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CRITERIA POLLUTANT EMISSIONS

Appendix of Construction Emission Calculations

Table 1: Project Element List, Alternatives, & Construction Schedule

Element Name	Assignment to Project Alternatives						Construction		Distribution of Construction Days						
	Project	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Start Date	End Date	Days	2009	2010	2011	2012	2013	2014
1 - Catalina Express Terminal	1	1	1	1	1		06/2009	10/2010	337	148	190	0	0	0	0
2 - Cruise Ship Terminal Berth 91-93		1				1	08/2010	08/2011	253	0	105	148	0	0	0
3 - Cruise Ship Parking Facilities	1	1	1	1	0.5	0.5	10/2009	10/2010	253	63	190	0	0	0	0
4 - North Harbor	1	1	1	1			12/2012	12/2014	506	0	0	0	21	253	232
5 - Maritime Office Building - Crowley	1	1	1	1			10/2010	10/2012	507	0	63	253	191	0	0
6 - Maritime Office Building - Millenium	1	1	1	1			12/2012	12/2014	506	0	0	0	21	253	232
7 - Maritime Office Building - Lane Victory	1	1	1	1	1		12/2012	12/2014	506	0	0	0	21	253	232
8 - Downtown Harbor	1	1	1	1	1		06/2009	12/2010	380	148	232	0	0	0	0
9 - 7th Street Harbor	1	1	1	1	1		06/2009	12/2010	380	148	232	0	0	0	0
10 - 7th Street Pier	1	1	1	1	1		06/2009	12/2010	380	148	232	0	0	0	0
11 - Downtown Square	1	1	1	1	1	1	08/2010	12/2012	591	0	105	253	233	0	0
12 - Downtown Water Feature	1	1	1	1	1	1	08/2010	12/2012	591	0	105	253	233	0	0
13 - John S. Gibson Park	1	1	1	1	1	1	08/2010	12/2012	591	0	105	253	233	0	0
14 - Ralph J. Scott Fireboat Museum	1	1	1	1	1		10/2010	10/2012	507	0	63	253	191	0	0
15 - Maritime Museum Renovation							10/2010	10/2012	507	0	63	253	191	0	0
16 - Maritime Office Building - L.A. Maritime Institute	1	1	1	1	1		10/2010	10/2012	507	0	63	253	191	0	0
17 - Maritime Office Building							10/2010	10/2012	507	0	63	253	191	0	0
18 - Ports O' Call Promenade - Phase 1	1	1	1	1	1		06/2009	06/2010	253	148	105	0	0	0	0
19 - Ports O' Call Promenade - Phase 2	1	1	1	1	1		12/2010	06/2012	380	0	21	253	106	0	0
20 - Ports O' Call Promenade - Phase 3	1	1	1	1	1		06/2013	06/2014	253	0	0	0	0	148	105
21 - Southern Pacific Railyard Demolition	1	1	1	1	1	1	06/2009	12/2009	127	127	0	0	0	0	0
22 - Fisherman's Park	1	1	1	1	1	1	03/2010	03/2011	253	0	211	42	0	0	0
23 - Ports O' Call Redevelopment without restaurant							01/2009	06/2009	105	105	0	0	0	0	0
24 - Ports O' Call Redevelopment Phase 1	1	1	1	0.5	1	1	06/2010	06/2012	507	0	148	253	106	0	0
25 - Ports O' Call Redevelopment Phase 2	1	1	1	0.5	1	1	12/2010	12/2012	507	0	21	253	233	0	0
26 - Ports O' Call Redevelopment with Restaurant	1	1	1	1	1	1	01/2013	06/2013	105	0	0	0	0	105	0
27 - Ports O' Call Redevelopment Phase 3	1	1	1	0.5	1	1	07/2013	07/2014	253	0	0	0	0	127	126
28 - Red Car Maintenance Facility	1	1	1	1	1	1	06/2010	04/2011	211	0	148	63	0	0	0
29 - Westway Terminal Demolition	1	1	1	1	1	1	02/2009	02/2010	253	231	22	0	0	0	0
30 - City Dock No. 1 Promenade	1	1	1	1	1	1	11/2010	11/2012	507	0	42	253	212	0	0
31 - Outer Harbor Cruise Ship Terminal - Berth 45-50	1	0.6	1	0.6			12/2010	12/2012	507	0	21	253	233	0	0
32 - Outer Harbor Park and Promenade	1	1	1	1	1	1	12/2010	12/2012	507	0	21	253	233	0	0
33 - San Pedro Park	1	1	1	1	1	1	12/2010	12/2012	507	0	21	253	233	0	0
34 - Salinas De San Pedro/Youth Camp Promenade	1	1	1	1	1	1	01/2013	06/2014	358	0	0	0	0	252	105
35 - Sampson Way Roadway Improvements	1	1	1	1	1	1	08/2010	02/2012	380	0	105	253	22	0	0
36 - Red Car Line Extension Sampson Way to 22nd St.	1	1	1	1	1	1	08/2010	02/2012	380	0	105	253	22	0	0
37 - Red Car Line Extension 22nd St. to Cabrillo Beach	1	1	1	1	1	1	12/2010	05/2013	611	0	21	253	253	84	0
38 - Red Car Line Extension Outer Harbor	1	1	1	1	1	1	12/2010	12/2011	253	0	21	232	0	0	0
39 - Red Car Line Extension City Dock No. 1	1	1	1	1	1	1	12/2012	12/2014	506	0	0	0	21	253	232
40 -Berth 240 Fueling Station	1	1	1	1	1		01/2011	05/2012	337	0	0	252	85	0	0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Existing_2006_wkdy.urb924

Project Name: San Pedro Waterfront Existing 2006 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	41.83	73.22	417.15	0.58	54.19	11.27	32,716.84

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	41.83	73.22	417.15	0.58	54.19	11.27	32,716.84

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Port of Call Resturant Development	9.76	21.56	122.93	0.17	15.95	3.32	9,632.79
Port of Call Retail Development	3.19	7.00	39.85	0.06	5.18	1.08	3,125.88
Downtown Harbor Docking Slips	0.08	0.14	0.81	0.00	0.11	0.02	63.46
Port of Call Docking Slips	0.82	1.47	8.38	0.01	1.09	0.23	657.47
Temporary Red Car Maint Facility	0.08	0.15	0.89	0.00	0.11	0.02	69.06

Westways Liquid Bulk Terminal	1.69	3.69	21.58	0.03	2.77	0.58	1,679.77
Warehouses 9 & 10 Operations	0.15	0.27	1.57	0.00	0.20	0.04	121.83
S.S. Lane Victory	0.08	0.14	0.80	0.00	0.10	0.02	62.67
Cruise Ship Terminal Berth 87-93	25.81	38.48	218.47	0.31	28.44	5.91	17,158.42
Los Angeles Maritime Institute	0.10	0.19	1.10	0.00	0.14	0.03	85.69
Crowley Tugboat Office	0.07	0.13	0.77	0.00	0.10	0.02	59.80
TOTALS (tons/year, unmitigated)	41.83	73.22	417.15	0.58	54.19	11.27	32,716.84

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2006 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		89.95	1000 sq ft	60.00	5,397.00	49,609.22
Port of Call Retail Development		44.33	1000 sq ft	40.00	1,773.20	16,105.09
Downtown Harbor Docking Slips		3.00	slips	12.00	36.00	326.97
Port of Call Docking Slips		2.96	slips	126.00	372.96	3,387.41
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Westways Liquid Bulk Terminal		51.77	acres	13.00	673.01	8,604.43
Warehouses 9 & 10 Operations		3.00	employees	20.00	60.00	624.88
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Cruise Ship Terminal Berth 87-93		1.47	passengers	6,705.00	9,856.35	88,441.03
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	438.90
Crowley Tugboat Office		3.29	employees	7.00	23.03	306.30
					18,293.55	168,521.19

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	2.5	97.1	0.4
Light Truck < 3750 lbs	7.4	5.4	90.5	4.1
Light Truck 3751-5750 lbs	22.6	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.5	1.9	98.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	100.0	0.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	81.5	18.5	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	12.5	75.0	12.5

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Port of Call Resturant Development				8.0	4.0	88.0
Port of Call Retail Development				5.0	2.5	92.5
Downtown Harbor Docking Slips				5.0	2.5	92.5
Port of Call Docking Slips				5.0	2.5	92.5
Temporary Red Car Maint Facility				50.0	25.0	25.0

Westways Liquid Bulk Terminal	90.0	5.0	5.0
Warehouses 9 & 10 Operations	41.5	20.8	37.8
S.S. Lane Victory	2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93	2.0	1.0	97.0
Los Angeles Maritime Institute	100.0	0.0	0.0
Crowley Tugboat Office	100.0	0.0	0.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Existing_2006_wkend.urb924

Project Name: San Pedro Waterfront Existing 2006 Weekend Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	40.65	70.61	401.77	0.56	52.22	10.84	31,522.61

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	40.65	70.61	401.77	0.56	52.22	10.84	31,522.61

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Port of Call Resturant Development	10.24	22.62	128.97	0.18	16.74	3.48	10,106.13
Port of Call Retail Development	3.03	6.64	37.80	0.05	4.91	1.02	2,965.11
Downtown Harbor Docking Slips	0.08	0.15	0.88	0.00	0.11	0.02	68.75
Port of Call Docking Slips	0.88	1.60	9.12	0.01	1.18	0.25	715.22
Temporary Red Car Maint Facility	0.08	0.15	0.89	0.00	0.11	0.02	69.06

Westways Liquid Bulk Terminal	0.30	0.62	3.62	0.01	0.46	0.10	281.96
Warehouses 9 & 10 Operations	0.07	0.09	0.52	0.00	0.07	0.01	40.61
S.S. Lane Victory	0.11	0.21	1.20	0.00	0.16	0.03	94.01
Cruise Ship Terminal Berth 87-93	25.81	38.48	218.47	0.31	28.44	5.91	17,158.42
Los Angeles Maritime Institute	0.03	0.03	0.17	0.00	0.02	0.00	12.98
Crowley Tugboat Office	0.02	0.02	0.13	0.00	0.02	0.00	10.36
TOTALS (tons/year, unmitigated)	40.65	70.61	401.77	0.56	52.22	10.84	31,522.61

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2006 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		94.37	1000 sq ft	60.00	5,662.20	52,046.94
Port of Call Retail Development		42.05	1000 sq ft	40.00	1,682.00	15,276.76
Downtown Harbor Docking Slips		3.25	slips	12.00	39.00	354.22
Port of Call Docking Slips		3.22	slips	126.00	405.72	3,684.95
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Westways Liquid Bulk Terminal		8.69	acres	13.00	112.97	1,444.32
Warehouses 9 & 10 Operations		1.00	employees	20.00	20.00	208.29
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Cruise Ship Terminal Berth 87-93		1.47	passengers	6,705.00	9,856.35	88,441.03
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	66.50
Crowley Tugboat Office		0.57	employees	7.00	3.99	53.07
					17,874.23	162,414.55

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	2.5	97.1	0.4
Light Truck < 3750 lbs	7.4	5.4	90.5	4.1
Light Truck 3751-5750 lbs	22.6	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.5	1.9	98.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	100.0	0.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	81.5	18.5	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	12.5	75.0	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commuter	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Port of Call Resturant Development				8.0	4.0	88.0
Port of Call Retail Development				5.0	2.5	92.5
Downtown Harbor Docking Slips				5.0	2.5	92.5
Port of Call Docking Slips				5.0	2.5	92.5
Temporary Red Car Maint Facility				50.0	25.0	25.0
Westways Liquid Bulk Terminal				90.0	5.0	5.0

Warehouses 9 & 10 Operations	41.5	20.8	37.8
S.S. Lane Victory	2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93	2.0	1.0	97.0
Los Angeles Maritime Institute	100.0	0.0	0.0
Crowley Tugboat Office	100.0	0.0	0.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Existing_2006_wkdy.urb924

Project Name: San Pedro Waterfront Existing 2006 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	232.77	378.10	2,313.40	3.33	296.92	61.72	184,601.63

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	232.77	378.10	2,313.40	3.33	296.92	61.72	184,601.63

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Port of Call Resturant Development	51.25	111.33	681.74	0.97	87.41	18.17	54,351.84
Port of Call Retail Development	16.80	36.16	220.90	0.32	28.38	5.90	17,637.59
Downtown Harbor Docking Slips	0.44	0.73	4.48	0.01	0.58	0.12	358.08
Port of Call Docking Slips	4.55	7.61	46.46	0.07	5.97	1.24	3,709.74
Temporary Red Car Maint Facility	0.46	0.79	4.97	0.01	0.62	0.13	389.62

Westways Liquid Bulk Terminal	8.89	19.03	120.51	0.17	15.16	3.15	9,476.40
Warehouses 9 & 10 Operations	0.82	1.40	8.74	0.01	1.10	0.23	687.32
S.S. Lane Victory	0.42	0.73	4.42	0.01	0.57	0.12	353.62
Cruise Ship Terminal Berth 87-93	148.24	198.67	1,210.75	1.74	155.82	32.39	96,816.63
Los Angeles Maritime Institute	0.53	0.97	6.14	0.01	0.77	0.16	483.42
Crowley Tugboat Office	0.37	0.68	4.29	0.01	0.54	0.11	337.37
TOTALS (lbs/day, unmitigated)	232.77	378.10	2,313.40	3.33	296.92	61.72	184,601.63

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2006 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		89.95	1000 sq ft	60.00	5,397.00	49,609.22
Port of Call Retail Development		44.33	1000 sq ft	40.00	1,773.20	16,105.09
Downtown Harbor Docking Slips		3.00	slips	12.00	36.00	326.97
Port of Call Docking Slips		2.96	slips	126.00	372.96	3,387.41
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Westways Liquid Bulk Terminal		51.77	acres	13.00	673.01	8,604.43
Warehouses 9 & 10 Operations		3.00	employees	20.00	60.00	624.88
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Cruise Ship Terminal Berth 87-93		1.47	passengers	6,705.00	9,856.35	88,441.03
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	438.90
Crowley Tugboat Office		3.29	employees	7.00	23.03	306.30
					18,293.55	168,521.19

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	2.5	97.1	0.4
Light Truck < 3750 lbs	7.4	5.4	90.5	4.1
Light Truck 3751-5750 lbs	22.6	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.5	1.9	98.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	100.0	0.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	81.5	18.5	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	12.5	75.0	12.5

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Port of Call Resturant Development	8.0	4.0	88.0
Port of Call Retail Development	5.0	2.5	92.5
Downtown Harbor Docking Slips	5.0	2.5	92.5
Port of Call Docking Slips	5.0	2.5	92.5

Temporary Red Car Maint Facility	50.0	25.0	25.0
Westways Liquid Bulk Terminal	90.0	5.0	5.0
Warehouses 9 & 10 Operations	41.5	20.8	37.8
S.S. Lane Victory	2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93	2.0	1.0	97.0
Los Angeles Maritime Institute	100.0	0.0	0.0
Crowley Tugboat Office	100.0	0.0	0.0

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Existing_2006_wkend.urb924

Project Name: San Pedro Waterfront Existing 2006 Weekend Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	226.53	364.66	2,227.33	3.19	286.15	59.49	177,864.76

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	226.53	364.66	2,227.33	3.19	286.15	59.49	177,864.76

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Port of Call Resturant Development	53.74	116.81	715.23	1.02	91.70	19.06	57,022.61
Port of Call Retail Development	15.95	34.30	209.54	0.30	26.92	5.60	16,730.45
Downtown Harbor Docking Slips	0.47	0.80	4.86	0.01	0.62	0.13	387.92
Port of Call Docking Slips	4.85	8.27	50.54	0.07	6.49	1.35	4,035.60
Temporary Red Car Maint Facility	0.46	0.79	4.97	0.01	0.62	0.13	389.62

Westways Liquid Bulk Terminal	1.59	3.19	20.23	0.03	2.55	0.53	1,590.69
Warehouses 9 & 10 Operations	0.39	0.47	2.91	0.00	0.37	0.08	229.11
S.S. Lane Victory	0.58	1.09	6.63	0.01	0.85	0.18	530.43
Cruise Ship Terminal Berth 87-93	148.24	198.67	1,210.75	1.74	155.82	32.39	96,816.63
Los Angeles Maritime Institute	0.15	0.15	0.93	0.00	0.12	0.02	73.25
Crowley Tugboat Office	0.11	0.12	0.74	0.00	0.09	0.02	58.45
TOTALS (lbs/day, unmitigated)	226.53	364.66	2,227.33	3.19	286.15	59.49	177,864.76

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2006 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		94.37	1000 sq ft	60.00	5,662.20	52,046.94
Port of Call Retail Development		42.05	1000 sq ft	40.00	1,682.00	15,276.76
Downtown Harbor Docking Slips		3.25	slips	12.00	39.00	354.22
Port of Call Docking Slips		3.22	slips	126.00	405.72	3,684.95
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Westways Liquid Bulk Terminal		8.69	acres	13.00	112.97	1,444.32
Warehouses 9 & 10 Operations		1.00	employees	20.00	20.00	208.29
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Cruise Ship Terminal Berth 87-93		1.47	passengers	6,705.00	9,856.35	88,441.03
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	66.50
Crowley Tugboat Office		0.57	employees	7.00	3.99	53.07
					17,874.23	162,414.55

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	2.5	97.1	0.4
Light Truck < 3750 lbs	7.4	5.4	90.5	4.1
Light Truck 3751-5750 lbs	22.6	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.5	1.9	98.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	100.0	0.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	81.5	18.5	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	12.5	75.0	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commuter	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Port of Call Resturant Development				8.0	4.0	88.0
Port of Call Retail Development				5.0	2.5	92.5
Downtown Harbor Docking Slips				5.0	2.5	92.5
Port of Call Docking Slips				5.0	2.5	92.5
Temporary Red Car Maint Facility				50.0	25.0	25.0
Westways Liquid Bulk Terminal				90.0	5.0	5.0

Warehouses 9 & 10 Operations	41.5	20.8	37.8
S.S. Lane Victory	2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93	2.0	1.0	97.0
Los Angeles Maritime Institute	100.0	0.0	0.0
Crowley Tugboat Office	100.0	0.0	0.0

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application
Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2011_wkdy.urb924

Project Name: San Pedro Waterfront Existing 2011 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	22.98	30.26	184.87	0.18	30.27	6.10	18,365.69

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	22.98	30.26	184.87	0.18	30.27	6.10	18,365.69

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Cruise Ship Terminal	22.98	30.26	184.87	0.18	30.27	6.10	18,365.69
TOTALS (tons/year, unmitigated)	22.98	30.26	184.87	0.18	30.27	6.10	18,365.69

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Season: Annual

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal		1.47	unknown	7,200.00	10,584.00	94,970.23
					10,584.00	94,970.23

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	2.5	97.1	0.4
Light Truck < 3750 lbs	7.4	5.4	90.5	4.1
Light Truck 3751-5750 lbs	22.6	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.5	1.9	98.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	100.0	0.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	81.5	18.5	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	12.5	75.0	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Cruise Ship Terminal	2.0	1.0	97.0
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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application
Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2011_wkdy.urb924

Project Name: San Pedro Waterfront Existing 2011 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	131.63	156.24	1,021.32	1.06	165.86	33.43	103,676.87

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	131.63	156.24	1,021.32	1.06	165.86	33.43	103,676.87

