions With Mitigation – Alternative 4

Emission Source	Annual Emissions (metric/year)				
	CO2	CH4	N2O	HFC-134a	CO2e
Alt 4 Year 2012					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	21,378	0	1	-	21,749
Tugboats	340	0	0	-	345
Trucks	59,452	0	0	-	59,497
Trains	43,445	1	4	-	44,572
Terminal Equipment	13,376	0	0	-	13,429
Reefer Refrigerant Losses	-	-	-	1	841
AMP Usage	-	-	-	-	-
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,340	0	1	-	5,525
Total – Alt 4 Year 2012	214,440	4	8	1	217,876
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 4 minus CEQA Baseline	65,198	(1)	4	0	66,612
NEPA Baseline Emissions	214,440	4	8	1	217,876
Alt 4 minus NEPA Baseline	-	-	-	-	-
Alt 4 Year 2015					
Ships – Transit and Anchoring	47,727	1	2	-	48,469
Ships – Hoteling	13,899	0	1	-	14,166
Tugboats	340	0	0	-	345
Trucks	71,101	0	0	-	71,154
Trains	58,920	2	5	-	60,449
Terminal Equipment	16,832	0	0	-	16,898
Reefer Refrigerant Losses	-	-	-	1	998
AMP Usage	5,197	0	0	-	5,208
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,998	0	0	-	6,147
Total – Alt 4 Year 2015	242,462	4	9	1	246,340
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 4 minus CEQA Baseline	93,220	(0)	4	0	95,076
NEPA Baseline Emissions	215,143	4	8	1	218,469
Alt 4 minus NEPA Baseline	27,318	1	1	0	27,871
Alt 4 Year 2020					
Ships – Transit and Anchoring	58,729	1	3	-	59,642
Ships – Hoteling	11,142	0	1	-	11,379
Tugboats	416	0	0	-	422
Trucks	76,320	0	0	-	76,377
Trains	61,462	2	5	-	63,058
Terminal Equipment	18,930	0	0	-	19,004
Reefer Refrigerant Losses	-	-	-	1	1,094
AMP Usage	6,824	0	0	-	6,838
On-Terminal Electricity Usage	19,456	1	0	-	19,507
Worker Trips	5,813	0	0	-	5,902
Total – Alt 4 Year 2020	259,092	5	9	1	263,224
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 4 minus CEQA Baseline	109,851	(0)	5	0	111,959
NEPA Baseline Emissions	215,045	4	8	1	218,469
Alt 4 minus NEPA Baseline	44,047	1	2	0	44,755
Alt 4 Year 2025					
Ships – Transit and Anchoring	69,731	2	3	-	70,815
Ships – Hoteling	10,164	0	1	-	10,380
Tugboats	491	0	0	-	499
Trucks	82,988	0	0	-	83,051
Trains	61,337	2	5	-	62,929
Terminal Equipment	21,028	1	0	-	21,110
Reefer Refrigerant Losses	-	-	-	1	1,189
AMP Usage	6,294	0	0	-	6,307
On-Terminal Electricity Usage	21,319	1	0	-	21,374
Worker Trips	6,207	0	0	-	6,322
Total – Alt 4 Year 2025	279,560	5	10	1	283,976
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 4 minus CEQA Baseline	130,319	0	5	1	132,712
NEPA Baseline Emissions	232,166	4	9	1	235,867
Alt 4 minus NEPA Baseline	47,394	1	1	0	48,109
Alt 4 Year 2027					
Ships – Transit and Anchoring	71,159	2	3	-	72,266
Ships – Hoteling	8,214	0	1	-	8,405
Tugboats	491	0	0	-	499
Trucks	85,655	0	0	-	85,720
Trains	63,300	2	5	-	64,943
Terminal Equipment	21,867	1	0	-	21,952
Reefer Refrigerant Losses	-	-	-	1	1,227
AMP Usage	15,605	0	1	-	15,811
On-Terminal Electricity Usage	23,182	1	0	-	23,242
Worker Trips	5,882	0	0	-	5,981
Total – Alt 4 Year 2027	295,355	5	11	1	300,046
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 4 minus CEQA Baseline	146,114	0	6	1	148,782
NEPA Baseline Emissions	234,217	4	9	1	237,940
Alt 4 minus NEPA Baseline	61,139	1	2	0	62,106

Table AQ1.10.4-10 Annual Operational Emissions Without Mitigation – Alternative 5