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Cruise Ship Terminal	131.63	156.24	1,021.32	1.06	165.86	33.43	103,676.87
TOTALS (lbs/day, unmitigated)	131.63	156.24	1,021.32	1.06	165.86	33.43	103,676.87

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Temperature (F): 80 Season: Summer

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal		1.47	unknown	7,200.00	10,584.00	94,970.23
					10,584.00	94,970.23

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	2.5	97.1	0.4
Light Truck < 3750 lbs	7.4	5.4	90.5	4.1
Light Truck 3751-5750 lbs	22.6	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.5	1.9	98.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	100.0	0.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	81.5	18.5	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	12.5	75.0	12.5

Travel Conditions

	Residential			Commute	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Cruise Ship Terminal				2.0	1.0	97.0
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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application
Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2015_wkdy.urb924

Project Name: San Pedro Waterfront Proposed Project 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	35.28	73.88	360.31	0.71	114.34	23.11	74,686.41

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	35.28	73.88	360.31	0.71	114.34	23.11	74,686.41

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	1.37	0.29	1.40	0.00	0.45	0.09	292.32
Cruise Ship Terminal Berth 91-93	9.35	15.16	74.47	0.15	23.50	4.75	15,364.00
Los Angeles Maritime Institute	0.03	0.07	0.32	0.00	0.10	0.02	66.27
Conference Facilities at POC	0.73	1.46	7.10	0.01	2.26	0.46	1,474.85
Cruise Ship Terminal Berth 45-50	9.06	14.33	69.63	0.14	22.16	4.48	14,465.67

San Pedro Park at 22nd & Miner St	0.35	1.01	4.89	0.01	1.56	0.31	1,015.27
Port of Call Restaurant Development	7.27	21.30	103.75	0.21	32.96	6.66	21,524.17
Port of Call Retail Development	5.08	14.69	71.57	0.15	22.74	4.60	14,847.49
S.S. Lane Victory	0.03	0.07	0.32	0.00	0.10	0.02	67.22
Ralph J Scott Fireboat Museum	0.03	0.07	0.32	0.00	0.10	0.02	67.22
Mercardo Warehouse 9 & 10 Reuse	0.53	1.48	7.23	0.01	2.29	0.46	1,497.57
Warehouse 9 & 10 Reuse	0.14	0.33	1.62	0.00	0.51	0.10	335.72
Red Car Maintenance Facility	0.13	0.30	1.52	0.00	0.47	0.10	311.00
Millennium Tugboat Office	0.10	0.22	1.13	0.00	0.35	0.07	231.01
Waterfront Promenade Town Sq	0.20	0.57	2.75	0.01	0.88	0.18	571.41
Fisherman Park	0.08	0.22	1.08	0.00	0.34	0.07	224.08
Research & Dev at Westways	0.65	1.92	9.29	0.02	2.96	0.60	1,932.82
Crowley Tugboat	0.03	0.06	0.31	0.00	0.10	0.02	64.10
Outer Harbor Park	0.12	0.33	1.61	0.00	0.51	0.10	334.22
TOTALS (tons/year, unmitigated)	35.28	73.88	360.31	0.71	114.34	23.11	74,686.41

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,572.00	157.20	1,404.82
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,240.00	7,650.40	69,484.76
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				38,687.40	358,546.83

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application
Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2015_wkend.urb924
Project Name: San Pedro Waterfront Proposed Project 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	35.03	73.17	356.73	0.72	113.23	22.89	73,951.15

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	35.03	73.17	356.73	0.72	113.23	22.89	73,951.15

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	1.37	0.29	1.40	0.00	0.45	0.09	292.32
Cruise Ship Terminal Berth 91-93	9.35	15.16	74.47	0.15	23.50	4.75	15,364.00
Los Angeles Maritime Institute	0.01	0.01	0.05	0.00	0.02	0.00	10.04
Conference Facilities at POC	0.49	0.73	3.55	0.01	1.13	0.23	737.43
Cruise Ship Terminal Berth 45-50	9.06	14.33	69.63	0.14	22.16	4.48	14,465.67

San Pedro Park at 22nd & Miner St	0.77	2.24	10.88	0.02	3.46	0.70	2,261.29
Port of Call Restaurant Development	7.62	22.35	108.84	0.22	34.58	6.99	22,579.44
Port of Call Retail Development	4.83	13.94	67.89	0.14	21.57	4.36	14,083.68
S.S. Lane Victory	0.04	0.10	0.48	0.00	0.15	0.03	100.84
Ralph J Scott Fireboat Museum	0.04	0.10	0.48	0.00	0.15	0.03	100.84
Mercardo Warehouse 9 & 10 Reuse	0.50	1.41	6.85	0.01	2.17	0.44	1,420.56
Warehouse 9 & 10 Reuse	0.06	0.09	0.42	0.00	0.13	0.03	87.14
Red Car Maintenance Facility	0.13	0.30	1.52	0.00	0.48	0.10	312.03
Millennium Tugboat Office	0.03	0.04	0.19	0.00	0.06	0.01	38.97
Waterfront Promenade Town Sq	0.20	0.57	2.75	0.01	0.88	0.18	571.41
Fisherman Park	0.08	0.22	1.08	0.00	0.34	0.07	224.08
Research & Dev at Westways	0.19	0.54	2.62	0.01	0.84	0.17	545.23
Crowley Tugboat	0.01	0.01	0.05	0.00	0.02	0.00	11.11
Outer Harbor Park	0.25	0.74	3.58	0.01	1.14	0.23	745.07
TOTALS (tons/year, unmitigated)	35.03	73.17	356.73	0.72	113.23	22.89	73,951.15

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,572.00	157.20	1,404.82
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,240.00	7,650.40	69,484.76

San Pedro Park at 22nd & Miner St	66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development	94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				38,337.20	355,020.26

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2015_wkdy.urb924

Project Name: San Pedro Waterfront Proposed Project 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	199.13	384.34	2,031.23	4.21	626.55	126.65	420,983.77

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	199.13	384.34	2,031.23	4.21	626.55	126.65	420,983.77

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Cruise Parking Shuttle Outer Harbor	8.93	1.51	7.91	0.02	2.45	0.50	1,647.75
Cruise Ship Terminal Berth 91-93	54.83	78.85	420.21	0.87	128.75	26.03	86,599.25
Los Angeles Maritime Institute	0.17	0.34	1.81	0.00	0.56	0.11	373.55
Conference Facilities at POC	4.18	7.60	40.00	0.08	12.38	2.50	8,313.42
Cruise Ship Terminal Berth 45-50	53.29	74.54	392.34	0.82	121.42	24.54	81,539.71
San Pedro Park at 22nd & Miner St	1.87	5.23	27.54	0.06	8.52	1.72	5,722.83

Port of Call Restaurant Development	38.19	110.82	584.81	1.22	180.60	36.51	121,325.65
Port of Call Retail Development	26.82	76.45	403.41	0.84	124.58	25.18	83,691.10
S.S. Lane Victory	0.17	0.35	1.82	0.00	0.56	0.11	378.93
Ralph J Scott Fireboat Museum	0.17	0.35	1.82	0.00	0.56	0.11	378.93
Mercardo Warehouse 9 & 10 Reuse	2.80	7.71	40.74	0.08	12.56	2.54	8,441.31
Warehouse 9 & 10 Reuse	0.77	1.73	9.13	0.02	2.82	0.57	1,892.35
Red Car Maintenance Facility	0.72	1.57	8.61	0.02	2.60	0.53	1,752.78
Millennium Tugboat Office	0.52	1.17	6.39	0.01	1.93	0.39	1,301.96
Waterfront Promenade Town Sq	1.08	2.95	15.47	0.03	4.80	0.97	3,220.94
Fisherman Park	0.42	1.16	6.07	0.01	1.88	0.38	1,263.12
Research & Dev at Westways	3.44	9.97	52.33	0.11	16.23	3.28	10,895.00
Crowley Tugboat	0.15	0.32	1.77	0.00	0.54	0.11	361.25
Outer Harbor Park	0.61	1.72	9.05	0.02	2.81	0.57	1,883.94
TOTALS (lbs/day, unmitigated)	199.13	384.34	2,031.23	4.21	626.55	126.65	420,983.77

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,572.00	157.20	1,404.82
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,240.00	7,650.40	69,484.76
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development		44.32	1000 sq ft	175.00	7,756.00	71,293.15

S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				38,687.40	358,546.83

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application
Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2015_wkend.urb924

Project Name: San Pedro Waterfront Proposed Project 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	197.87	380.56	2,011.16	4.19	620.40	125.43	416,839.32

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	197.87	380.56	2,011.16	4.19	620.40	125.43	416,839.32

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	8.93	1.51	7.91	0.02	2.45	0.50	1,647.75
Cruise Ship Terminal Berth 91-93	54.83	78.85	420.21	0.87	128.75	26.03	86,599.25
Los Angeles Maritime Institute	0.07	0.05	0.27	0.00	0.08	0.02	56.60
Conference Facilities at POC	2.89	3.80	20.00	0.04	6.19	1.25	4,156.71
Cruise Ship Terminal Berth 45-50	53.29	74.54	392.34	0.82	121.42	24.54	81,539.71

San Pedro Park at 22nd & Miner St	4.04	11.65	61.33	0.13	18.98	3.84	12,746.39
Port of Call Restaurant Development	40.03	116.26	613.48	1.28	189.46	38.30	127,273.92
Port of Call Retail Development	25.49	72.51	382.65	0.80	118.17	23.89	79,385.69
S.S. Lane Victory	0.23	0.52	2.73	0.01	0.85	0.17	568.40
Ralph J Scott Fireboat Museum	0.23	0.52	2.73	0.01	0.85	0.17	568.40
Mercardo Warehouse 9 & 10 Reuse	2.66	7.31	38.64	0.08	11.92	2.41	8,007.25
Warehouse 9 & 10 Reuse	0.34	0.45	2.37	0.00	0.73	0.15	491.17
Red Car Maintenance Facility	0.73	1.57	8.64	0.02	2.61	0.53	1,758.59
Millennium Tugboat Office	0.20	0.20	1.08	0.00	0.33	0.07	219.61
Waterfront Promenade Town Sq	1.08	2.95	15.47	0.03	4.80	0.97	3,220.94
Fisherman Park	0.42	1.16	6.07	0.01	1.88	0.38	1,263.12
Research & Dev at Westways	1.02	2.81	14.76	0.03	4.58	0.93	3,073.37
Crowley Tugboat	0.06	0.06	0.31	0.00	0.09	0.02	62.59
Outer Harbor Park	1.33	3.84	20.17	0.04	6.26	1.26	4,199.86
TOTALS (lbs/day, unmitigated)	197.87	380.56	2,011.16	4.19	620.40	125.43	416,839.32

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,572.00	157.20	1,404.82
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,240.00	7,650.40	69,484.76
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				38,337.20	355,020.26

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application

Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2022_wkdy.urb924

Project Name: San Pedro Waterfront Proposed Project 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	29.30	49.05	275.25	0.75	120.48	23.98	78,994.55

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	29.30	49.05	275.25	0.75	120.48	23.98	78,994.55

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Cruise Parking Shuttle Outer Harbor	1.34	0.21	1.16	0.00	0.51	0.10	334.35
Cruise Ship Terminal Berth 91-93	8.43	10.88	61.52	0.17	26.78	5.33	17,573.82
Los Angeles Maritime Institute	0.02	0.04	0.23	0.00	0.10	0.02	66.24
Conference Facilities at POC	0.57	0.92	5.12	0.01	2.25	0.45	1,474.05
Cruise Ship Terminal Berth 45-50	8.20	10.29	57.52	0.16	25.25	5.03	16,546.40

San Pedro Park at 22nd & Miner St	0.26	0.63	3.53	0.01	1.55	0.31	1,014.71
Port of Call Restaurant Development	5.28	13.36	74.89	0.21	32.82	6.53	21,512.35
Port of Call Retail Development	3.70	9.22	51.66	0.15	22.64	4.51	14,839.34
S.S. Lane Victory	0.02	0.04	0.23	0.00	0.10	0.02	67.19
Ralph J Scott Fireboat Museum	0.02	0.04	0.23	0.00	0.10	0.02	67.19
Mercardo Warehouse 9 & 10 Reuse	0.39	0.93	5.22	0.01	2.28	0.45	1,496.74
Warehouse 9 & 10 Reuse	0.11	0.21	1.17	0.00	0.51	0.10	335.54
Red Car Maintenance Facility	0.10	0.19	1.10	0.00	0.47	0.09	310.82
Millennium Tugboat Office	0.07	0.14	0.81	0.00	0.35	0.07	230.88
Waterfront Promenade Town Sq	0.15	0.36	1.98	0.01	0.87	0.17	571.10
Fisherman Park	0.06	0.14	0.78	0.00	0.34	0.07	223.96
Research & Dev at Westways	0.48	1.20	6.71	0.02	2.95	0.59	1,931.77
Crowley Tugboat	0.02	0.04	0.23	0.00	0.10	0.02	64.06
Outer Harbor Park	0.08	0.21	1.16	0.00	0.51	0.10	334.04
TOTALS (tons/year, unmitigated)	29.30	49.05	275.25	0.75	120.48	23.98	78,994.55

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,799.00	179.90	1,607.68
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,997.00	8,755.62	79,522.92
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				40,920.54	379,431.12

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application
Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2022_wkend.urb924

Project Name: San Pedro Waterfront Proposed Project 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	27.76	47.58	263.25	0.76	119.34	23.74	78,251.45

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	27.76	47.58	263.25	0.76	119.34	23.74	78,251.45

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	1.30	0.20	1.12	0.00	0.51	0.10	334.31
Cruise Ship Terminal Berth 91-93	8.08	10.66	59.40	0.17	26.77	5.33	17,572.07
Los Angeles Maritime Institute	0.01	0.01	0.03	0.00	0.02	0.00	10.03
Conference Facilities at POC	0.37	0.45	2.47	0.01	1.12	0.22	736.94
Cruise Ship Terminal Berth 45-50	7.86	10.07	55.53	0.16	25.25	5.02	16,544.62

San Pedro Park at 22nd & Miner St	0.53	1.38	7.58	0.02	3.45	0.69	2,259.81
Port of Call Restaurant Development	5.21	13.73	75.84	0.22	34.42	6.85	22,564.66
Port of Call Retail Development	3.32	8.56	47.31	0.14	21.47	4.27	14,074.45
S.S. Lane Victory	0.03	0.06	0.34	0.00	0.15	0.03	100.77
Ralph J Scott Fireboat Museum	0.03	0.06	0.34	0.00	0.15	0.03	100.77
Mercardo Warehouse 9 & 10 Reuse	0.35	0.86	4.78	0.01	2.17	0.43	1,419.63
Warehouse 9 & 10 Reuse	0.04	0.05	0.29	0.00	0.13	0.03	87.08
Red Car Maintenance Facility	0.09	0.19	1.06	0.00	0.47	0.09	311.83
Millennium Tugboat Office	0.03	0.02	0.13	0.00	0.06	0.01	38.94
Waterfront Promenade Town Sq	0.14	0.35	1.91	0.01	0.87	0.17	571.04
Fisherman Park	0.06	0.14	0.75	0.00	0.34	0.07	223.94
Research & Dev at Westways	0.13	0.33	1.83	0.01	0.83	0.17	544.87
Crowley Tugboat	0.01	0.01	0.04	0.00	0.02	0.00	11.10
Outer Harbor Park	0.17	0.45	2.50	0.01	1.14	0.23	744.59
TOTALS (tons/year, unmitigated)	27.76	47.58	263.25	0.76	119.34	23.74	78,251.45

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,799.00	179.90	1,607.68
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,997.00	8,755.62	79,522.92
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				40,570.34	375,904.55

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application
Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2022_wkdy.urb924

Project Name: San Pedro Waterfront Proposed Project 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	167.04	254.90	1,556.46	4.45	660.16	131.42	445,347.58

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	167.04	254.90	1,556.46	4.45	660.16	131.42	445,347.58

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Cruise Parking Shuttle Outer Harbor	8.72	1.08	6.55	0.02	2.80	0.56	1,885.00
Cruise Ship Terminal Berth 91-93	49.77	56.56	348.16	0.99	146.71	29.21	99,072.83
Los Angeles Maritime Institute	0.13	0.21	1.31	0.00	0.55	0.11	373.41
Conference Facilities at POC	3.25	4.76	28.96	0.08	12.33	2.45	8,310.37
Cruise Ship Terminal Berth 45-50	48.56	53.47	325.12	0.94	138.36	27.54	93,285.18

San Pedro Park at 22nd & Miner St	1.36	3.28	19.94	0.06	8.48	1.69	5,720.73
Port of Call Restaurant Development	27.72	69.46	423.43	1.22	179.82	35.79	121,280.98
Port of Call Retail Development	19.53	47.92	292.08	0.84	124.04	24.69	83,660.28
S.S. Lane Victory	0.13	0.22	1.32	0.00	0.56	0.11	378.80
Ralph J Scott Fireboat Museum	0.13	0.22	1.32	0.00	0.56	0.11	378.80
Mercardo Warehouse 9 & 10 Reuse	2.05	4.83	29.49	0.08	12.51	2.49	8,438.19
Warehouse 9 & 10 Reuse	0.58	1.08	6.61	0.02	2.80	0.56	1,891.65
Red Car Maintenance Facility	0.55	0.98	6.23	0.02	2.59	0.52	1,752.10
Millennium Tugboat Office	0.40	0.73	4.63	0.01	1.92	0.38	1,301.46
Waterfront Promenade Town Sq	0.79	1.85	11.20	0.03	4.78	0.95	3,219.77
Fisherman Park	0.31	0.72	4.39	0.01	1.87	0.37	1,262.65
Research & Dev at Westways	2.50	6.25	37.89	0.11	16.16	3.22	10,891.02
Crowley Tugboat	0.11	0.20	1.28	0.00	0.53	0.11	361.11
Outer Harbor Park	0.45	1.08	6.55	0.02	2.79	0.56	1,883.25
TOTALS (lbs/day, unmitigated)	167.04	254.90	1,556.46	4.45	660.16	131.42	445,347.58

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,799.00	179.90	1,607.68
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,997.00	8,755.62	79,522.92
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				40,920.54	379,431.12

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application
Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2022_wkend.urb924

Project Name: San Pedro Waterfront Proposed Project 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	158.50	247.39	1,491.55	4.43	653.90	130.10	441,201.01

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	158.50	247.39	1,491.55	4.43	653.90	130.10	441,201.01

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Cruise Parking Shuttle Outer Harbor	8.48	1.06	6.34	0.02	2.80	0.56	1,884.98
Cruise Ship Terminal Berth 91-93	47.73	55.40	336.84	0.99	146.69	29.19	99,072.48
Los Angeles Maritime Institute	0.06	0.03	0.19	0.00	0.08	0.02	56.58
Conference Facilities at POC	2.22	2.33	14.01	0.04	6.16	1.23	4,155.14
Cruise Ship Terminal Berth 45-50	46.59	52.38	314.46	0.94	138.33	27.51	93,284.17

San Pedro Park at 22nd & Miner St	2.77	7.15	42.95	0.13	18.89	3.76	12,741.58
Port of Call Restaurant Development	27.35	71.38	429.65	1.28	188.60	37.52	127,225.87
Port of Call Retail Development	17.50	44.52	267.99	0.80	117.64	23.40	79,355.72
S.S. Lane Victory	0.16	0.32	1.91	0.01	0.84	0.17	568.19
Ralph J Scott Fireboat Museum	0.16	0.32	1.91	0.01	0.84	0.17	568.19
Mercardo Warehouse 9 & 10 Reuse	1.84	4.49	27.06	0.08	11.86	2.36	8,004.23
Warehouse 9 & 10 Reuse	0.26	0.28	1.66	0.00	0.73	0.14	490.99
Red Car Maintenance Facility	0.52	0.97	6.05	0.02	2.59	0.52	1,757.94
Millennium Tugboat Office	0.16	0.12	0.76	0.00	0.32	0.06	219.53
Waterfront Promenade Town Sq	0.75	1.81	10.83	0.03	4.78	0.95	3,219.73
Fisherman Park	0.29	0.71	4.25	0.01	1.87	0.37	1,262.64
Research & Dev at Westways	0.71	1.73	10.34	0.03	4.56	0.91	3,072.21
Crowley Tugboat	0.04	0.03	0.22	0.00	0.09	0.02	62.57
Outer Harbor Park	0.91	2.36	14.13	0.04	6.23	1.24	4,198.27
TOTALS (lbs/day, unmitigated)	158.50	247.39	1,491.55	4.43	653.90	130.10	441,201.01

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,799.00	179.90	1,607.68
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,997.00	8,755.62	79,522.92
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				40,570.34	375,904.55

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application

Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2037_wkdy.urb924

Project Name: San Pedro Waterfront Proposed Project 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	18.13	26.73	167.91	0.89	136.42	26.83	89,509.45

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	18.13	26.73	167.91	0.89	136.42	26.83	89,509.45

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	0.93	0.13	0.82	0.00	0.67	0.13	437.46
Cruise Ship Terminal Berth 91-93	5.77	6.85	43.32	0.23	35.01	6.89	22,996.36
Los Angeles Maritime Institute	0.01	0.02	0.12	0.00	0.10	0.02	66.06
Conference Facilities at POC	0.29	0.44	2.75	0.01	2.24	0.44	1,470.20
Cruise Ship Terminal Berth 45-50	5.62	6.47	40.52	0.22	33.02	6.49	21,652.01

San Pedro Park at 22nd & Miner St	0.13	0.30	1.89	0.01	1.54	0.30	1,012.06
Port of Call Restaurant Development	2.71	6.41	40.21	0.22	32.71	6.43	21,456.16
Port of Call Retail Development	1.91	4.42	27.74	0.15	22.56	4.44	14,800.57
S.S. Lane Victory	0.01	0.02	0.13	0.00	0.10	0.02	67.01
Ralph J Scott Fireboat Museum	0.01	0.02	0.13	0.00	0.10	0.02	67.01
Mercardo Warehouse 9 & 10 Reuse	0.20	0.45	2.80	0.02	2.28	0.45	1,492.83
Warehouse 9 & 10 Reuse	0.05	0.10	0.63	0.00	0.51	0.10	334.66
Red Car Maintenance Facility	0.05	0.09	0.59	0.00	0.47	0.09	310.01
Millennium Tugboat Office	0.04	0.07	0.44	0.00	0.35	0.07	230.28
Waterfront Promenade Town Sq	0.08	0.17	1.06	0.01	0.87	0.17	569.61
Fisherman Park	0.03	0.07	0.42	0.00	0.34	0.07	223.38
Research & Dev at Westways	0.24	0.58	3.60	0.02	2.94	0.58	1,926.73
Crowley Tugboat	0.01	0.02	0.12	0.00	0.10	0.02	63.89
Outer Harbor Park	0.04	0.10	0.62	0.00	0.51	0.10	333.16
TOTALS (tons/year, unmitigated)	18.13	26.73	167.91	0.89	136.42	26.83	89,509.45

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	2,360.00	236.00	2,109.01
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	7,868.00	11,487.28	104,333.22
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				46,439.96	431,048.64

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application
 Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2037_wkend.urb924
 Project Name: San Pedro Waterfront Proposed Project 2037 Weekend
 Project Location: South Coast AQMD
 On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
 Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	18.06	26.13	166.91	0.87	135.30	26.60	88,951.43

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	18.06	26.13	166.91	0.87	135.30	26.60	88,951.43

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	0.93	0.13	0.82	0.00	0.67	0.13	438.32
Cruise Ship Terminal Berth 91-93	5.78	6.75	43.42	0.23	35.01	6.89	23,041.73
Los Angeles Maritime Institute	0.00	0.00	0.02	0.00	0.02	0.00	10.03
Conference Facilities at POC	0.20	0.22	1.38	0.01	1.12	0.22	736.55
Cruise Ship Terminal Berth 45-50	5.62	6.38	40.61	0.21	33.02	6.49	21,694.64

San Pedro Park at 22nd & Miner St	0.29	0.66	4.23	0.02	3.44	0.68	2,258.59
Port of Call Restaurant Development	2.85	6.63	42.28	0.22	34.31	6.75	22,552.43
Port of Call Retail Development	1.81	4.13	26.37	0.14	21.40	4.21	14,066.83
S.S. Lane Victory	0.02	0.03	0.19	0.00	0.15	0.03	100.72
Ralph J Scott Fireboat Museum	0.02	0.03	0.19	0.00	0.15	0.03	100.72
Mercardo Warehouse 9 & 10 Reuse	0.19	0.42	2.66	0.01	2.16	0.42	1,418.86
Warehouse 9 & 10 Reuse	0.02	0.03	0.16	0.00	0.13	0.03	87.03
Red Car Maintenance Facility	0.05	0.09	0.59	0.00	0.47	0.09	311.65
Millennium Tugboat Office	0.01	0.01	0.07	0.00	0.06	0.01	38.92
Waterfront Promenade Town Sq	0.08	0.17	1.07	0.01	0.87	0.17	570.73
Fisherman Park	0.03	0.07	0.42	0.00	0.34	0.07	223.82
Research & Dev at Westways	0.07	0.16	1.02	0.01	0.83	0.16	544.58
Crowley Tugboat	0.00	0.00	0.02	0.00	0.02	0.00	11.09
Outer Harbor Park	0.09	0.22	1.39	0.01	1.13	0.22	744.19
TOTALS (tons/year, unmitigated)	18.06	26.13	166.91	0.87	135.30	26.60	88,951.43

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	2,360.00	236.00	2,109.01
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	7,868.00	11,487.28	104,333.22
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				46,089.76	427,522.07

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application
Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2037_wkdy.urb924

Project Name: San Pedro Waterfront Proposed Project 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	102.69	139.31	957.28	5.18	747.47	147.03	504,769.39

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	102.69	139.31	957.28	5.18	747.47	147.03	504,769.39

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	5.92	0.68	4.66	0.03	3.66	0.72	2,467.06
Cruise Ship Terminal Berth 91-93	33.53	35.71	247.11	1.33	191.84	37.74	129,679.05
Los Angeles Maritime Institute	0.07	0.10	0.71	0.00	0.55	0.11	372.53
Conference Facilities at POC	1.66	2.29	15.68	0.09	12.28	2.42	8,291.01
Cruise Ship Terminal Berth 45-50	32.73	33.75	230.95	1.26	180.92	35.58	122,104.00

San Pedro Park at 22nd & Miner St	0.69	1.58	10.80	0.06	8.46	1.66	5,707.40
Port of Call Restaurant Development	14.08	33.42	229.22	1.24	179.22	35.25	120,998.28
Port of Call Retail Development	9.93	23.05	158.11	0.86	123.63	24.31	83,465.27
S.S. Lane Victory	0.07	0.10	0.71	0.00	0.56	0.11	377.91
Ralph J Scott Fireboat Museum	0.07	0.10	0.71	0.00	0.56	0.11	377.91
Mercardo Warehouse 9 & 10 Reuse	1.04	2.32	15.96	0.09	12.47	2.45	8,418.52
Warehouse 9 & 10 Reuse	0.30	0.52	3.58	0.02	2.79	0.55	1,887.24
Red Car Maintenance Facility	0.28	0.47	3.37	0.02	2.58	0.51	1,748.02
Millennium Tugboat Office	0.20	0.35	2.50	0.01	1.91	0.38	1,298.42
Waterfront Promenade Town Sq	0.40	0.89	6.07	0.03	4.76	0.94	3,212.27
Fisherman Park	0.16	0.35	2.38	0.01	1.87	0.37	1,259.71
Research & Dev at Westways	1.27	3.01	20.52	0.11	16.10	3.17	10,865.66
Crowley Tugboat	0.06	0.10	0.69	0.00	0.53	0.10	360.27
Outer Harbor Park	0.23	0.52	3.55	0.02	2.78	0.55	1,878.86
TOTALS (lbs/day, unmitigated)	102.69	139.31	957.28	5.18	747.47	147.03	504,769.39

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	2,360.00	236.00	2,109.01
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	7,868.00	11,487.28	104,333.22
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				46,439.96	431,048.64

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application
Data\Urbemis\Version9a\Projects\SPW_Proposed_Project_2037_wkend.urb924

Project Name: San Pedro Waterfront Proposed Project 2037 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	102.35	136.25	951.62	5.03	741.39	145.82	501,655.44

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	102.35	136.25	951.62	5.03	741.39	145.82	501,655.44

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	5.94	0.67	4.67	0.02	3.66	0.72	2,472.08
Cruise Ship Terminal Berth 91-93	33.58	35.21	247.68	1.30	191.85	37.74	129,943.38
Los Angeles Maritime Institute	0.03	0.02	0.11	0.00	0.08	0.02	56.56
Conference Facilities at POC	1.19	1.13	7.86	0.04	6.14	1.21	4,153.94
Cruise Ship Terminal Berth 45-50	32.78	33.28	231.49	1.23	180.92	35.58	122,352.44

San Pedro Park at 22nd & Miner St	1.49	3.46	24.10	0.13	18.84	3.70	12,737.89
Port of Call Restaurant Development	14.77	34.57	241.01	1.28	188.01	36.97	127,188.86
Port of Call Retail Development	9.45	21.56	150.33	0.80	117.27	23.06	79,332.64
S.S. Lane Victory	0.09	0.15	1.07	0.01	0.84	0.17	568.02
Ralph J Scott Fireboat Museum	0.09	0.15	1.07	0.01	0.84	0.17	568.02
Mercardo Warehouse 9 & 10 Reuse	0.99	2.17	15.18	0.08	11.83	2.33	8,001.89
Warehouse 9 & 10 Reuse	0.14	0.13	0.93	0.00	0.73	0.14	490.84
Red Car Maintenance Facility	0.28	0.47	3.39	0.02	2.59	0.51	1,757.39
Millennium Tugboat Office	0.08	0.06	0.42	0.00	0.32	0.06	219.46
Waterfront Promenade Town Sq	0.40	0.88	6.08	0.03	4.76	0.94	3,218.80
Fisherman Park	0.16	0.34	2.38	0.01	1.87	0.37	1,262.28
Research & Dev at Westways	0.38	0.84	5.80	0.03	4.54	0.89	3,071.33
Crowley Tugboat	0.02	0.02	0.12	0.00	0.09	0.02	62.55
Outer Harbor Park	0.49	1.14	7.93	0.04	6.21	1.22	4,197.07
TOTALS (lbs/day, unmitigated)	102.35	136.25	951.62	5.03	741.39	145.82	501,655.44

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	2,360.00	236.00	2,109.01
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	7,868.00	11,487.28	104,333.22
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				46,089.76	427,522.07

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_1_2015_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 1 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	30.09	66.63	325.12	0.64	103.14	20.85	67,376.05

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	30.09	66.63	325.12	0.64	103.14	20.85	67,376.05

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Cruise Parking Shuttle Outer Harbor	0.68	0.14	0.70	0.00	0.22	0.05	146.16
Cruise Ship Terminal Berth 91-93	9.35	15.16	74.47	0.15	23.50	4.75	15,364.00
Los Angeles Maritime Institute	0.03	0.07	0.32	0.00	0.10	0.02	66.27
Conference Facilities at POC	0.73	1.46	7.10	0.01	2.26	0.46	1,474.85
Cruise Ship Terminal Berth 45-50	4.53	7.16	34.81	0.07	11.08	2.24	7,232.84
San Pedro Park at 22nd & Miner St	0.35	1.01	4.89	0.01	1.56	0.31	1,015.27

Port of Call Restaurant Development	7.27	21.30	103.75	0.21	32.96	6.66	21,524.17
Port of Call Retail Development	5.08	14.69	71.57	0.15	22.74	4.60	14,847.49
S.S. Lane Victory	0.03	0.07	0.32	0.00	0.10	0.02	67.22
Ralph J Scott Fireboat Museum	0.03	0.07	0.32	0.00	0.10	0.02	67.22
Mercardo Warehouse 9 & 10 Reuse	0.53	1.48	7.23	0.01	2.29	0.46	1,497.57
Warehouse 9 & 10 Reuse	0.14	0.33	1.62	0.00	0.51	0.10	335.72
Red Car Museum	0.03	0.07	0.33	0.00	0.11	0.02	68.63
Red Car Maintenance Facility	0.13	0.30	1.52	0.00	0.47	0.10	311.00
Millennium Tugboat Office	0.10	0.22	1.13	0.00	0.35	0.07	231.01
Waterfront Promenade Town Sq	0.20	0.57	2.75	0.01	0.88	0.18	571.41
Fisherman Park	0.08	0.22	1.08	0.00	0.34	0.07	224.08
Research & Dev at Westways	0.65	1.92	9.29	0.02	2.96	0.60	1,932.82
Crowley Tugboat	0.03	0.06	0.31	0.00	0.10	0.02	64.10
Outer Harbor Park	0.12	0.33	1.61	0.00	0.51	0.10	334.22
TOTALS (tons/year, unmitigated)	30.09	66.63	325.12	0.64	103.14	20.85	67,376.05

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	786.00	78.60	702.41
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,620.00	3,825.20	34,742.38
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				34,819.60	323,431.64

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_1_2015_wkend.urb924

Project Name: San Pedro Waterfront Alternative 1 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	29.85	65.95	321.71	0.65	102.08	20.64	66,675.11

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	29.85	65.95	321.71	0.65	102.08	20.64	66,675.11

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Cruise Parking Shuttle Outer Harbor	0.68	0.14	0.70	0.00	0.22	0.05	146.16
Cruise Ship Terminal Berth 91-93	9.35	15.16	74.47	0.15	23.50	4.75	15,364.00
Los Angeles Maritime Institute	0.01	0.01	0.05	0.00	0.02	0.00	10.04
Conference Facilities at POC	0.49	0.73	3.55	0.01	1.13	0.23	737.43
Cruise Ship Terminal Berth 45-50	4.53	7.16	34.81	0.07	11.08	2.24	7,232.84
San Pedro Park at 22nd & Miner St	0.77	2.24	10.88	0.02	3.46	0.70	2,261.29

Port of Call Restaurant Development	7.62	22.35	108.84	0.22	34.58	6.99	22,579.44
Port of Call Retail Development	4.83	13.94	67.89	0.14	21.57	4.36	14,083.68
S.S. Lane Victory	0.04	0.10	0.48	0.00	0.15	0.03	100.84
Ralph J Scott Fireboat Museum	0.04	0.10	0.48	0.00	0.15	0.03	100.84
Mercardo Warehouse 9 & 10 Reuse	0.50	1.41	6.85	0.01	2.17	0.44	1,420.56
Warehouse 9 & 10 Reuse	0.06	0.09	0.42	0.00	0.13	0.03	87.14
Red Car Museum	0.04	0.10	0.50	0.00	0.16	0.03	102.95
Red Car Maintenance Facility	0.13	0.30	1.52	0.00	0.48	0.10	312.03
Millennium Tugboat Office	0.03	0.04	0.19	0.00	0.06	0.01	38.97
Waterfront Promenade Town Sq	0.20	0.57	2.75	0.01	0.88	0.18	571.41
Fisherman Park	0.08	0.22	1.08	0.00	0.34	0.07	224.08
Research & Dev at Westways	0.19	0.54	2.62	0.01	0.84	0.17	545.23
Crowley Tugboat	0.01	0.01	0.05	0.00	0.02	0.00	11.11
Outer Harbor Park	0.25	0.74	3.58	0.01	1.14	0.23	745.07
TOTALS (tons/year, unmitigated)	29.85	65.95	321.71	0.65	102.08	20.64	66,675.11

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	786.00	78.60	702.41
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,620.00	3,825.20	34,742.38
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				34,487.40	320,069.87

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commute	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_1_2015_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 1 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	168.20	346.66	1,832.96	3.79	565.20	114.25	379,776.92

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	168.20	346.66	1,832.96	3.79	565.20	114.25	379,776.92

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Cruise Parking Shuttle Outer Harbor	4.47	0.75	3.95	0.01	1.23	0.25	823.88
Cruise Ship Terminal Berth 91-93	54.83	78.85	420.21	0.87	128.75	26.03	86,599.25
Los Angeles Maritime Institute	0.17	0.34	1.81	0.00	0.56	0.11	373.55
Conference Facilities at POC	4.18	7.60	40.00	0.08	12.38	2.50	8,313.42
Cruise Ship Terminal Berth 45-50	26.65	37.27	196.17	0.41	60.71	12.27	40,769.86
San Pedro Park at 22nd & Miner St	1.87	5.23	27.54	0.06	8.52	1.72	5,722.83

Port of Call Restaurant Development	38.19	110.82	584.81	1.22	180.60	36.51	121,325.65
Port of Call Retail Development	26.82	76.45	403.41	0.84	124.58	25.18	83,691.10
S.S. Lane Victory	0.17	0.35	1.82	0.00	0.56	0.11	378.93
Ralph J Scott Fireboat Museum	0.17	0.35	1.82	0.00	0.56	0.11	378.93
Mercardo Warehouse 9 & 10 Reuse	2.80	7.71	40.74	0.08	12.56	2.54	8,441.31
Warehouse 9 & 10 Reuse	0.77	1.73	9.13	0.02	2.82	0.57	1,892.35
Red Car Museum	0.17	0.35	1.86	0.00	0.58	0.12	386.87
Red Car Maintenance Facility	0.72	1.57	8.61	0.02	2.60	0.53	1,752.78
Millennium Tugboat Office	0.52	1.17	6.39	0.01	1.93	0.39	1,301.96
Waterfront Promenade Town Sq	1.08	2.95	15.47	0.03	4.80	0.97	3,220.94
Fisherman Park	0.42	1.16	6.07	0.01	1.88	0.38	1,263.12
Research & Dev at Westways	3.44	9.97	52.33	0.11	16.23	3.28	10,895.00
Crowley Tugboat	0.15	0.32	1.77	0.00	0.54	0.11	361.25
Outer Harbor Park	0.61	1.72	9.05	0.02	2.81	0.57	1,883.94
TOTALS (lbs/day, unmitigated)	168.20	346.66	1,832.96	3.79	565.20	114.25	379,776.92

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	786.00	78.60	702.41
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,620.00	3,825.20	34,742.38
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54

Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				34,819.60	323,431.64

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

Residential

Commercial

	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_1_2015_wkend.urb924

Project Name: San Pedro Waterfront Alternative 1 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	167.00	343.06	1,813.83	3.78	559.33	113.08	375,825.91