Emission Source	Annual Emissions (metric/year)				
	CO2	CH4	N2O	HFC-134a	CO2e
Alt 5 Year 2012					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	21,378	0	1	-	21,749
Tugboats	340	0	0	-	345
Trucks	59,452	0	0	-	59,497
Trains	43,445	1	4	-	44,572
Terminal Equipment	13,376	0	0	-	13,429
Reefer Refrigerant Losses	-	-	-	1	841
AMP Usage	-	-	-	-	-
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,340	0	1	-	5,525
Total – Alt 5 Year 2012	214,440	4	8	1	217,876
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 5 minus CEQA Baseline	65,198	(1)	4	0	66,612
NEPA Baseline Emissions	214,440	4	8	1	217,876
Alt 5 minus NEPA Baseline	-	-	-	-	-
Alt 5 Year 2015					
Ships – Transit and Anchoring	56,648	1	3	-	57,523
Ships – Hoteling	19,029	0	1	-	19,393
Tugboats	416	0	0	-	422
Trucks	84,894	0	0	-	84,957
Trains	64,649	2	5	-	66,327
Terminal Equipment	20,174	0	0	-	20,253
Reefer Refrigerant Losses	-	-	-	1	1,192
AMP Usage	7,244	0	0	-	7,259
On-Terminal Electricity Usage	31,823	1	0	-	31,905
Worker Trips	7,879	0	1	-	8,074
Total – Alt 5 Year 2015	292,755	5	10	1	297,305
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 5 minus CEQA Baseline	143,514	1	6	1	146,041
NEPA Baseline Emissions	215,143	4	8	1	218,469
Alt 5 minus NEPA Baseline	77,612	1	3	0	78,836
Alt 5 Year 2020					
Ships – Transit and Anchoring	69,834	2	3	-	70,915
Ships – Hoteling	14,265	0	1	-	14,569
Tugboats	491	0	0	-	499
Trucks	89,626	0	0	-	89,693
Trains	69,560	2	6	-	71,367
Terminal Equipment	22,477	1	0	-	22,565
Reefer Refrigerant Losses	-	-	-	1	1,284
AMP Usage	8,785	0	0	-	8,803
On-Terminal Electricity Usage	25,036	1	0	-	25,101
Worker Trips	6,713	0	0	-	6,816
Total – Alt 5 Year 2020	306,787	5	11	1	311,611
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 5 minus CEQA Baseline	157,546	1	6	1	160,347
NEPA Baseline Emissions	215,045	4	8	1	218,469
Alt 5 minus NEPA Baseline	91,742	2	3	0	93,142
Alt 5 Year 2025					
Ships – Transit and Anchoring	83,563	2	4	-	84,858
Ships – Hoteling	11,243	0	1	-	11,483
Tugboats	529	0	0	-	537
Trucks	97,307	0	0	-	97,381
Trains	70,775	2	6	-	72,613
Terminal Equipment	24,780	1	0	-	24,877
Reefer Refrigerant Losses	-	-	-	1	1,377
AMP Usage	7,004	0	0	-	7,018
On-Terminal Electricity Usage	26,842	1	0	-	26,911
Worker Trips	6,628	0	0	-	6,750
Total – Alt 5 Year 2025	328,671	6	12	1	333,805
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 5 minus CEQA Baseline	179,430	1	7	1	182,541
NEPA Baseline Emissions	232,166	4	9	1	235,867
Alt 5 minus NEPA Baseline	96,505	2	3	0	97,938
Alt 5 Year 2027					
Ships – Transit and Anchoring	91,160	2	4	-	92,573
Ships – Hoteling	11,607	0	1	-	11,854
Tugboats	567	0	0	-	575
Trucks	100,567	0	0	-	100,643
Trains	72,673	2	6	-	74,560
Terminal Equipment	25,702	1	0	-	25,802
Reefer Refrigerant Losses	-	-	-	1	1,414
AMP Usage	7,269	0	0	-	7,284
On-Terminal Electricity Usage	27,564	1	0	-	27,635
Worker Trips	6,792	0	0	-	6,906
Total – Alt 5 Year 2027	343,900	6	12	1	349,246
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 5 minus CEQA Baseline	194,659	1	8	1	197,981
NEPA Baseline Emissions	234,217	4	9	1	237,940
Alt 5 minus NEPA Baseline	109,684	2	4	0	111,306