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	167.00	343.06	1,813.83	3.78	559.33	113.08	375,825.91

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Cruise Parking Shuttle Outer Harbor	4.47	0.75	3.95	0.01	1.23	0.25	823.88
Cruise Ship Terminal Berth 91-93	54.83	78.85	420.21	0.87	128.75	26.03	86,599.25
Los Angeles Maritime Institute	0.07	0.05	0.27	0.00	0.08	0.02	56.60
Conference Facilities at POC	2.89	3.80	20.00	0.04	6.19	1.25	4,156.71
Cruise Ship Terminal Berth 45-50	26.65	37.27	196.17	0.41	60.71	12.27	40,769.86
San Pedro Park at 22nd & Miner St	4.04	11.65	61.33	0.13	18.98	3.84	12,746.39

Port of Call Restaurant Development	40.03	116.26	613.48	1.28	189.46	38.30	127,273.92
Port of Call Retail Development	25.49	72.51	382.65	0.80	118.17	23.89	79,385.69
S.S. Lane Victory	0.23	0.52	2.73	0.01	0.85	0.17	568.40
Ralph J Scott Fireboat Museum	0.23	0.52	2.73	0.01	0.85	0.17	568.40
Mercardo Warehouse 9 & 10 Reuse	2.66	7.31	38.64	0.08	11.92	2.41	8,007.25
Warehouse 9 & 10 Reuse	0.34	0.45	2.37	0.00	0.73	0.15	491.17
Red Car Museum	0.23	0.53	2.80	0.01	0.86	0.17	580.31
Red Car Maintenance Facility	0.73	1.57	8.64	0.02	2.61	0.53	1,758.59
Millennium Tugboat Office	0.20	0.20	1.08	0.00	0.33	0.07	219.61
Waterfront Promenade Town Sq	1.08	2.95	15.47	0.03	4.80	0.97	3,220.94
Fisherman Park	0.42	1.16	6.07	0.01	1.88	0.38	1,263.12
Research & Dev at Westways	1.02	2.81	14.76	0.03	4.58	0.93	3,073.37
Crowley Tugboat	0.06	0.06	0.31	0.00	0.09	0.02	62.59
Outer Harbor Park	1.33	3.84	20.17	0.04	6.26	1.26	4,199.86
TOTALS (lbs/day, unmitigated)	167.00	343.06	1,813.83	3.78	559.33	113.08	375,825.91

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	786.00	78.60	702.41
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,620.00	3,825.20	34,742.38
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				34,487.40	320,069.87

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_1_2022_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 1 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	24.55	43.83	246.16	0.67	107.71	21.43	70,624.25

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	24.55	43.83	246.16	0.67	107.71	21.43	70,624.25

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	0.67	0.10	0.58	0.00	0.26	0.05	167.27
Cruise Ship Terminal Berth 91-93	8.43	10.88	61.52	0.17	26.78	5.33	17,573.82
Los Angeles Maritime Institute	0.02	0.04	0.23	0.00	0.10	0.02	66.24
Conference Facilities at POC	0.57	0.92	5.12	0.01	2.25	0.45	1,474.05
Cruise Ship Terminal Berth 45-50	4.10	5.14	28.77	0.08	12.63	2.51	8,274.58
San Pedro Park at 22nd & Miner St	0.26	0.63	3.53	0.01	1.55	0.31	1,014.71

Port of Call Restaurant Development	5.28	13.36	74.89	0.21	32.82	6.53	21,512.35
Port of Call Retail Development	3.70	9.22	51.66	0.15	22.64	4.51	14,839.34
S.S. Lane Victory	0.02	0.04	0.23	0.00	0.10	0.02	67.19
Ralph J Scott Fireboat Museum	0.02	0.04	0.23	0.00	0.10	0.02	67.19
Mercardo Warehouse 9 & 10 Reuse	0.39	0.93	5.22	0.01	2.28	0.45	1,496.74
Warehouse 9 & 10 Reuse	0.11	0.21	1.17	0.00	0.51	0.10	335.54
Red Car Museum	0.02	0.04	0.24	0.00	0.10	0.02	68.60
Red Car Maintenance Facility	0.10	0.19	1.10	0.00	0.47	0.09	310.82
Millennium Tugboat Office	0.07	0.14	0.81	0.00	0.35	0.07	230.88
Waterfront Promenade Town Sq	0.15	0.36	1.98	0.01	0.87	0.17	571.10
Fisherman Park	0.06	0.14	0.78	0.00	0.34	0.07	223.96
Research & Dev at Westways	0.48	1.20	6.71	0.02	2.95	0.59	1,931.77
Crowley Tugboat	0.02	0.04	0.23	0.00	0.10	0.02	64.06
Outer Harbor Park	0.08	0.21	1.16	0.00	0.51	0.10	334.04
TOTALS (tons/year, unmitigated)	24.55	43.83	246.16	0.67	107.71	21.43	70,624.25

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	900.00	90.00	804.28
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,999.00	4,378.54	39,768.09
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				36,489.56	339,202.49

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_1_2022_wkend.urb924

Project Name: San Pedro Waterfront Alternative 1 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	23.21	42.51	235.28	0.68	106.62	21.21	69,916.34

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	23.21	42.51	235.28	0.68	106.62	21.21	69,916.34

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	0.65	0.10	0.56	0.00	0.26	0.05	167.25
Cruise Ship Terminal Berth 91-93	8.08	10.66	59.40	0.17	26.77	5.33	17,572.07
Los Angeles Maritime Institute	0.01	0.01	0.03	0.00	0.02	0.00	10.03
Conference Facilities at POC	0.37	0.45	2.47	0.01	1.12	0.22	736.94
Cruise Ship Terminal Berth 45-50	3.93	5.04	27.77	0.08	12.62	2.51	8,273.69
San Pedro Park at 22nd & Miner St	0.53	1.38	7.58	0.02	3.45	0.69	2,259.81

Port of Call Restaurant Development	5.21	13.73	75.84	0.22	34.42	6.85	22,564.66
Port of Call Retail Development	3.32	8.56	47.31	0.14	21.47	4.27	14,074.45
S.S. Lane Victory	0.03	0.06	0.34	0.00	0.15	0.03	100.77
Ralph J Scott Fireboat Museum	0.03	0.06	0.34	0.00	0.15	0.03	100.77
Mercardo Warehouse 9 & 10 Reuse	0.35	0.86	4.78	0.01	2.17	0.43	1,419.63
Warehouse 9 & 10 Reuse	0.04	0.05	0.29	0.00	0.13	0.03	87.08
Red Car Museum	0.03	0.06	0.35	0.00	0.16	0.03	102.88
Red Car Maintenance Facility	0.09	0.19	1.06	0.00	0.47	0.09	311.83
Millennium Tugboat Office	0.03	0.02	0.13	0.00	0.06	0.01	38.94
Waterfront Promenade Town Sq	0.14	0.35	1.91	0.01	0.87	0.17	571.04
Fisherman Park	0.06	0.14	0.75	0.00	0.34	0.07	223.94
Research & Dev at Westways	0.13	0.33	1.83	0.01	0.83	0.17	544.87
Crowley Tugboat	0.01	0.01	0.04	0.00	0.02	0.00	11.10
Outer Harbor Park	0.17	0.45	2.50	0.01	1.14	0.23	744.59
TOTALS (tons/year, unmitigated)	23.21	42.51	235.28	0.68	106.62	21.21	69,916.34

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	900.00	90.00	804.28
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,999.00	4,378.54	39,768.09
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				36,157.36	335,840.72

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_1_2022_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 1 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	138.53	227.85	1,392.00	3.97	590.16	117.48	398,157.52

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	138.53	227.85	1,392.00	3.97	590.16	117.48	398,157.52

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	4.36	0.54	3.28	0.01	1.40	0.28	943.02
Cruise Ship Terminal Berth 91-93	49.77	56.56	348.16	0.99	146.71	29.21	99,072.83
Los Angeles Maritime Institute	0.13	0.21	1.31	0.00	0.55	0.11	373.41
Conference Facilities at POC	3.25	4.76	28.96	0.08	12.33	2.45	8,310.37
Cruise Ship Terminal Berth 45-50	24.28	26.74	162.58	0.47	69.19	13.77	46,650.37
San Pedro Park at 22nd & Miner St	1.36	3.28	19.94	0.06	8.48	1.69	5,720.73

Port of Call Restaurant Development	27.72	69.46	423.43	1.22	179.82	35.79	121,280.98
Port of Call Retail Development	19.53	47.92	292.08	0.84	124.04	24.69	83,660.28
S.S. Lane Victory	0.13	0.22	1.32	0.00	0.56	0.11	378.80
Ralph J Scott Fireboat Museum	0.13	0.22	1.32	0.00	0.56	0.11	378.80
Mercardo Warehouse 9 & 10 Reuse	2.05	4.83	29.49	0.08	12.51	2.49	8,438.19
Warehouse 9 & 10 Reuse	0.58	1.08	6.61	0.02	2.80	0.56	1,891.65
Red Car Museum	0.13	0.22	1.35	0.00	0.57	0.11	386.73
Red Car Maintenance Facility	0.55	0.98	6.23	0.02	2.59	0.52	1,752.10
Millennium Tugboat Office	0.40	0.73	4.63	0.01	1.92	0.38	1,301.46
Waterfront Promenade Town Sq	0.79	1.85	11.20	0.03	4.78	0.95	3,219.77
Fisherman Park	0.31	0.72	4.39	0.01	1.87	0.37	1,262.65
Research & Dev at Westways	2.50	6.25	37.89	0.11	16.16	3.22	10,891.02
Crowley Tugboat	0.11	0.20	1.28	0.00	0.53	0.11	361.11
Outer Harbor Park	0.45	1.08	6.55	0.02	2.79	0.56	1,883.25
TOTALS (lbs/day, unmitigated)	138.53	227.85	1,392.00	3.97	590.16	117.48	398,157.52

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	900.00	90.00	804.28
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,999.00	4,378.54	39,768.09
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				36,489.56	339,202.49

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_1_2022_wkend.urb924

Project Name: San Pedro Waterfront Alternative 1 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	131.14	221.01	1,333.13	3.96	584.21	116.24	394,204.82

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	131.14	221.01	1,333.13	3.96	584.21	116.24	394,204.82

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Cruise Parking Shuttle Outer Harbor	4.24	0.53	3.17	0.01	1.40	0.28	943.01
Cruise Ship Terminal Berth 91-93	47.73	55.40	336.84	0.99	146.69	29.19	99,072.48
Los Angeles Maritime Institute	0.06	0.03	0.19	0.00	0.08	0.02	56.58
Conference Facilities at POC	2.22	2.33	14.01	0.04	6.16	1.23	4,155.14
Cruise Ship Terminal Berth 45-50	23.30	26.20	157.25	0.47	69.18	13.76	46,649.86
San Pedro Park at 22nd & Miner St	2.77	7.15	42.95	0.13	18.89	3.76	12,741.58

Port of Call Restaurant Development	27.35	71.38	429.65	1.28	188.60	37.52	127,225.87
Port of Call Retail Development	17.50	44.52	267.99	0.80	117.64	23.40	79,355.72
S.S. Lane Victory	0.16	0.32	1.91	0.01	0.84	0.17	568.19
Ralph J Scott Fireboat Museum	0.16	0.32	1.91	0.01	0.84	0.17	568.19
Mercardo Warehouse 9 & 10 Reuse	1.84	4.49	27.06	0.08	11.86	2.36	8,004.23
Warehouse 9 & 10 Reuse	0.26	0.28	1.66	0.00	0.73	0.14	490.99
Red Car Museum	0.17	0.33	1.96	0.01	0.86	0.17	580.09
Red Car Maintenance Facility	0.52	0.97	6.05	0.02	2.59	0.52	1,757.94
Millennium Tugboat Office	0.16	0.12	0.76	0.00	0.32	0.06	219.53
Waterfront Promenade Town Sq	0.75	1.81	10.83	0.03	4.78	0.95	3,219.73
Fisherman Park	0.29	0.71	4.25	0.01	1.87	0.37	1,262.64
Research & Dev at Westways	0.71	1.73	10.34	0.03	4.56	0.91	3,072.21
Crowley Tugboat	0.04	0.03	0.22	0.00	0.09	0.02	62.57
Outer Harbor Park	0.91	2.36	14.13	0.04	6.23	1.24	4,198.27
TOTALS (lbs/day, unmitigated)	131.14	221.01	1,333.13	3.96	584.21	116.24	394,204.82

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	900.00	90.00	804.28
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,999.00	4,378.54	39,768.09
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				36,157.36	335,840.72

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_1_2037_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 1 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	14.87	23.46	147.37	0.78	119.67	23.55	78,533.14

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	14.87	23.46	147.37	0.78	119.67	23.55	78,533.14

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	0.47	0.07	0.41	0.00	0.33	0.07	218.73
Cruise Ship Terminal Berth 91-93	5.77	6.85	43.32	0.23	35.01	6.89	22,996.36
Los Angeles Maritime Institute	0.01	0.02	0.12	0.00	0.10	0.02	66.06
Conference Facilities at POC	0.29	0.44	2.75	0.01	2.24	0.44	1,470.20
Cruise Ship Terminal Berth 45-50	2.81	3.24	20.26	0.11	16.51	3.25	10,826.01
San Pedro Park at 22nd & Miner St	0.13	0.30	1.89	0.01	1.54	0.30	1,012.06

Port of Call Restaurant Development	2.71	6.41	40.21	0.22	32.71	6.43	21,456.16
Port of Call Retail Development	1.91	4.42	27.74	0.15	22.56	4.44	14,800.57
S.S. Lane Victory	0.01	0.02	0.13	0.00	0.10	0.02	67.01
Ralph J Scott Fireboat Museum	0.01	0.02	0.13	0.00	0.10	0.02	67.01
Mercardo Warehouse 9 & 10 Reuse	0.20	0.45	2.80	0.02	2.28	0.45	1,492.83
Warehouse 9 & 10 Reuse	0.05	0.10	0.63	0.00	0.51	0.10	334.66
Red Car Museum	0.01	0.02	0.13	0.00	0.10	0.02	68.42
Red Car Maintenance Facility	0.05	0.09	0.59	0.00	0.47	0.09	310.01
Millennium Tugboat Office	0.04	0.07	0.44	0.00	0.35	0.07	230.28
Waterfront Promenade Town Sq	0.08	0.17	1.06	0.01	0.87	0.17	569.61
Fisherman Park	0.03	0.07	0.42	0.00	0.34	0.07	223.38
Research & Dev at Westways	0.24	0.58	3.60	0.02	2.94	0.58	1,926.73
Crowley Tugboat	0.01	0.02	0.12	0.00	0.10	0.02	63.89
Outer Harbor Park	0.04	0.10	0.62	0.00	0.51	0.10	333.16
TOTALS (tons/year, unmitigated)	14.87	23.46	147.37	0.78	119.67	23.55	78,533.14

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,180.00	118.00	1,054.51
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	3,934.00	5,743.64	52,166.61
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				40,614.32	378,157.13

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_1_2037_wkend.urb924

Project Name: San Pedro Waterfront Alternative 1 2037 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	14.81	22.90	146.39	0.77	118.61	23.33	77,987.78

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	14.81	22.90	146.39	0.77	118.61	23.33	77,987.78

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	0.47	0.06	0.41	0.00	0.33	0.07	219.16
Cruise Ship Terminal Berth 91-93	5.78	6.75	43.42	0.23	35.01	6.89	23,041.73
Los Angeles Maritime Institute	0.00	0.00	0.02	0.00	0.02	0.00	10.03
Conference Facilities at POC	0.20	0.22	1.38	0.01	1.12	0.22	736.55
Cruise Ship Terminal Berth 45-50	2.81	3.19	20.31	0.11	16.51	3.25	10,847.32
San Pedro Park at 22nd & Miner St	0.29	0.66	4.23	0.02	3.44	0.68	2,258.59

Port of Call Restaurant Development	2.85	6.63	42.28	0.22	34.31	6.75	22,552.43
Port of Call Retail Development	1.81	4.13	26.37	0.14	21.40	4.21	14,066.83
S.S. Lane Victory	0.02	0.03	0.19	0.00	0.15	0.03	100.72
Ralph J Scott Fireboat Museum	0.02	0.03	0.19	0.00	0.15	0.03	100.72
Mercardo Warehouse 9 & 10 Reuse	0.19	0.42	2.66	0.01	2.16	0.42	1,418.86
Warehouse 9 & 10 Reuse	0.02	0.03	0.16	0.00	0.13	0.03	87.03
Red Car Museum	0.02	0.03	0.19	0.00	0.16	0.03	102.83
Red Car Maintenance Facility	0.05	0.09	0.59	0.00	0.47	0.09	311.65
Millennium Tugboat Office	0.01	0.01	0.07	0.00	0.06	0.01	38.92
Waterfront Promenade Town Sq	0.08	0.17	1.07	0.01	0.87	0.17	570.73
Fisherman Park	0.03	0.07	0.42	0.00	0.34	0.07	223.82
Research & Dev at Westways	0.07	0.16	1.02	0.01	0.83	0.16	544.58
Crowley Tugboat	0.00	0.00	0.02	0.00	0.02	0.00	11.09
Outer Harbor Park	0.09	0.22	1.39	0.01	1.13	0.22	744.19
TOTALS (tons/year, unmitigated)	14.81	22.90	146.39	0.77	118.61	23.33	77,987.78

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,180.00	118.00	1,054.51
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	3,934.00	5,743.64	52,166.61
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				40,282.12	374,795.36

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_1_2037_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 1 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	83.43	122.21	840.20	4.53	655.75	128.99	442,869.69

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	83.43	122.21	840.20	4.53	655.75	128.99	442,869.69

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Cruise Parking Shuttle Outer Harbor	2.96	0.34	2.33	0.01	1.83	0.36	1,233.53
Cruise Ship Terminal Berth 91-93	33.53	35.71	247.11	1.33	191.84	37.74	129,679.05
Los Angeles Maritime Institute	0.07	0.10	0.71	0.00	0.55	0.11	372.53
Conference Facilities at POC	1.66	2.29	15.68	0.09	12.28	2.42	8,291.01
Cruise Ship Terminal Berth 45-50	16.36	16.88	115.47	0.63	90.46	17.79	61,052.00
San Pedro Park at 22nd & Miner St	0.69	1.58	10.80	0.06	8.46	1.66	5,707.40

Port of Call Restaurant Development	14.08	33.42	229.22	1.24	179.22	35.25	120,998.28
Port of Call Retail Development	9.93	23.05	158.11	0.86	123.63	24.31	83,465.27
S.S. Lane Victory	0.07	0.10	0.71	0.00	0.56	0.11	377.91
Ralph J Scott Fireboat Museum	0.07	0.10	0.71	0.00	0.56	0.11	377.91
Mercardo Warehouse 9 & 10 Reuse	1.04	2.32	15.96	0.09	12.47	2.45	8,418.52
Warehouse 9 & 10 Reuse	0.30	0.52	3.58	0.02	2.79	0.55	1,887.24
Red Car Museum	0.07	0.11	0.73	0.00	0.57	0.11	385.83
Red Car Maintenance Facility	0.28	0.47	3.37	0.02	2.58	0.51	1,748.02
Millennium Tugboat Office	0.20	0.35	2.50	0.01	1.91	0.38	1,298.42
Waterfront Promenade Town Sq	0.40	0.89	6.07	0.03	4.76	0.94	3,212.27
Fisherman Park	0.16	0.35	2.38	0.01	1.87	0.37	1,259.71
Research & Dev at Westways	1.27	3.01	20.52	0.11	16.10	3.17	10,865.66
Crowley Tugboat	0.06	0.10	0.69	0.00	0.53	0.10	360.27
Outer Harbor Park	0.23	0.52	3.55	0.02	2.78	0.55	1,878.86
TOTALS (lbs/day, unmitigated)	83.43	122.21	840.20	4.53	655.75	128.99	442,869.69

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,180.00	118.00	1,054.51
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	3,934.00	5,743.64	52,166.61
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				40,614.32	378,157.13

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_1_2037_wkend.urb924

Project Name: San Pedro Waterfront Alternative 1 2037 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	83.08	119.44	834.63	4.41	649.96	127.84	439,823.10

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	83.08	119.44	834.63	4.41	649.96	127.84	439,823.10

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Cruise Parking Shuttle Outer Harbor	2.97	0.34	2.33	0.01	1.83	0.36	1,236.04
Cruise Ship Terminal Berth 91-93	33.58	35.21	247.68	1.30	191.85	37.74	129,943.38
Los Angeles Maritime Institute	0.03	0.02	0.11	0.00	0.08	0.02	56.56
Conference Facilities at POC	1.19	1.13	7.86	0.04	6.14	1.21	4,153.94
Cruise Ship Terminal Berth 45-50	16.39	16.64	115.74	0.61	90.46	17.79	61,176.22
San Pedro Park at 22nd & Miner St	1.49	3.46	24.10	0.13	18.84	3.70	12,737.89

Port of Call Restaurant Development	14.77	34.57	241.01	1.28	188.01	36.97	127,188.86
Port of Call Retail Development	9.45	21.56	150.33	0.80	117.27	23.06	79,332.64
S.S. Lane Victory	0.09	0.15	1.07	0.01	0.84	0.17	568.02
Ralph J Scott Fireboat Museum	0.09	0.15	1.07	0.01	0.84	0.17	568.02
Mercardo Warehouse 9 & 10 Reuse	0.99	2.17	15.18	0.08	11.83	2.33	8,001.89
Warehouse 9 & 10 Reuse	0.14	0.13	0.93	0.00	0.73	0.14	490.84
Red Car Museum	0.09	0.16	1.10	0.01	0.86	0.17	579.92
Red Car Maintenance Facility	0.28	0.47	3.39	0.02	2.59	0.51	1,757.39
Millennium Tugboat Office	0.08	0.06	0.42	0.00	0.32	0.06	219.46
Waterfront Promenade Town Sq	0.40	0.88	6.08	0.03	4.76	0.94	3,218.80
Fisherman Park	0.16	0.34	2.38	0.01	1.87	0.37	1,262.28
Research & Dev at Westways	0.38	0.84	5.80	0.03	4.54	0.89	3,071.33
Crowley Tugboat	0.02	0.02	0.12	0.00	0.09	0.02	62.55
Outer Harbor Park	0.49	1.14	7.93	0.04	6.21	1.22	4,197.07
TOTALS (lbs/day, unmitigated)	83.08	119.44	834.63	4.41	649.96	127.84	439,823.10

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,180.00	118.00	1,054.51
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	3,934.00	5,743.64	52,166.61
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				40,282.12	374,795.36

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commute	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_2_2015_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 2 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	33.91	73.59	358.91	0.71	113.89	23.02	74,394.09

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	33.91	73.59	358.91	0.71	113.89	23.02	74,394.09

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	9.35	15.16	74.47	0.15	23.50	4.75	15,364.00
Los Angeles Maritime Institute	0.03	0.07	0.32	0.00	0.10	0.02	66.27
Conference Facilities at POC	0.73	1.46	7.10	0.01	2.26	0.46	1,474.85
Cruise Ship Terminal Berth 45-50	9.06	14.33	69.63	0.14	22.16	4.48	14,465.67
San Pedro Park at 22nd & Miner St	0.35	1.01	4.89	0.01	1.56	0.31	1,015.27

Port of Call Restaurant Development	7.27	21.30	103.75	0.21	32.96	6.66	21,524.17
Port of Call Retail Development	5.08	14.69	71.57	0.15	22.74	4.60	14,847.49
S.S. Lane Victory	0.03	0.07	0.32	0.00	0.10	0.02	67.22
Ralph J Scott Fireboat Museum	0.03	0.07	0.32	0.00	0.10	0.02	67.22
Mercardo Warehouse 9 & 10 Reuse	0.53	1.48	7.23	0.01	2.29	0.46	1,497.57
Warehouse 9 & 10 Reuse	0.14	0.33	1.62	0.00	0.51	0.10	335.72
Red Car Maintenance Facility	0.13	0.30	1.52	0.00	0.47	0.10	311.00
Millennium Tugboat Office	0.10	0.22	1.13	0.00	0.35	0.07	231.01
Waterfront Promenade Town Sq	0.20	0.57	2.75	0.01	0.88	0.18	571.41
Fisherman Park	0.08	0.22	1.08	0.00	0.34	0.07	224.08
Research & Dev at Westways	0.65	1.92	9.29	0.02	2.96	0.60	1,932.82
Crowley Tugboat	0.03	0.06	0.31	0.00	0.10	0.02	64.10
Outer Harbor Park	0.12	0.33	1.61	0.00	0.51	0.10	334.22
TOTALS (tons/year, unmitigated)	33.91	73.59	358.91	0.71	113.89	23.02	74,394.09

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,240.00	7,650.40	69,484.76
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54

Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				38,530.20	357,142.01

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_2_2015_wkend.urb924

Project Name: San Pedro Waterfront Alternative 2 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	33.66	72.88	355.33	0.72	112.78	22.80	73,658.83

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	33.66	72.88	355.33	0.72	112.78	22.80	73,658.83

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	9.35	15.16	74.47	0.15	23.50	4.75	15,364.00
Los Angeles Maritime Institute	0.01	0.01	0.05	0.00	0.02	0.00	10.04
Conference Facilities at POC	0.49	0.73	3.55	0.01	1.13	0.23	737.43
Cruise Ship Terminal Berth 45-50	9.06	14.33	69.63	0.14	22.16	4.48	14,465.67
San Pedro Park at 22nd & Miner St	0.77	2.24	10.88	0.02	3.46	0.70	2,261.29

Port of Call Restaurant Development	7.62	22.35	108.84	0.22	34.58	6.99	22,579.44
Port of Call Retail Development	4.83	13.94	67.89	0.14	21.57	4.36	14,083.68
S.S. Lane Victory	0.04	0.10	0.48	0.00	0.15	0.03	100.84
Ralph J Scott Fireboat Museum	0.04	0.10	0.48	0.00	0.15	0.03	100.84
Mercardo Warehouse 9 & 10 Reuse	0.50	1.41	6.85	0.01	2.17	0.44	1,420.56
Warehouse 9 & 10 Reuse	0.06	0.09	0.42	0.00	0.13	0.03	87.14
Red Car Maintenance Facility	0.13	0.30	1.52	0.00	0.48	0.10	312.03
Millennium Tugboat Office	0.03	0.04	0.19	0.00	0.06	0.01	38.97
Waterfront Promenade Town Sq	0.20	0.57	2.75	0.01	0.88	0.18	571.41
Fisherman Park	0.08	0.22	1.08	0.00	0.34	0.07	224.08
Research & Dev at Westways	0.19	0.54	2.62	0.01	0.84	0.17	545.23
Crowley Tugboat	0.01	0.01	0.05	0.00	0.02	0.00	11.11
Outer Harbor Park	0.25	0.74	3.58	0.01	1.14	0.23	745.07
TOTALS (tons/year, unmitigated)	33.66	72.88	355.33	0.72	112.78	22.80	73,658.83

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,240.00	7,650.40	69,484.76
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64

Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				38,180.00	353,615.44

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_2_2015_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 2 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	190.20	382.83	2,023.32	4.19	624.10	126.15	419,336.02

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	190.20	382.83	2,023.32	4.19	624.10	126.15	419,336.02

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	54.83	78.85	420.21	0.87	128.75	26.03	86,599.25
Los Angeles Maritime Institute	0.17	0.34	1.81	0.00	0.56	0.11	373.55
Conference Facilities at POC	4.18	7.60	40.00	0.08	12.38	2.50	8,313.42
Cruise Ship Terminal Berth 45-50	53.29	74.54	392.34	0.82	121.42	24.54	81,539.71
San Pedro Park at 22nd & Miner St	1.87	5.23	27.54	0.06	8.52	1.72	5,722.83

Port of Call Restaurant Development	38.19	110.82	584.81	1.22	180.60	36.51	121,325.65
Port of Call Retail Development	26.82	76.45	403.41	0.84	124.58	25.18	83,691.10
S.S. Lane Victory	0.17	0.35	1.82	0.00	0.56	0.11	378.93
Ralph J Scott Fireboat Museum	0.17	0.35	1.82	0.00	0.56	0.11	378.93
Mercardo Warehouse 9 & 10 Reuse	2.80	7.71	40.74	0.08	12.56	2.54	8,441.31
Warehouse 9 & 10 Reuse	0.77	1.73	9.13	0.02	2.82	0.57	1,892.35
Red Car Maintenance Facility	0.72	1.57	8.61	0.02	2.60	0.53	1,752.78
Millennium Tugboat Office	0.52	1.17	6.39	0.01	1.93	0.39	1,301.96
Waterfront Promenade Town Sq	1.08	2.95	15.47	0.03	4.80	0.97	3,220.94
Fisherman Park	0.42	1.16	6.07	0.01	1.88	0.38	1,263.12
Research & Dev at Westways	3.44	9.97	52.33	0.11	16.23	3.28	10,895.00
Crowley Tugboat	0.15	0.32	1.77	0.00	0.54	0.11	361.25
Outer Harbor Park	0.61	1.72	9.05	0.02	2.81	0.57	1,883.94
TOTALS (lbs/day, unmitigated)	190.20	382.83	2,023.32	4.19	624.10	126.15	419,336.02

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,240.00	7,650.40	69,484.76
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54

Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				38,530.20	357,142.01

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_2_2015_wkend.urb924

Project Name: San Pedro Waterfront Alternative 2 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	188.94	379.05	2,003.25	4.17	617.95	124.93	415,191.57

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	188.94	379.05	2,003.25	4.17	617.95	124.93	415,191.57

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	54.83	78.85	420.21	0.87	128.75	26.03	86,599.25
Los Angeles Maritime Institute	0.07	0.05	0.27	0.00	0.08	0.02	56.60
Conference Facilities at POC	2.89	3.80	20.00	0.04	6.19	1.25	4,156.71
Cruise Ship Terminal Berth 45-50	53.29	74.54	392.34	0.82	121.42	24.54	81,539.71
San Pedro Park at 22nd & Miner St	4.04	11.65	61.33	0.13	18.98	3.84	12,746.39

Port of Call Restaurant Development	40.03	116.26	613.48	1.28	189.46	38.30	127,273.92
Port of Call Retail Development	25.49	72.51	382.65	0.80	118.17	23.89	79,385.69
S.S. Lane Victory	0.23	0.52	2.73	0.01	0.85	0.17	568.40
Ralph J Scott Fireboat Museum	0.23	0.52	2.73	0.01	0.85	0.17	568.40
Mercardo Warehouse 9 & 10 Reuse	2.66	7.31	38.64	0.08	11.92	2.41	8,007.25
Warehouse 9 & 10 Reuse	0.34	0.45	2.37	0.00	0.73	0.15	491.17
Red Car Maintenance Facility	0.73	1.57	8.64	0.02	2.61	0.53	1,758.59
Millennium Tugboat Office	0.20	0.20	1.08	0.00	0.33	0.07	219.61
Waterfront Promenade Town Sq	1.08	2.95	15.47	0.03	4.80	0.97	3,220.94
Fisherman Park	0.42	1.16	6.07	0.01	1.88	0.38	1,263.12
Research & Dev at Westways	1.02	2.81	14.76	0.03	4.58	0.93	3,073.37
Crowley Tugboat	0.06	0.06	0.31	0.00	0.09	0.02	62.59
Outer Harbor Park	1.33	3.84	20.17	0.04	6.26	1.26	4,199.86
TOTALS (lbs/day, unmitigated)	188.94	379.05	2,003.25	4.17	617.95	124.93	415,191.57

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,240.00	7,650.40	69,484.76
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64

Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				38,180.00	353,615.44

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_2_2022_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 2 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	27.96	48.84	274.09	0.75	119.97	23.88	78,660.20

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	27.96	48.84	274.09	0.75	119.97	23.88	78,660.20

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	8.43	10.88	61.52	0.17	26.78	5.33	17,573.82
Los Angeles Maritime Institute	0.02	0.04	0.23	0.00	0.10	0.02	66.24
Conference Facilities at POC	0.57	0.92	5.12	0.01	2.25	0.45	1,474.05
Cruise Ship Terminal Berth 45-50	8.20	10.29	57.52	0.16	25.25	5.03	16,546.40
San Pedro Park at 22nd & Miner St	0.26	0.63	3.53	0.01	1.55	0.31	1,014.71

Port of Call Restaurant Development	5.28	13.36	74.89	0.21	32.82	6.53	21,512.35
Port of Call Retail Development	3.70	9.22	51.66	0.15	22.64	4.51	14,839.34
S.S. Lane Victory	0.02	0.04	0.23	0.00	0.10	0.02	67.19
Ralph J Scott Fireboat Museum	0.02	0.04	0.23	0.00	0.10	0.02	67.19
Mercardo Warehouse 9 & 10 Reuse	0.39	0.93	5.22	0.01	2.28	0.45	1,496.74
Warehouse 9 & 10 Reuse	0.11	0.21	1.17	0.00	0.51	0.10	335.54
Red Car Maintenance Facility	0.10	0.19	1.10	0.00	0.47	0.09	310.82
Millennium Tugboat Office	0.07	0.14	0.81	0.00	0.35	0.07	230.88
Waterfront Promenade Town Sq	0.15	0.36	1.98	0.01	0.87	0.17	571.10
Fisherman Park	0.06	0.14	0.78	0.00	0.34	0.07	223.96
Research & Dev at Westways	0.48	1.20	6.71	0.02	2.95	0.59	1,931.77
Crowley Tugboat	0.02	0.04	0.23	0.00	0.10	0.02	64.06
Outer Harbor Park	0.08	0.21	1.16	0.00	0.51	0.10	334.04
TOTALS (tons/year, unmitigated)	27.96	48.84	274.09	0.75	119.97	23.88	78,660.20

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,997.00	8,755.62	79,522.92
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54

Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				40,740.64	377,823.44

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_2_2022_wkend.urb924

Project Name: San Pedro Waterfront Alternative 2 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	26.46	47.38	262.13	0.76	118.83	23.64	77,917.14

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	26.46	47.38	262.13	0.76	118.83	23.64	77,917.14

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	8.08	10.66	59.40	0.17	26.77	5.33	17,572.07
Los Angeles Maritime Institute	0.01	0.01	0.03	0.00	0.02	0.00	10.03
Conference Facilities at POC	0.37	0.45	2.47	0.01	1.12	0.22	736.94
Cruise Ship Terminal Berth 45-50	7.86	10.07	55.53	0.16	25.25	5.02	16,544.62
San Pedro Park at 22nd & Miner St	0.53	1.38	7.58	0.02	3.45	0.69	2,259.81

Port of Call Restaurant Development	5.21	13.73	75.84	0.22	34.42	6.85	22,564.66
Port of Call Retail Development	3.32	8.56	47.31	0.14	21.47	4.27	14,074.45
S.S. Lane Victory	0.03	0.06	0.34	0.00	0.15	0.03	100.77
Ralph J Scott Fireboat Museum	0.03	0.06	0.34	0.00	0.15	0.03	100.77
Mercardo Warehouse 9 & 10 Reuse	0.35	0.86	4.78	0.01	2.17	0.43	1,419.63
Warehouse 9 & 10 Reuse	0.04	0.05	0.29	0.00	0.13	0.03	87.08
Red Car Maintenance Facility	0.09	0.19	1.06	0.00	0.47	0.09	311.83
Millennium Tugboat Office	0.03	0.02	0.13	0.00	0.06	0.01	38.94
Waterfront Promenade Town Sq	0.14	0.35	1.91	0.01	0.87	0.17	571.04
Fisherman Park	0.06	0.14	0.75	0.00	0.34	0.07	223.94
Research & Dev at Westways	0.13	0.33	1.83	0.01	0.83	0.17	544.87
Crowley Tugboat	0.01	0.01	0.04	0.00	0.02	0.00	11.10
Outer Harbor Park	0.17	0.45	2.50	0.01	1.14	0.23	744.59
TOTALS (tons/year, unmitigated)	26.46	47.38	262.13	0.76	118.83	23.64	77,917.14

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,997.00	8,755.62	79,522.92
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64

Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				40,390.44	374,296.87

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_2_2022_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 2 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	158.32	253.82	1,549.91	4.43	657.36	130.86	443,462.58

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	158.32	253.82	1,549.91	4.43	657.36	130.86	443,462.58

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	49.77	56.56	348.16	0.99	146.71	29.21	99,072.83
Los Angeles Maritime Institute	0.13	0.21	1.31	0.00	0.55	0.11	373.41
Conference Facilities at POC	3.25	4.76	28.96	0.08	12.33	2.45	8,310.37
Cruise Ship Terminal Berth 45-50	48.56	53.47	325.12	0.94	138.36	27.54	93,285.18
San Pedro Park at 22nd & Miner St	1.36	3.28	19.94	0.06	8.48	1.69	5,720.73

Port of Call Restaurant Development	27.72	69.46	423.43	1.22	179.82	35.79	121,280.98
Port of Call Retail Development	19.53	47.92	292.08	0.84	124.04	24.69	83,660.28
S.S. Lane Victory	0.13	0.22	1.32	0.00	0.56	0.11	378.80
Ralph J Scott Fireboat Museum	0.13	0.22	1.32	0.00	0.56	0.11	378.80
Mercardo Warehouse 9 & 10 Reuse	2.05	4.83	29.49	0.08	12.51	2.49	8,438.19
Warehouse 9 & 10 Reuse	0.58	1.08	6.61	0.02	2.80	0.56	1,891.65
Red Car Maintenance Facility	0.55	0.98	6.23	0.02	2.59	0.52	1,752.10
Millennium Tugboat Office	0.40	0.73	4.63	0.01	1.92	0.38	1,301.46
Waterfront Promenade Town Sq	0.79	1.85	11.20	0.03	4.78	0.95	3,219.77
Fisherman Park	0.31	0.72	4.39	0.01	1.87	0.37	1,262.65
Research & Dev at Westways	2.50	6.25	37.89	0.11	16.16	3.22	10,891.02
Crowley Tugboat	0.11	0.20	1.28	0.00	0.53	0.11	361.11
Outer Harbor Park	0.45	1.08	6.55	0.02	2.79	0.56	1,883.25
TOTALS (lbs/day, unmitigated)	158.32	253.82	1,549.91	4.43	657.36	130.86	443,462.58

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,997.00	8,755.62	79,522.92
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54

Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				40,740.64	377,823.44

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_2_2022_wkend.urb924

Project Name: San Pedro Waterfront Alternative 2 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	150.02	246.33	1,485.21	4.41	651.10	129.54	439,316.03

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	150.02	246.33	1,485.21	4.41	651.10	129.54	439,316.03

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	47.73	55.40	336.84	0.99	146.69	29.19	99,072.48
Los Angeles Maritime Institute	0.06	0.03	0.19	0.00	0.08	0.02	56.58
Conference Facilities at POC	2.22	2.33	14.01	0.04	6.16	1.23	4,155.14
Cruise Ship Terminal Berth 45-50	46.59	52.38	314.46	0.94	138.33	27.51	93,284.17
San Pedro Park at 22nd & Miner St	2.77	7.15	42.95	0.13	18.89	3.76	12,741.58

Port of Call Restaurant Development	27.35	71.38	429.65	1.28	188.60	37.52	127,225.87
Port of Call Retail Development	17.50	44.52	267.99	0.80	117.64	23.40	79,355.72
S.S. Lane Victory	0.16	0.32	1.91	0.01	0.84	0.17	568.19
Ralph J Scott Fireboat Museum	0.16	0.32	1.91	0.01	0.84	0.17	568.19
Mercardo Warehouse 9 & 10 Reuse	1.84	4.49	27.06	0.08	11.86	2.36	8,004.23
Warehouse 9 & 10 Reuse	0.26	0.28	1.66	0.00	0.73	0.14	490.99
Red Car Maintenance Facility	0.52	0.97	6.05	0.02	2.59	0.52	1,757.94
Millennium Tugboat Office	0.16	0.12	0.76	0.00	0.32	0.06	219.53
Waterfront Promenade Town Sq	0.75	1.81	10.83	0.03	4.78	0.95	3,219.73
Fisherman Park	0.29	0.71	4.25	0.01	1.87	0.37	1,262.64
Research & Dev at Westways	0.71	1.73	10.34	0.03	4.56	0.91	3,072.21
Crowley Tugboat	0.04	0.03	0.22	0.00	0.09	0.02	62.57
Outer Harbor Park	0.91	2.36	14.13	0.04	6.23	1.24	4,198.27
TOTALS (lbs/day, unmitigated)	150.02	246.33	1,485.21	4.41	651.10	129.54	439,316.03

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	5,997.00	8,755.62	79,522.92
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64

Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				40,390.44	374,296.87

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_2_2037_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 2 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	17.20	26.60	167.09	0.89	135.75	26.70	89,071.99

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	17.20	26.60	167.09	0.89	135.75	26.70	89,071.99

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	5.77	6.85	43.32	0.23	35.01	6.89	22,996.36
Los Angeles Maritime Institute	0.01	0.02	0.12	0.00	0.10	0.02	66.06
Conference Facilities at POC	0.29	0.44	2.75	0.01	2.24	0.44	1,470.20
Cruise Ship Terminal Berth 45-50	5.62	6.47	40.52	0.22	33.02	6.49	21,652.01
San Pedro Park at 22nd & Miner St	0.13	0.30	1.89	0.01	1.54	0.30	1,012.06

Port of Call Restaurant Development	2.71	6.41	40.21	0.22	32.71	6.43	21,456.16
Port of Call Retail Development	1.91	4.42	27.74	0.15	22.56	4.44	14,800.57
S.S. Lane Victory	0.01	0.02	0.13	0.00	0.10	0.02	67.01
Ralph J Scott Fireboat Museum	0.01	0.02	0.13	0.00	0.10	0.02	67.01
Mercardo Warehouse 9 & 10 Reuse	0.20	0.45	2.80	0.02	2.28	0.45	1,492.83
Warehouse 9 & 10 Reuse	0.05	0.10	0.63	0.00	0.51	0.10	334.66
Red Car Maintenance Facility	0.05	0.09	0.59	0.00	0.47	0.09	310.01
Millennium Tugboat Office	0.04	0.07	0.44	0.00	0.35	0.07	230.28
Waterfront Promenade Town Sq	0.08	0.17	1.06	0.01	0.87	0.17	569.61
Fisherman Park	0.03	0.07	0.42	0.00	0.34	0.07	223.38
Research & Dev at Westways	0.24	0.58	3.60	0.02	2.94	0.58	1,926.73
Crowley Tugboat	0.01	0.02	0.12	0.00	0.10	0.02	63.89
Outer Harbor Park	0.04	0.10	0.62	0.00	0.51	0.10	333.16
TOTALS (tons/year, unmitigated)	17.20	26.60	167.09	0.89	135.75	26.70	89,071.99

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	7,868.00	11,487.28	104,333.22
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54

Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				46,203.96	428,939.63

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_2_2037_wkend.urb924

Project Name: San Pedro Waterfront Alternative 2 2037 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	17.13	26.00	166.09	0.87	134.63	26.47	88,513.11

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	17.13	26.00	166.09	0.87	134.63	26.47	88,513.11

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	5.78	6.75	43.42	0.23	35.01	6.89	23,041.73
Los Angeles Maritime Institute	0.00	0.00	0.02	0.00	0.02	0.00	10.03
Conference Facilities at POC	0.20	0.22	1.38	0.01	1.12	0.22	736.55
Cruise Ship Terminal Berth 45-50	5.62	6.38	40.61	0.21	33.02	6.49	21,694.64
San Pedro Park at 22nd & Miner St	0.29	0.66	4.23	0.02	3.44	0.68	2,258.59

Port of Call Restaurant Development	2.85	6.63	42.28	0.22	34.31	6.75	22,552.43
Port of Call Retail Development	1.81	4.13	26.37	0.14	21.40	4.21	14,066.83
S.S. Lane Victory	0.02	0.03	0.19	0.00	0.15	0.03	100.72
Ralph J Scott Fireboat Museum	0.02	0.03	0.19	0.00	0.15	0.03	100.72
Mercardo Warehouse 9 & 10 Reuse	0.19	0.42	2.66	0.01	2.16	0.42	1,418.86
Warehouse 9 & 10 Reuse	0.02	0.03	0.16	0.00	0.13	0.03	87.03
Red Car Maintenance Facility	0.05	0.09	0.59	0.00	0.47	0.09	311.65
Millennium Tugboat Office	0.01	0.01	0.07	0.00	0.06	0.01	38.92
Waterfront Promenade Town Sq	0.08	0.17	1.07	0.01	0.87	0.17	570.73
Fisherman Park	0.03	0.07	0.42	0.00	0.34	0.07	223.82
Research & Dev at Westways	0.07	0.16	1.02	0.01	0.83	0.16	544.58
Crowley Tugboat	0.00	0.00	0.02	0.00	0.02	0.00	11.09
Outer Harbor Park	0.09	0.22	1.39	0.01	1.13	0.22	744.19
TOTALS (tons/year, unmitigated)	17.13	26.00	166.09	0.87	134.63	26.47	88,513.11

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	7,868.00	11,487.28	104,333.22
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64

Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				45,853.76	425,413.06

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_2_2037_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 2 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	96.77	138.63	952.62	5.15	743.81	146.31	502,302.33

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	96.77	138.63	952.62	5.15	743.81	146.31	502,302.33

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	33.53	35.71	247.11	1.33	191.84	37.74	129,679.05
Los Angeles Maritime Institute	0.07	0.10	0.71	0.00	0.55	0.11	372.53
Conference Facilities at POC	1.66	2.29	15.68	0.09	12.28	2.42	8,291.01
Cruise Ship Terminal Berth 45-50	32.73	33.75	230.95	1.26	180.92	35.58	122,104.00
San Pedro Park at 22nd & Miner St	0.69	1.58	10.80	0.06	8.46	1.66	5,707.40

Port of Call Restaurant Development	14.08	33.42	229.22	1.24	179.22	35.25	120,998.28
Port of Call Retail Development	9.93	23.05	158.11	0.86	123.63	24.31	83,465.27
S.S. Lane Victory	0.07	0.10	0.71	0.00	0.56	0.11	377.91
Ralph J Scott Fireboat Museum	0.07	0.10	0.71	0.00	0.56	0.11	377.91
Mercardo Warehouse 9 & 10 Reuse	1.04	2.32	15.96	0.09	12.47	2.45	8,418.52
Warehouse 9 & 10 Reuse	0.30	0.52	3.58	0.02	2.79	0.55	1,887.24
Red Car Maintenance Facility	0.28	0.47	3.37	0.02	2.58	0.51	1,748.02
Millennium Tugboat Office	0.20	0.35	2.50	0.01	1.91	0.38	1,298.42
Waterfront Promenade Town Sq	0.40	0.89	6.07	0.03	4.76	0.94	3,212.27
Fisherman Park	0.16	0.35	2.38	0.01	1.87	0.37	1,259.71
Research & Dev at Westways	1.27	3.01	20.52	0.11	16.10	3.17	10,865.66
Crowley Tugboat	0.06	0.10	0.69	0.00	0.53	0.10	360.27
Outer Harbor Park	0.23	0.52	3.55	0.02	2.78	0.55	1,878.86
TOTALS (lbs/day, unmitigated)	96.77	138.63	952.62	5.15	743.81	146.31	502,302.33

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
Cruise Ship Terminal Berth 45-50		1.46	passengers	7,868.00	11,487.28	104,333.22
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54

Port of Call Retail Development	44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				46,203.96	428,939.63

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_2_2037_wkend.urb924

Project Name: San Pedro Waterfront Alternative 2 2037 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	96.41	135.58	946.95	5.01	737.73	145.10	499,183.36

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	96.41	135.58	946.95	5.01	737.73	145.10	499,183.36

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	33.58	35.21	247.68	1.30	191.85	37.74	129,943.38
Los Angeles Maritime Institute	0.03	0.02	0.11	0.00	0.08	0.02	56.56
Conference Facilities at POC	1.19	1.13	7.86	0.04	6.14	1.21	4,153.94
Cruise Ship Terminal Berth 45-50	32.78	33.28	231.49	1.23	180.92	35.58	122,352.44
San Pedro Park at 22nd & Miner St	1.49	3.46	24.10	0.13	18.84	3.70	12,737.89

Port of Call Restaurant Development	14.77	34.57	241.01	1.28	188.01	36.97	127,188.86
Port of Call Retail Development	9.45	21.56	150.33	0.80	117.27	23.06	79,332.64
S.S. Lane Victory	0.09	0.15	1.07	0.01	0.84	0.17	568.02
Ralph J Scott Fireboat Museum	0.09	0.15	1.07	0.01	0.84	0.17	568.02
Mercardo Warehouse 9 & 10 Reuse	0.99	2.17	15.18	0.08	11.83	2.33	8,001.89
Warehouse 9 & 10 Reuse	0.14	0.13	0.93	0.00	0.73	0.14	490.84
Red Car Maintenance Facility	0.28	0.47	3.39	0.02	2.59	0.51	1,757.39
Millennium Tugboat Office	0.08	0.06	0.42	0.00	0.32	0.06	219.46
Waterfront Promenade Town Sq	0.40	0.88	6.08	0.03	4.76	0.94	3,218.80
Fisherman Park	0.16	0.34	2.38	0.01	1.87	0.37	1,262.28
Research & Dev at Westways	0.38	0.84	5.80	0.03	4.54	0.89	3,071.33
Crowley Tugboat	0.02	0.02	0.12	0.00	0.09	0.02	62.55
Outer Harbor Park	0.49	1.14	7.93	0.04	6.21	1.22	4,197.07
TOTALS (lbs/day, unmitigated)	96.41	135.58	946.95	5.01	737.73	145.10	499,183.36

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
Cruise Ship Terminal Berth 45-50		1.46	passengers	7,868.00	11,487.28	104,333.22
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64

Port of Call Retail Development	42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				45,853.76	425,413.06

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_3_2015_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 3 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	24.74	51.69	252.31	0.49	80.00	16.17	52,268.38

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	24.74	51.69	252.31	0.49	80.00	16.17	52,268.38

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	0.68	0.14	0.70	0.00	0.22	0.05	146.16
Cruise Ship Terminal Berth 91-93	9.35	15.16	74.47	0.15	23.50	4.75	15,364.00
Los Angeles Maritime Institute	0.03	0.07	0.32	0.00	0.10	0.02	66.27
Cruise Ship Terminal Berth 45-50	4.53	7.16	34.81	0.07	11.08	2.24	7,232.84
San Pedro Park at 22nd & Miner St	0.35	1.01	4.89	0.01	1.56	0.31	1,015.27

Port of Call Restaurant Development	4.55	13.33	64.91	0.13	20.62	4.17	13,465.52
Port of Call Retail Development	3.18	9.18	44.70	0.09	14.20	2.87	9,273.32
S.S. Lane Victory	0.03	0.07	0.32	0.00	0.10	0.02	67.22
Ralph J Scott Fireboat Museum	0.03	0.07	0.32	0.00	0.10	0.02	67.22
Mercardo Warehouse 9 & 10 Reuse	0.53	1.48	7.23	0.01	2.29	0.46	1,497.57
Warehouse 9 & 10 Reuse	0.14	0.33	1.62	0.00	0.51	0.10	335.72
Red Car Museum	0.03	0.07	0.33	0.00	0.11	0.02	68.63
Red Car Maintenance Facility	0.13	0.30	1.52	0.00	0.47	0.10	311.00
Millennium Tugboat Office	0.10	0.22	1.13	0.00	0.35	0.07	231.01
Waterfront Promenade Town Sq	0.20	0.57	2.75	0.01	0.88	0.18	571.41
Fisherman Park	0.08	0.22	1.08	0.00	0.34	0.07	224.08
Research & Dev at Westways	0.65	1.92	9.29	0.02	2.96	0.60	1,932.82
Crowley Tugboat	0.03	0.06	0.31	0.00	0.10	0.02	64.10
Outer Harbor Park	0.12	0.33	1.61	0.00	0.51	0.10	334.22
TOTALS (tons/year, unmitigated)	24.74	51.69	252.31	0.49	80.00	16.17	52,268.38

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	786.00	78.60	702.41
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,620.00	3,825.20	34,742.38
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	78.20	7,034.09	64,657.35
Port of Call Retail Development	44.32	1000 sq ft	109.30	4,844.18	44,527.67
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				26,918.12	250,886.62

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_3_2015_wkend.urb924

Project Name: San Pedro Waterfront Alternative 3 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	24.69	51.61	251.89	0.51	79.89	16.15	52,190.53

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	24.69	51.61	251.89	0.51	79.89	16.15	52,190.53

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	0.68	0.14	0.70	0.00	0.22	0.05	146.16
Cruise Ship Terminal Berth 91-93	9.35	15.16	74.47	0.15	23.50	4.75	15,364.00
Los Angeles Maritime Institute	0.01	0.01	0.05	0.00	0.02	0.00	10.04
Cruise Ship Terminal Berth 45-50	4.53	7.16	34.81	0.07	11.08	2.24	7,232.84
San Pedro Park at 22nd & Miner St	0.77	2.24	10.88	0.02	3.46	0.70	2,261.29

Port of Call Restaurant Development	4.76	13.97	68.06	0.14	21.62	4.37	14,119.71
Port of Call Retail Development	3.02	8.71	42.40	0.09	13.47	2.72	8,796.26
S.S. Lane Victory	0.04	0.10	0.48	0.00	0.15	0.03	100.84
Ralph J Scott Fireboat Museum	0.04	0.10	0.48	0.00	0.15	0.03	100.84
Mercardo Warehouse 9 & 10 Reuse	0.50	1.41	6.85	0.01	2.17	0.44	1,420.56
Warehouse 9 & 10 Reuse	0.06	0.09	0.42	0.00	0.13	0.03	87.14
Red Car Museum	0.04	0.10	0.50	0.00	0.16	0.03	102.95
Red Car Maintenance Facility	0.13	0.30	1.52	0.00	0.48	0.10	312.03
Millennium Tugboat Office	0.03	0.04	0.19	0.00	0.06	0.01	38.97
Waterfront Promenade Town Sq	0.20	0.57	2.75	0.01	0.88	0.18	571.41
Fisherman Park	0.08	0.22	1.08	0.00	0.34	0.07	224.08
Research & Dev at Westways	0.19	0.54	2.62	0.01	0.84	0.17	545.23
Crowley Tugboat	0.01	0.01	0.05	0.00	0.02	0.00	11.11
Outer Harbor Park	0.25	0.74	3.58	0.01	1.14	0.23	745.07
TOTALS (tons/year, unmitigated)	24.69	51.61	251.89	0.51	79.89	16.15	52,190.53

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	786.00	78.60	702.41
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,620.00	3,825.20	34,742.38
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.32	1000 sq ft	78.20	7,375.82	67,798.57
Port of Call Retail Development	42.04	1000 sq ft	109.30	4,594.97	42,236.98
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				26,916.19	250,518.07

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_3_2015_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 3 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	139.65	268.87	1,422.56	2.94	438.44	88.63	294,619.14

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	139.65	268.87	1,422.56	2.94	438.44	88.63	294,619.14

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	4.47	0.75	3.95	0.01	1.23	0.25	823.88
Cruise Ship Terminal Berth 91-93	54.83	78.85	420.21	0.87	128.75	26.03	86,599.25
Los Angeles Maritime Institute	0.17	0.34	1.81	0.00	0.56	0.11	373.55
Cruise Ship Terminal Berth 45-50	26.65	37.27	196.17	0.41	60.71	12.27	40,769.86
San Pedro Park at 22nd & Miner St	1.87	5.23	27.54	0.06	8.52	1.72	5,722.83

Port of Call Restaurant Development	23.89	69.33	365.86	0.76	112.99	22.84	75,901.32
Port of Call Retail Development	16.75	47.75	251.96	0.53	77.81	15.73	52,271.07
S.S. Lane Victory	0.17	0.35	1.82	0.00	0.56	0.11	378.93
Ralph J Scott Fireboat Museum	0.17	0.35	1.82	0.00	0.56	0.11	378.93
Mercardo Warehouse 9 & 10 Reuse	2.80	7.71	40.74	0.08	12.56	2.54	8,441.31
Warehouse 9 & 10 Reuse	0.77	1.73	9.13	0.02	2.82	0.57	1,892.35
Red Car Museum	0.17	0.35	1.86	0.00	0.58	0.12	386.87
Red Car Maintenance Facility	0.72	1.57	8.61	0.02	2.60	0.53	1,752.78
Millennium Tugboat Office	0.52	1.17	6.39	0.01	1.93	0.39	1,301.96
Waterfront Promenade Town Sq	1.08	2.95	15.47	0.03	4.80	0.97	3,220.94
Fisherman Park	0.42	1.16	6.07	0.01	1.88	0.38	1,263.12
Research & Dev at Westways	3.44	9.97	52.33	0.11	16.23	3.28	10,895.00
Crowley Tugboat	0.15	0.32	1.77	0.00	0.54	0.11	361.25
Outer Harbor Park	0.61	1.72	9.05	0.02	2.81	0.57	1,883.94
TOTALS (lbs/day, unmitigated)	139.65	268.87	1,422.56	2.94	438.44	88.63	294,619.14

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	786.00	78.60	702.41
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,620.00	3,825.20	34,742.38
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	78.20	7,034.09	64,657.35
Port of Call Retail Development	44.32	1000 sq ft	109.30	4,844.18	44,527.67
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				26,918.12	250,886.62