Table AQ1.10.4-11 Annual Operational Emissions With Mitigation – Alternative 5

Emission Source	Annual Emissions (metric/year)				
	CO2	CH4	N2O	HFC-134a	CO2e
Alt 5 Year 2012					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	21,378	0	1	-	21,749
Tugboats	340	0	0	-	345
Trucks	59,452	0	0	-	59,497
Trains	43,445	1	4	-	44,572
Terminal Equipment	13,376	0	0	-	13,429
Reefer Refrigerant Losses	-	-	-	1	841
AMP Usage	-	-	-	-	-
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,340	0	1	-	5,525
Total – Alt 5 Year 2012	214,440	4	8	1	217,876
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 5 minus CEQA Baseline	65,198	(1)	4	0	66,612
NEPA Baseline Emissions	214,440	4	8	1	217,876
Alt 5 minus NEPA Baseline	-	-	-	-	-
Alt 5 Year 2015					
Ships – Transit and Anchoring	54,041	1	3	-	54,880
Ships – Hoteling	19,029	0	1	-	19,393
Tugboats	416	0	0	-	422
Trucks	84,894	0	0	-	84,957
Trains	64,649	2	5	-	66,327
Terminal Equipment	20,174	0	0	-	20,253
Reefer Refrigerant Losses	-	-	-	1	1,192
AMP Usage	7,244	0	0	-	7,259
On-Terminal Electricity Usage	31,823	1	0	-	31,905
Worker Trips	7,879	0	1	-	8,074
Total – Alt 5 Year 2015	290,149	5	10	1	294,663
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 5 minus CEQA Baseline	140,908	1	6	1	143,398
NEPA Baseline Emissions	215,143	4	8	1	218,469
Alt 5 minus NEPA Baseline	75,006	1	3	0	76,194
Alt 5 Year 2020					
Ships – Transit and Anchoring	66,471	1	3	-	67,504
Ships – Hoteling	14,265	0	1	-	14,569
Tugboats	491	0	0	-	499
Trucks	89,626	0	0	-	89,693
Trains	69,560	2	6	-	71,367
Terminal Equipment	22,477	1	0	-	22,565
Reefer Refrigerant Losses	-	-	-	1	1,284
AMP Usage	8,785	0	0	-	8,803
On-Terminal Electricity Usage	25,036	1	0	-	25,101
Worker Trips	6,713	0	0	-	6,816
Total – Alt 5 Year 2020	303,424	5	11	1	308,201
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 5 minus CEQA Baseline	154,183	1	6	1	156,936
NEPA Baseline Emissions	215,045	4	8	1	218,469
Alt 5 minus NEPA Baseline	88,379	2	3	0	89,732
Alt 5 Year 2025					
Ships – Transit and Anchoring	79,204	2	4	-	80,437
Ships – Hoteling	11,243	0	1	-	11,483
Tugboats	529	0	0	-	537
Trucks	97,307	0	0	-	97,381
Trains	70,775	2	6	-	72,613
Terminal Equipment	24,780	1	0	-	24,877
Reefer Refrigerant Losses	-	-	-	1	1,377
AMP Usage	7,004	0	0	-	7,018
On-Terminal Electricity Usage	26,842	1	0	-	26,911
Worker Trips	6,628	0	0	-	6,750
Total – Alt 5 Year 2025	324,312	6	12	1	329,384
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 5 minus CEQA Baseline	175,071	1	7	1	178,120
NEPA Baseline Emissions	232,166	4	9	1	235,867
Alt 5 minus NEPA Baseline	92,146	2	3	0	93,517
Alt 5 Year 2027					
Ships – Transit and Anchoring	86,335	2	4	-	87,679
Ships – Hoteling	9,316	0	1	-	9,532
Tugboats	567	0	0	-	575
Trucks	100,567	0	0	-	100,643
Trains	72,673	2	6	-	74,560
Terminal Equipment	25,702	1	0	-	25,802
Reefer Refrigerant Losses	-	-	-	1	1,414
AMP Usage	8,632	0	0	-	8,649
On-Terminal Electricity Usage	27,564	1	0	-	27,635
Worker Trips	6,792	0	0	-	6,906
Total – Alt 5 Year 2027	338,147	6	12	1	343,396
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 5 minus CEQA Baseline	188,906	1	7	1	192,131
NEPA Baseline Emissions	234,217	4	9	1	237,940
Alt 5 minus NEPA Baseline	103,930	2	3	0	105,456

Table AQ1.10.4-12 Annual Operational Emissions Without Mitigation – Alternative 6