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_3_2015_wkend.urb924

Project Name: San Pedro Waterfront Alternative 3 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	139.54	268.48	1,420.32	2.96	437.79	88.51	294,180.44

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	139.54	268.48	1,420.32	2.96	437.79	88.51	294,180.44

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	4.47	0.75	3.95	0.01	1.23	0.25	823.88
Cruise Ship Terminal Berth 91-93	54.83	78.85	420.21	0.87	128.75	26.03	86,599.25
Los Angeles Maritime Institute	0.07	0.05	0.27	0.00	0.08	0.02	56.60
Cruise Ship Terminal Berth 45-50	26.65	37.27	196.17	0.41	60.71	12.27	40,769.86
San Pedro Park at 22nd & Miner St	4.04	11.65	61.33	0.13	18.98	3.84	12,746.39

Port of Call Restaurant Development	25.03	72.70	383.63	0.80	118.47	23.95	79,588.81
Port of Call Retail Development	15.92	45.29	238.99	0.50	73.81	14.92	49,582.04
S.S. Lane Victory	0.23	0.52	2.73	0.01	0.85	0.17	568.40
Ralph J Scott Fireboat Museum	0.23	0.52	2.73	0.01	0.85	0.17	568.40
Mercardo Warehouse 9 & 10 Reuse	2.66	7.31	38.64	0.08	11.92	2.41	8,007.25
Warehouse 9 & 10 Reuse	0.34	0.45	2.37	0.00	0.73	0.15	491.17
Red Car Museum	0.23	0.53	2.80	0.01	0.86	0.17	580.31
Red Car Maintenance Facility	0.73	1.57	8.64	0.02	2.61	0.53	1,758.59
Millennium Tugboat Office	0.20	0.20	1.08	0.00	0.33	0.07	219.61
Waterfront Promenade Town Sq	1.08	2.95	15.47	0.03	4.80	0.97	3,220.94
Fisherman Park	0.42	1.16	6.07	0.01	1.88	0.38	1,263.12
Research & Dev at Westways	1.02	2.81	14.76	0.03	4.58	0.93	3,073.37
Crowley Tugboat	0.06	0.06	0.31	0.00	0.09	0.02	62.59
Outer Harbor Park	1.33	3.84	20.17	0.04	6.26	1.26	4,199.86
TOTALS (lbs/day, unmitigated)	139.54	268.48	1,420.32	2.96	437.79	88.51	294,180.44

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	786.00	78.60	702.41
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,240.00	7,650.40	73,673.35
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,620.00	3,825.20	34,742.38
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.32	1000 sq ft	78.20	7,375.82	67,798.57
Port of Call Retail Development	42.04	1000 sq ft	109.30	4,594.97	42,236.98
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				26,916.19	250,518.07

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_3_2022_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 3 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	20.61	34.45	193.61	0.52	84.67	16.84	55,524.87

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	20.61	34.45	193.61	0.52	84.67	16.84	55,524.87

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	0.67	0.10	0.58	0.00	0.26	0.05	167.27
Cruise Ship Terminal Berth 91-93	8.43	10.88	61.52	0.17	26.78	5.33	17,573.82
Los Angeles Maritime Institute	0.02	0.04	0.23	0.00	0.10	0.02	66.24
Cruise Ship Terminal Berth 45-50	4.10	5.14	28.77	0.08	12.63	2.51	8,274.58
San Pedro Park at 22nd & Miner St	0.26	0.63	3.53	0.01	1.55	0.31	1,014.71

Port of Call Restaurant Development	3.30	8.36	46.85	0.13	20.53	4.09	13,458.13
Port of Call Retail Development	2.31	5.76	32.27	0.09	14.14	2.81	9,268.23
S.S. Lane Victory	0.02	0.04	0.23	0.00	0.10	0.02	67.19
Ralph J Scott Fireboat Museum	0.02	0.04	0.23	0.00	0.10	0.02	67.19
Mercardo Warehouse 9 & 10 Reuse	0.39	0.93	5.22	0.01	2.28	0.45	1,496.74
Warehouse 9 & 10 Reuse	0.11	0.21	1.17	0.00	0.51	0.10	335.54
Red Car Museum	0.02	0.04	0.24	0.00	0.10	0.02	68.60
Red Car Maintenance Facility	0.10	0.19	1.10	0.00	0.47	0.09	310.82
Millennium Tugboat Office	0.07	0.14	0.81	0.00	0.35	0.07	230.88
Waterfront Promenade Town Sq	0.15	0.36	1.98	0.01	0.87	0.17	571.10
Fisherman Park	0.06	0.14	0.78	0.00	0.34	0.07	223.96
Research & Dev at Westways	0.48	1.20	6.71	0.02	2.95	0.59	1,931.77
Crowley Tugboat	0.02	0.04	0.23	0.00	0.10	0.02	64.06
Outer Harbor Park	0.08	0.21	1.16	0.00	0.51	0.10	334.04
TOTALS (tons/year, unmitigated)	20.61	34.45	193.61	0.52	84.67	16.84	55,524.87

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	900.00	90.00	804.28
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,999.00	4,378.54	39,768.09
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	78.20	7,034.09	64,657.35
Port of Call Retail Development	44.32	1000 sq ft	109.30	4,844.18	44,527.67
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				28,588.08	266,657.47

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_3_2022_wkend.urb924

Project Name: San Pedro Waterfront Alternative 3 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	19.64	33.71	186.66	0.54	84.55	16.82	55,447.24

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	19.64	33.71	186.66	0.54	84.55	16.82	55,447.24

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	0.65	0.10	0.56	0.00	0.26	0.05	167.25
Cruise Ship Terminal Berth 91-93	8.08	10.66	59.40	0.17	26.77	5.33	17,572.07
Los Angeles Maritime Institute	0.01	0.01	0.03	0.00	0.02	0.00	10.03
Cruise Ship Terminal Berth 45-50	3.93	5.04	27.77	0.08	12.62	2.51	8,273.69
San Pedro Park at 22nd & Miner St	0.53	1.38	7.58	0.02	3.45	0.69	2,259.81

Port of Call Restaurant Development	3.26	8.59	47.45	0.14	21.53	4.28	14,116.45
Port of Call Retail Development	2.07	5.35	29.55	0.09	13.41	2.67	8,790.50
S.S. Lane Victory	0.03	0.06	0.34	0.00	0.15	0.03	100.77
Ralph J Scott Fireboat Museum	0.03	0.06	0.34	0.00	0.15	0.03	100.77
Mercardo Warehouse 9 & 10 Reuse	0.35	0.86	4.78	0.01	2.17	0.43	1,419.63
Warehouse 9 & 10 Reuse	0.04	0.05	0.29	0.00	0.13	0.03	87.08
Red Car Museum	0.03	0.06	0.35	0.00	0.16	0.03	102.88
Red Car Maintenance Facility	0.09	0.19	1.06	0.00	0.47	0.09	311.83
Millennium Tugboat Office	0.03	0.02	0.13	0.00	0.06	0.01	38.94
Waterfront Promenade Town Sq	0.14	0.35	1.91	0.01	0.87	0.17	571.04
Fisherman Park	0.06	0.14	0.75	0.00	0.34	0.07	223.94
Research & Dev at Westways	0.13	0.33	1.83	0.01	0.83	0.17	544.87
Crowley Tugboat	0.01	0.01	0.04	0.00	0.02	0.00	11.10
Outer Harbor Park	0.17	0.45	2.50	0.01	1.14	0.23	744.59
TOTALS (tons/year, unmitigated)	19.64	33.71	186.66	0.54	84.55	16.82	55,447.24

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	900.00	90.00	804.28
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,999.00	4,378.54	39,768.09
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	78.20	7,378.95	67,827.32
Port of Call Retail Development	42.04	1000 sq ft	109.30	4,594.97	42,236.98
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				28,589.28	266,317.67

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_3_2022_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 3 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	117.57	179.10	1,094.85	3.11	463.94	92.36	313,031.09

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	117.57	179.10	1,094.85	3.11	463.94	92.36	313,031.09

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	4.36	0.54	3.28	0.01	1.40	0.28	943.02
Cruise Ship Terminal Berth 91-93	49.77	56.56	348.16	0.99	146.71	29.21	99,072.83
Los Angeles Maritime Institute	0.13	0.21	1.31	0.00	0.55	0.11	373.41
Cruise Ship Terminal Berth 45-50	24.28	26.74	162.58	0.47	69.19	13.77	46,650.37
San Pedro Park at 22nd & Miner St	1.36	3.28	19.94	0.06	8.48	1.69	5,720.73

Port of Call Restaurant Development	17.34	43.46	264.89	0.76	112.50	22.39	75,873.38
Port of Call Retail Development	12.20	29.93	182.43	0.52	77.47	15.42	52,251.82
S.S. Lane Victory	0.13	0.22	1.32	0.00	0.56	0.11	378.80
Ralph J Scott Fireboat Museum	0.13	0.22	1.32	0.00	0.56	0.11	378.80
Mercardo Warehouse 9 & 10 Reuse	2.05	4.83	29.49	0.08	12.51	2.49	8,438.19
Warehouse 9 & 10 Reuse	0.58	1.08	6.61	0.02	2.80	0.56	1,891.65
Red Car Museum	0.13	0.22	1.35	0.00	0.57	0.11	386.73
Red Car Maintenance Facility	0.55	0.98	6.23	0.02	2.59	0.52	1,752.10
Millennium Tugboat Office	0.40	0.73	4.63	0.01	1.92	0.38	1,301.46
Waterfront Promenade Town Sq	0.79	1.85	11.20	0.03	4.78	0.95	3,219.77
Fisherman Park	0.31	0.72	4.39	0.01	1.87	0.37	1,262.65
Research & Dev at Westways	2.50	6.25	37.89	0.11	16.16	3.22	10,891.02
Crowley Tugboat	0.11	0.20	1.28	0.00	0.53	0.11	361.11
Outer Harbor Park	0.45	1.08	6.55	0.02	2.79	0.56	1,883.25
TOTALS (lbs/day, unmitigated)	117.57	179.10	1,094.85	3.11	463.94	92.36	313,031.09

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	900.00	90.00	804.28
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,999.00	4,378.54	39,768.09
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	78.20	7,034.09	64,657.35
Port of Call Retail Development	44.32	1000 sq ft	109.30	4,844.18	44,527.67
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				28,588.08	266,657.47

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_3_2022_wkend.urb924

Project Name: San Pedro Waterfront Alternative 3 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	112.11	175.24	1,057.65	3.14	463.27	92.17	312,623.91

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	112.11	175.24	1,057.65	3.14	463.27	92.17	312,623.91

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	4.24	0.53	3.17	0.01	1.40	0.28	943.01
Cruise Ship Terminal Berth 91-93	47.73	55.40	336.84	0.99	146.69	29.19	99,072.48
Los Angeles Maritime Institute	0.06	0.03	0.19	0.00	0.08	0.02	56.58
Cruise Ship Terminal Berth 45-50	23.30	26.20	157.25	0.47	69.18	13.76	46,649.86
San Pedro Park at 22nd & Miner St	2.77	7.15	42.95	0.13	18.89	3.76	12,741.58

Port of Call Restaurant Development	17.11	44.65	268.79	0.80	117.99	23.47	79,592.50
Port of Call Retail Development	10.93	27.81	167.38	0.50	73.47	14.61	49,563.32
S.S. Lane Victory	0.16	0.32	1.91	0.01	0.84	0.17	568.19
Ralph J Scott Fireboat Museum	0.16	0.32	1.91	0.01	0.84	0.17	568.19
Mercardo Warehouse 9 & 10 Reuse	1.84	4.49	27.06	0.08	11.86	2.36	8,004.23
Warehouse 9 & 10 Reuse	0.26	0.28	1.66	0.00	0.73	0.14	490.99
Red Car Museum	0.17	0.33	1.96	0.01	0.86	0.17	580.09
Red Car Maintenance Facility	0.52	0.97	6.05	0.02	2.59	0.52	1,757.94
Millennium Tugboat Office	0.16	0.12	0.76	0.00	0.32	0.06	219.53
Waterfront Promenade Town Sq	0.75	1.81	10.83	0.03	4.78	0.95	3,219.73
Fisherman Park	0.29	0.71	4.25	0.01	1.87	0.37	1,262.64
Research & Dev at Westways	0.71	1.73	10.34	0.03	4.56	0.91	3,072.21
Crowley Tugboat	0.04	0.03	0.22	0.00	0.09	0.02	62.57
Outer Harbor Park	0.91	2.36	14.13	0.04	6.23	1.24	4,198.27
TOTALS (tons/year, unmitigated)	112.11	175.24	1,057.65	3.14	463.27	92.17	312,623.91

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	900.00	90.00	804.28
Cruise Ship Terminal Berth 91-93		1.46	passengers	5,997.00	8,755.62	84,316.62
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Cruise Ship Terminal Berth 45-50		1.46	passengers	2,999.00	4,378.54	39,768.09
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	78.20	7,034.09	64,657.35
Port of Call Retail Development	44.32	1000 sq ft	109.30	4,844.18	44,527.67
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				28,588.08	266,657.47

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_3_2037_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 3 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	12.85	18.96	119.15	0.62	96.71	19.03	63,473.20

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	12.85	18.96	119.15	0.62	96.71	19.03	63,473.20

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	0.47	0.07	0.41	0.00	0.33	0.07	218.73
Cruise Ship Terminal Berth 91-93	5.77	6.85	43.32	0.23	35.01	6.89	22,996.36
Los Angeles Maritime Institute	0.01	0.02	0.12	0.00	0.10	0.02	66.06
Cruise Ship Terminal Berth 45-50	2.81	3.24	20.26	0.11	16.51	3.25	10,826.01
San Pedro Park at 22nd & Miner St	0.13	0.30	1.89	0.01	1.54	0.30	1,012.06

Port of Call Restaurant Development	1.70	4.01	25.16	0.13	20.46	4.02	13,422.97
Port of Call Retail Development	1.19	2.76	17.32	0.09	14.09	2.77	9,244.02
S.S. Lane Victory	0.01	0.02	0.13	0.00	0.10	0.02	67.01
Ralph J Scott Fireboat Museum	0.01	0.02	0.13	0.00	0.10	0.02	67.01
Mercardo Warehouse 9 & 10 Reuse	0.20	0.45	2.80	0.02	2.28	0.45	1,492.83
Warehouse 9 & 10 Reuse	0.05	0.10	0.63	0.00	0.51	0.10	334.66
Red Car Museum	0.01	0.02	0.13	0.00	0.10	0.02	68.42
Red Car Maintenance Facility	0.05	0.09	0.59	0.00	0.47	0.09	310.01
Millennium Tugboat Office	0.04	0.07	0.44	0.00	0.35	0.07	230.28
Waterfront Promenade Town Sq	0.08	0.17	1.06	0.01	0.87	0.17	569.61
Fisherman Park	0.03	0.07	0.42	0.00	0.34	0.07	223.38
Research & Dev at Westways	0.24	0.58	3.60	0.02	2.94	0.58	1,926.73
Crowley Tugboat	0.01	0.02	0.12	0.00	0.10	0.02	63.89
Outer Harbor Park	0.04	0.10	0.62	0.00	0.51	0.10	333.16
TOTALS (tons/year, unmitigated)	12.85	18.96	119.15	0.62	96.71	19.03	63,473.20

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,180.00	118.00	1,054.51
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Cruise Ship Terminal Berth 45-50		1.46	passengers	3,934.00	5,743.64	52,166.61
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	78.20	7,034.09	64,657.35
Port of Call Retail Development	44.32	1000 sq ft	109.30	4,844.18	44,527.67
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				32,712.84	305,612.11

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_3_2037_wkend.urb924

Project Name: San Pedro Waterfront Alternative 3 2037 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	12.86	18.65	119.28	0.63	96.62	19.00	63,526.51

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	12.86	18.65	119.28	0.63	96.62	19.00	63,526.51

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	0.47	0.06	0.41	0.00	0.33	0.07	219.16
Cruise Ship Terminal Berth 91-93	5.78	6.75	43.42	0.23	35.01	6.89	23,041.73
Los Angeles Maritime Institute	0.00	0.00	0.02	0.00	0.02	0.00	10.03
Cruise Ship Terminal Berth 45-50	2.81	3.19	20.31	0.11	16.51	3.25	10,847.32
San Pedro Park at 22nd & Miner St	0.29	0.66	4.23	0.02	3.44	0.68	2,258.59

Port of Call Restaurant Development	1.78	4.15	26.45	0.14	21.47	4.22	14,108.80
Port of Call Retail Development	1.13	2.58	16.47	0.09	13.37	2.63	8,785.74
S.S. Lane Victory	0.02	0.03	0.19	0.00	0.15	0.03	100.72
Ralph J Scott Fireboat Museum	0.02	0.03	0.19	0.00	0.15	0.03	100.72
Mercardo Warehouse 9 & 10 Reuse	0.19	0.42	2.66	0.01	2.16	0.42	1,418.86
Warehouse 9 & 10 Reuse	0.02	0.03	0.16	0.00	0.13	0.03	87.03
Red Car Museum	0.02	0.03	0.19	0.00	0.16	0.03	102.83
Red Car Maintenance Facility	0.05	0.09	0.59	0.00	0.47	0.09	311.65
Millennium Tugboat Office	0.01	0.01	0.07	0.00	0.06	0.01	38.92
Waterfront Promenade Town Sq	0.08	0.17	1.07	0.01	0.87	0.17	570.73
Fisherman Park	0.03	0.07	0.42	0.00	0.34	0.07	223.82
Research & Dev at Westways	0.07	0.16	1.02	0.01	0.83	0.16	544.58
Crowley Tugboat	0.00	0.00	0.02	0.00	0.02	0.00	11.09
Outer Harbor Park	0.09	0.22	1.39	0.01	1.13	0.22	744.19
TOTALS (tons/year, unmitigated)	12.86	18.65	119.28	0.63	96.62	19.00	63,526.51

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,180.00	118.00	1,054.51
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Cruise Ship Terminal Berth 45-50		1.46	passengers	3,934.00	5,743.64	52,166.61
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	78.20	7,378.95	67,827.32
Port of Call Retail Development	42.04	1000 sq ft	109.30	4,594.97	42,236.98
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				32,714.04	305,272.31

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_3_2037_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 3 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	72.77	98.76	679.34	3.66	529.95	104.25	357,941.68

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	72.77	98.76	679.34	3.66	529.95	104.25	357,941.68

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	2.96	0.34	2.33	0.01	1.83	0.36	1,233.53
Cruise Ship Terminal Berth 91-93	33.53	35.71	247.11	1.33	191.84	37.74	129,679.05
Los Angeles Maritime Institute	0.07	0.10	0.71	0.00	0.55	0.11	372.53
Cruise Ship Terminal Berth 45-50	16.36	16.88	115.47	0.63	90.46	17.79	61,052.00
San Pedro Park at 22nd & Miner St	0.69	1.58	10.80	0.06	8.46	1.66	5,707.40