Emission Source	Annual Emissions (metric/year)				
	CO2	CH4	N2O	HFC-134a	CO2e
Alt 6 Year 2012					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	21,378	0	1	-	21,749
Tugboats	340	0	0	-	345
Trucks	59,452	0	0	-	59,497
Trains	43,445	1	4	-	44,572
Terminal Equipment	13,376	0	0	-	13,429
Reefer Refrigerant Losses	-	-	-	1	841
AMP Usage	-	-	-	-	-
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,340	0	1	-	5,525
Total – Alt 6 Year 2012	214,440	4	8	1	217,876
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 6 minus CEQA Baseline	65,198	(1)	4	0	66,612
NEPA Baseline Emissions	214,440	4	8	1	217,876
Alt 6 minus NEPA Baseline	-	-	-	-	-
Alt 6 Year 2015					
Ships – Transit and Anchoring	56,648	1	3	-	57,523
Ships – Hoteling	19,029	0	1	-	19,393
Tugboats	416	0	0	-	422
Trucks	84,792	0	0	-	84,855
Trains	64,649	2	5	-	66,327
Terminal Equipment	19,733	0	0	-	19,811
Reefer Refrigerant Losses	-	-	-	1	1,192
AMP Usage	7,244	0	0	-	7,259
On-Terminal Electricity Usage	31,823	1	0	-	31,905
Worker Trips	7,627	0	1	-	7,816
Total – Alt 6 Year 2015	291,961	5	10	1	296,503
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 6 minus CEQA Baseline	142,719	1	6	1	145,239
NEPA Baseline Emissions	215,143	4	8	1	218,469
Alt 6 minus NEPA Baseline	76,817	1	3	0	78,034
Alt 6 Year 2020					
Ships – Transit and Anchoring	69,834	2	3	-	70,915
Ships – Hoteling	14,265	0	1	-	14,569
Tugboats	491	0	0	-	499
Trucks	89,518	0	0	-	89,586
Trains	69,560	2	6	-	71,367
Terminal Equipment	21,411	1	0	-	21,495
Reefer Refrigerant Losses	-	-	-	1	1,284
AMP Usage	8,785	0	0	-	8,803
On-Terminal Electricity Usage	25,036	1	0	-	25,101
Worker Trips	6,629	0	0	-	6,730
Total – Alt 6 Year 2020	305,529	5	11	1	310,347
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 6 minus CEQA Baseline	156,287	1	6	1	159,083
NEPA Baseline Emissions	215,045	4	8	1	218,469
Alt 6 minus NEPA Baseline	90,484	2	3	0	91,879
Alt 6 Year 2025					
Ships – Transit and Anchoring	83,563	2	4	-	84,858
Ships – Hoteling	11,243	0	1	-	11,483
Tugboats	529	0	0	-	537
Trucks	95,974	0	0	-	96,046
Trains	70,769	2	6	-	72,606
Terminal Equipment	23,109	1	0	-	23,200
Reefer Refrigerant Losses	-	-	-	1	1,377
AMP Usage	7,004	0	0	-	7,018
On-Terminal Electricity Usage	26,842	1	0	-	26,911
Worker Trips	6,626	0	0	-	6,748
Total – Alt 6 Year 2025	325,658	6	12	1	330,784
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 6 minus CEQA Baseline	176,416	1	7	1	179,520
NEPA Baseline Emissions	232,166	4	9	1	235,867
Alt 6 minus NEPA Baseline	93,492	2	3	0	94,917
Alt 6 Year 2027					
Ships – Transit and Anchoring	91,160	2	4	-	92,573
Ships – Hoteling	11,607	0	1	-	11,854
Tugboats	567	0	0	-	575
Trucks	98,556	0	0	-	98,630
Trains	72,666	2	6	-	74,553
Terminal Equipment	23,889	1	0	-	23,983
Reefer Refrigerant Losses	-	-	-	1	1,414
AMP Usage	7,269	0	0	-	7,284
On-Terminal Electricity Usage	27,564	1	0	-	27,635
Worker Trips	6,702	0	0	-	6,814
Total – Alt 6 Year 2027	339,980	6	12	1	345,316
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 6 minus CEQA Baseline	190,739	1	8	1	194,052
NEPA Baseline Emissions	234,217	4	9	1	237,940
Alt 6 minus NEPA Baseline	105,764	2	4	0	107,376

Table AQ1.10.4-13 Annual Operational Emissions With Mitigation – Alternative 6

Emission Source	Annual Emissions (metric/year)				
	CO2	CH4	N2O	HFC-134a	CO2e
Alt 6 Year 2012					
Ships – Transit and Anchoring	48,660	1	2	-	49,413
Ships – Hoteling	21,378	0	1	-	21,749
Tugboats	340	0	0	-	345
Trucks	59,452	0	0	-	59,497
Trains	43,445	1	4	-	44,572
Terminal Equipment	13,376	0	0	-	13,429
Reefer Refrigerant Losses	-	-	-	1	841
AMP Usage	-	-	-	-	-
On-Terminal Electricity Usage	22,448	1	0	-	22,506
Worker Trips	5,340	0	1	-	5,525
Total – Alt 6 Year 2012	214,440	4	8	1	217,876
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 6 minus CEQA Baseline	65,198	(1)	4	0	66,612
NEPA Baseline Emissions	214,440	4	8	1	217,876
Alt 6 minus NEPA Baseline	-	-	-	-	-
Alt 6 Year 2015					
Ships – Transit and Anchoring	54,041	1	3	-	54,880
Ships – Hoteling	19,029	0	1	-	19,393
Tugboats	416	0	0	-	422
Trucks	84,792	0	0	-	84,855
Trains	64,649	2	5	-	66,327
Terminal Equipment	19,733	0	0	-	19,811
Reefer Refrigerant Losses	-	-	-	1	1,192
AMP Usage	7,244	0	0	-	7,259
On-Terminal Electricity Usage	31,823	1	0	-	31,905
Worker Trips	7,627	0	1	-	7,816
Total – Alt 6 Year 2015	289,355	5	10	1	293,860
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 6 minus CEQA Baseline	140,113	1	6	1	142,596
NEPA Baseline Emissions	215,143	4	8	1	218,469
Alt 6 minus NEPA Baseline	74,211	1	3	0	75,391
Alt 6 Year 2020					
Ships – Transit and Anchoring	66,471	1	3	-	67,504
Ships – Hoteling	14,265	0	1	-	14,569
Tugboats	491	0	0	-	499
Trucks	89,518	0	0	-	89,586
Trains	69,560	2	6	-	71,367
Terminal Equipment	21,411	1	0	-	21,495
Reefer Refrigerant Losses	-	-	-	1	1,284
AMP Usage	8,785	0	0	-	8,803
On-Terminal Electricity Usage	25,036	1	0	-	25,101
Worker Trips	6,629	0	0	-	6,730
Total – Alt 6 Year 2020	302,166	5	11	1	306,937
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 6 minus CEQA Baseline	152,924	1	6	1	155,673
NEPA Baseline Emissions	215,045	4	8	1	218,469
Alt 6 minus NEPA Baseline	87,121	2	3	0	88,468
Alt 6 Year 2025					
Ships – Transit and Anchoring	79,204	2	4	-	80,437
Ships – Hoteling	11,243	0	1	-	11,483
Tugboats	529	0	0	-	537
Trucks	95,974	0	0	-	96,046
Trains	70,769	2	6	-	72,606
Terminal Equipment	23,109	1	0	-	23,200
Reefer Refrigerant Losses	-	-	-	1	1,377
AMP Usage	7,004	0	0	-	7,018
On-Terminal Electricity Usage	26,842	1	0	-	26,911
Worker Trips	6,626	0	0	-	6,748
Total – Alt 6 Year 2025	321,299	6	12	1	326,363
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 6 minus CEQA Baseline	172,057	1	7	1	175,099
NEPA Baseline Emissions	232,166	4	9	1	235,867
Alt 6 minus NEPA Baseline	89,133	2	3	0	90,496
Alt 6 Year 2027					
Ships – Transit and Anchoring	86,335	2	4	-	87,679
Ships – Hoteling	9,316	0	1	-	9,532
Tugboats	567	0	0	-	575
Trucks	98,556	0	0	-	98,630
Trains	72,666	2	6	-	74,553
Terminal Equipment	23,889	1	0	-	23,983
Reefer Refrigerant Losses	-	-	-	1	1,414
AMP Usage	8,632	0	0	-	8,649
On-Terminal Electricity Usage	27,564	1	0	-	27,635
Worker Trips	6,702	0	0	-	6,814
Total – Alt 6 Year 2027	334,227	6	12	1	339,466
CEQA Baseline Emissions	149,241	5	5	0	151,264
Alt 6 minus CEQA Baseline	184,986	1	7	1	188,202
NEPA Baseline Emissions	234,217	4	9	1	237,940
Alt 6 minus NEPA Baseline	100,010	2	3	0	101,526