Port of Call Restaurant Development	8.81	20.91	143.40	0.78	112.12	22.05	75,696.52
Port of Call Retail Development	6.20	14.40	98.75	0.54	77.21	15.19	52,130.03
S.S. Lane Victory	0.07	0.10	0.71	0.00	0.56	0.11	377.91
Ralph J Scott Fireboat Museum	0.07	0.10	0.71	0.00	0.56	0.11	377.91
Mercardo Warehouse 9 & 10 Reuse	1.04	2.32	15.96	0.09	12.47	2.45	8,418.52
Warehouse 9 & 10 Reuse	0.30	0.52	3.58	0.02	2.79	0.55	1,887.24
Red Car Museum	0.07	0.11	0.73	0.00	0.57	0.11	385.83
Red Car Maintenance Facility	0.28	0.47	3.37	0.02	2.58	0.51	1,748.02
Millennium Tugboat Office	0.20	0.35	2.50	0.01	1.91	0.38	1,298.42
Waterfront Promenade Town Sq	0.40	0.89	6.07	0.03	4.76	0.94	3,212.27
Fisherman Park	0.16	0.35	2.38	0.01	1.87	0.37	1,259.71
Research & Dev at Westways	1.27	3.01	20.52	0.11	16.10	3.17	10,865.66
Crowley Tugboat	0.06	0.10	0.69	0.00	0.53	0.10	360.27
Outer Harbor Park	0.23	0.52	3.55	0.02	2.78	0.55	1,878.86
TOTALS (lbs/day, unmitigated)	72.77	98.76	679.34	3.66	529.95	104.25	357,941.68

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,180.00	118.00	1,054.51
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Cruise Ship Terminal Berth 45-50		1.46	passengers	3,934.00	5,743.64	52,166.61
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76

Port of Call Restaurant Development	89.95	1000 sq ft	78.20	7,034.09	64,657.35
Port of Call Retail Development	44.32	1000 sq ft	109.30	4,844.18	44,527.67
S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				32,712.84	305,612.11

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_3_2037_wkend.urb924

Project Name: San Pedro Waterfront Alternative 3 2037 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	72.81	97.28	680.10	3.59	529.40	104.13	358,265.91

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	72.81	97.28	680.10	3.59	529.40	104.13	358,265.91

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Parking Shuttle Outer Harbor	2.97	0.34	2.33	0.01	1.83	0.36	1,236.04
Cruise Ship Terminal Berth 91-93	33.58	35.21	247.68	1.30	191.85	37.74	129,943.38
Los Angeles Maritime Institute	0.03	0.02	0.11	0.00	0.08	0.02	56.56
Cruise Ship Terminal Berth 45-50	16.39	16.64	115.74	0.61	90.46	17.79	61,176.22
San Pedro Park at 22nd & Miner St	1.49	3.46	24.10	0.13	18.84	3.70	12,737.89

Port of Call Restaurant Development	9.24	21.63	150.78	0.80	117.62	23.13	79,569.35
Port of Call Retail Development	5.90	13.47	93.89	0.50	73.24	14.40	49,548.90
S.S. Lane Victory	0.09	0.15	1.07	0.01	0.84	0.17	568.02
Ralph J Scott Fireboat Museum	0.09	0.15	1.07	0.01	0.84	0.17	568.02
Mercardo Warehouse 9 & 10 Reuse	0.99	2.17	15.18	0.08	11.83	2.33	8,001.89
Warehouse 9 & 10 Reuse	0.14	0.13	0.93	0.00	0.73	0.14	490.84
Red Car Museum	0.09	0.16	1.10	0.01	0.86	0.17	579.92
Red Car Maintenance Facility	0.28	0.47	3.39	0.02	2.59	0.51	1,757.39
Millennium Tugboat Office	0.08	0.06	0.42	0.00	0.32	0.06	219.46
Waterfront Promenade Town Sq	0.40	0.88	6.08	0.03	4.76	0.94	3,218.80
Fisherman Park	0.16	0.34	2.38	0.01	1.87	0.37	1,262.28
Research & Dev at Westways	0.38	0.84	5.80	0.03	4.54	0.89	3,071.33
Crowley Tugboat	0.02	0.02	0.12	0.00	0.09	0.02	62.55
Outer Harbor Park	0.49	1.14	7.93	0.04	6.21	1.22	4,197.07
TOTALS (lbs/day, unmitigated)	72.81	97.28	680.10	3.59	529.40	104.13	358,265.91

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Parking Shuttle Outer Harbor		0.10	passengers	1,180.00	118.00	1,054.51
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,868.00	11,487.28	110,622.51
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Cruise Ship Terminal Berth 45-50		1.46	passengers	3,934.00	5,743.64	52,166.61
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94

Port of Call Restaurant Development	94.36	1000 sq ft	78.20	7,378.95	67,827.32
Port of Call Retail Development	42.04	1000 sq ft	109.30	4,594.97	42,236.98
S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				32,714.04	305,272.31

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0

Motor Home	0.8	0.0	88.9	11.1
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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Parking Shuttle Outer Harbor				1.0	0.5	98.5
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Cruise Ship Terminal Berth 45-50				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_4_2015_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 4 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	28.92	65.87	321.72	0.64	101.97	20.61	66,623.51

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	28.92	65.87	321.72	0.64	101.97	20.61	66,623.51

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	13.39	21.70	106.58	0.22	33.63	6.80	21,990.46
Los Angeles Maritime Institute	0.03	0.07	0.32	0.00	0.10	0.02	66.27
Conference Facilities at POC	0.73	1.46	7.10	0.01	2.26	0.46	1,474.85
San Pedro Park at 22nd & Miner St	0.35	1.01	4.89	0.01	1.56	0.31	1,015.27
Port of Call Restaurant Development	7.27	21.30	103.75	0.21	32.96	6.66	21,524.17

Port of Call Retail Development	5.08	14.69	71.57	0.15	22.74	4.60	14,847.49
S.S. Lane Victory	0.03	0.07	0.32	0.00	0.10	0.02	67.22
Ralph J Scott Fireboat Museum	0.03	0.07	0.32	0.00	0.10	0.02	67.22
Mercardo Warehouse 9 & 10 Reuse	0.53	1.48	7.23	0.01	2.29	0.46	1,497.57
Warehouse 9 & 10 Reuse	0.14	0.33	1.62	0.00	0.51	0.10	335.72
Red Car Museum	0.03	0.07	0.33	0.00	0.11	0.02	68.63
Red Car Maintenance Facility	0.13	0.30	1.52	0.00	0.47	0.10	311.00
Millennium Tugboat Office	0.10	0.22	1.13	0.00	0.35	0.07	231.01
Waterfront Promenade Town Sq	0.20	0.57	2.75	0.01	0.88	0.18	571.41
Fisherman Park	0.08	0.22	1.08	0.00	0.34	0.07	224.08
Research & Dev at Westways	0.65	1.92	9.29	0.02	2.96	0.60	1,932.82
Crowley Tugboat	0.03	0.06	0.31	0.00	0.10	0.02	64.10
Outer Harbor Park	0.12	0.33	1.61	0.00	0.51	0.10	334.22
TOTALS (tons/year, unmitigated)	28.92	65.87	321.72	0.64	101.97	20.61	66,623.51

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,500.00	10,950.00	105,448.50
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development		44.32	1000 sq ft	175.00	7,756.00	71,293.15

S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				34,215.40	319,762.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_4_2015_wkend.urb924

Project Name: San Pedro Waterfront Alternative 4 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	28.68	65.19	318.31	0.65	100.91	20.40	65,922.57

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	28.68	65.19	318.31	0.65	100.91	20.40	65,922.57

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	13.39	21.70	106.58	0.22	33.63	6.80	21,990.46
Los Angeles Maritime Institute	0.01	0.01	0.05	0.00	0.02	0.00	10.04
Conference Facilities at POC	0.49	0.73	3.55	0.01	1.13	0.23	737.43
San Pedro Park at 22nd & Miner St	0.77	2.24	10.88	0.02	3.46	0.70	2,261.29
Port of Call Restaurant Development	7.62	22.35	108.84	0.22	34.58	6.99	22,579.44

Port of Call Retail Development	4.83	13.94	67.89	0.14	21.57	4.36	14,083.68
S.S. Lane Victory	0.04	0.10	0.48	0.00	0.15	0.03	100.84
Ralph J Scott Fireboat Museum	0.04	0.10	0.48	0.00	0.15	0.03	100.84
Mercardo Warehouse 9 & 10 Reuse	0.50	1.41	6.85	0.01	2.17	0.44	1,420.56
Warehouse 9 & 10 Reuse	0.06	0.09	0.42	0.00	0.13	0.03	87.14
Red Car Museum	0.04	0.10	0.50	0.00	0.16	0.03	102.95
Red Car Maintenance Facility	0.13	0.30	1.52	0.00	0.48	0.10	312.03
Millennium Tugboat Office	0.03	0.04	0.19	0.00	0.06	0.01	38.97
Waterfront Promenade Town Sq	0.20	0.57	2.75	0.01	0.88	0.18	571.41
Fisherman Park	0.08	0.22	1.08	0.00	0.34	0.07	224.08
Research & Dev at Westways	0.19	0.54	2.62	0.01	0.84	0.17	545.23
Crowley Tugboat	0.01	0.01	0.05	0.00	0.02	0.00	11.11
Outer Harbor Park	0.25	0.74	3.58	0.01	1.14	0.23	745.07
TOTALS (tons/year, unmitigated)	28.68	65.19	318.31	0.65	100.91	20.40	65,922.57

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,500.00	10,950.00	105,448.50
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development		42.04	1000 sq ft	175.00	7,357.00	67,625.54

S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				33,883.20	316,400.23

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_4_2015_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 4 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	160.73	342.65	1,814.08	3.75	558.79	112.96	375,533.24

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	160.73	342.65	1,814.08	3.75	558.79	112.96	375,533.24

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	78.48	112.86	601.45	1.25	184.28	37.26	123,949.31
Los Angeles Maritime Institute	0.17	0.34	1.81	0.00	0.56	0.11	373.55
Conference Facilities at POC	4.18	7.60	40.00	0.08	12.38	2.50	8,313.42
San Pedro Park at 22nd & Miner St	1.87	5.23	27.54	0.06	8.52	1.72	5,722.83
Port of Call Restaurant Development	38.19	110.82	584.81	1.22	180.60	36.51	121,325.65

Port of Call Retail Development	26.82	76.45	403.41	0.84	124.58	25.18	83,691.10
S.S. Lane Victory	0.17	0.35	1.82	0.00	0.56	0.11	378.93
Ralph J Scott Fireboat Museum	0.17	0.35	1.82	0.00	0.56	0.11	378.93
Mercardo Warehouse 9 & 10 Reuse	2.80	7.71	40.74	0.08	12.56	2.54	8,441.31
Warehouse 9 & 10 Reuse	0.77	1.73	9.13	0.02	2.82	0.57	1,892.35
Red Car Museum	0.17	0.35	1.86	0.00	0.58	0.12	386.87
Red Car Maintenance Facility	0.72	1.57	8.61	0.02	2.60	0.53	1,752.78
Millennium Tugboat Office	0.52	1.17	6.39	0.01	1.93	0.39	1,301.96
Waterfront Promenade Town Sq	1.08	2.95	15.47	0.03	4.80	0.97	3,220.94
Fisherman Park	0.42	1.16	6.07	0.01	1.88	0.38	1,263.12
Research & Dev at Westways	3.44	9.97	52.33	0.11	16.23	3.28	10,895.00
Crowley Tugboat	0.15	0.32	1.77	0.00	0.54	0.11	361.25
Outer Harbor Park	0.61	1.72	9.05	0.02	2.81	0.57	1,883.94
TOTALS (lbs/day, unmitigated)	160.73	342.65	1,814.08	3.75	558.79	112.96	375,533.24

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,500.00	10,950.00	105,448.50
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development		44.32	1000 sq ft	175.00	7,756.00	71,293.15

S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				34,215.40	319,762.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_4_2015_wkend.urb924

Project Name: San Pedro Waterfront Alternative 4 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	159.53	339.05	1,794.95	3.74	552.92	111.79	371,582.23

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	159.53	339.05	1,794.95	3.74	552.92	111.79	371,582.23

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	78.48	112.86	601.45	1.25	184.28	37.26	123,949.31
Los Angeles Maritime Institute	0.07	0.05	0.27	0.00	0.08	0.02	56.60
Conference Facilities at POC	2.89	3.80	20.00	0.04	6.19	1.25	4,156.71
San Pedro Park at 22nd & Miner St	4.04	11.65	61.33	0.13	18.98	3.84	12,746.39
Port of Call Restaurant Development	40.03	116.26	613.48	1.28	189.46	38.30	127,273.92

Port of Call Retail Development	25.49	72.51	382.65	0.80	118.17	23.89	79,385.69
S.S. Lane Victory	0.23	0.52	2.73	0.01	0.85	0.17	568.40
Ralph J Scott Fireboat Museum	0.23	0.52	2.73	0.01	0.85	0.17	568.40
Mercardo Warehouse 9 & 10 Reuse	2.66	7.31	38.64	0.08	11.92	2.41	8,007.25
Warehouse 9 & 10 Reuse	0.34	0.45	2.37	0.00	0.73	0.15	491.17
Red Car Museum	0.23	0.53	2.80	0.01	0.86	0.17	580.31
Red Car Maintenance Facility	0.73	1.57	8.64	0.02	2.61	0.53	1,758.59
Millennium Tugboat Office	0.20	0.20	1.08	0.00	0.33	0.07	219.61
Waterfront Promenade Town Sq	1.08	2.95	15.47	0.03	4.80	0.97	3,220.94
Fisherman Park	0.42	1.16	6.07	0.01	1.88	0.38	1,263.12
Research & Dev at Westways	1.02	2.81	14.76	0.03	4.58	0.93	3,073.37
Crowley Tugboat	0.06	0.06	0.31	0.00	0.09	0.02	62.59
Outer Harbor Park	1.33	3.84	20.17	0.04	6.26	1.26	4,199.86
TOTALS (lbs/day, unmitigated)	159.53	339.05	1,794.95	3.74	552.92	111.79	371,582.23

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,500.00	10,950.00	105,448.50
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development		42.04	1000 sq ft	175.00	7,357.00	67,625.54

S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				33,883.20	316,400.23

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_4_2022_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 4 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	23.41	43.28	243.31	0.67	106.35	21.17	69,751.72

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	23.41	43.28	243.31	0.67	106.35	21.17	69,751.72

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	12.06	15.57	88.02	0.25	38.31	7.63	25,143.14
Los Angeles Maritime Institute	0.02	0.04	0.23	0.00	0.10	0.02	66.24
Conference Facilities at POC	0.57	0.92	5.12	0.01	2.25	0.45	1,474.05
San Pedro Park at 22nd & Miner St	0.26	0.63	3.53	0.01	1.55	0.31	1,014.71
Port of Call Restaurant Development	5.28	13.36	74.89	0.21	32.82	6.53	21,512.35

Port of Call Retail Development	3.70	9.22	51.66	0.15	22.64	4.51	14,839.34
S.S. Lane Victory	0.02	0.04	0.23	0.00	0.10	0.02	67.19
Ralph J Scott Fireboat Museum	0.02	0.04	0.23	0.00	0.10	0.02	67.19
Mercardo Warehouse 9 & 10 Reuse	0.39	0.93	5.22	0.01	2.28	0.45	1,496.74
Warehouse 9 & 10 Reuse	0.11	0.21	1.17	0.00	0.51	0.10	335.54
Red Car Museum	0.02	0.04	0.24	0.00	0.10	0.02	68.60
Red Car Maintenance Facility	0.10	0.19	1.10	0.00	0.47	0.09	310.82
Millennium Tugboat Office	0.07	0.14	0.81	0.00	0.35	0.07	230.88
Waterfront Promenade Town Sq	0.15	0.36	1.98	0.01	0.87	0.17	571.10
Fisherman Park	0.06	0.14	0.78	0.00	0.34	0.07	223.96
Research & Dev at Westways	0.48	1.20	6.71	0.02	2.95	0.59	1,931.77
Crowley Tugboat	0.02	0.04	0.23	0.00	0.10	0.02	64.06
Outer Harbor Park	0.08	0.21	1.16	0.00	0.51	0.10	334.04
TOTALS (tons/year, unmitigated)	23.41	43.28	243.31	0.67	106.35	21.17	69,751.72

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	8,580.00	12,526.80	120,633.08
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development		44.32	1000 sq ft	175.00	7,756.00	71,293.15

S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				35,792.20	334,946.58

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_4_2022_wkend.urb924

Project Name: San Pedro Waterfront Alternative 4 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	22.73	43.63	241.85	0.70	109.47	21.78	71,799.09

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	22.73	43.63	241.85	0.70	109.47	21.78	71,799.09

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	12.18	16.92	94.30	0.27	42.50	8.46	27,895.76
Los Angeles Maritime Institute	0.01	0.01	0.03	0.00	0.02	0.00	10.03
Conference Facilities at POC	0.37	0.45	2.47	0.01	1.12	0.22	736.94
San Pedro Park at 22nd & Miner St	0.53	1.38	7.58	0.02	3.45	0.69	2,259.81
Port of Call Restaurant Development	5.21	13.73	75.84	0.22	34.42	6.85	22,564.66

Port of Call Retail Development	3.32	8.56	47.31	0.14	21.47	4.27	14,074.45
S.S. Lane Victory	0.03	0.06	0.34	0.00	0.15	0.03	100.77
Ralph J Scott Fireboat Museum	0.03	0.06	0.34	0.00	0.15	0.03	100.77
Mercardo Warehouse 9 & 10 Reuse	0.35	0.86	4.78	0.01	2.17	0.43	1,419.63
Warehouse 9 & 10 Reuse	0.04	0.05	0.29	0.00	0.13	0.03	87.08
Red Car Museum	0.03	0.06	0.35	0.00	0.16	0.03	102.88
Red Car Maintenance Facility	0.09	0.19	1.06	0.00	0.47	0.09	311.83
Millennium Tugboat Office	0.03	0.02	0.13	0.00	0.06	0.01	38.94
Waterfront Promenade Town Sq	0.14	0.35	1.91	0.01	0.87	0.17	571.04
Fisherman Park	0.06	0.14	0.75	0.00	0.34	0.07	223.94
Research & Dev at Westways	0.13	0.33	1.83	0.01	0.83	0.17	544.87
Crowley Tugboat	0.01	0.01	0.04	0.00	0.02	0.00	11.10
Outer Harbor Park	0.17	0.45	2.50	0.01	1.14	0.23	744.59
TOTALS (tons/year, unmitigated)	22.73	43.63	241.85	0.70	109.47	21.78	71,799.09

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.62	passengers	8,580.00	13,899.60	133,853.15
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development		42.04	1000 sq ft	175.00	7,357.00	67,625.54

S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				36,832.80	344,804.88

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_4_2022_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 4 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	131.32	224.93	1,376.10	3.92	582.77	116.01	393,236.32

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	131.32	224.93	1,376.10	3.92	582.77	116.01	393,236.32

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	71.20	80.92	498.12	1.42	209.91	41.79	141,745.02
Los Angeles Maritime Institute	0.13	0.21	1.31	0.00	0.55	0.11	373.41
Conference Facilities at POC	3.25	4.76	28.96	0.08	12.33	2.45	8,310.37
San Pedro Park at 22nd & Miner St	1.36	3.28	19.94	0.06	8.48	1.69	5,720.73
Port of Call Restaurant Development	27.72	69.46	423.43	1.22	179.82	35.79	121,280.98

Port of Call Retail Development	19.53	47.92	292.08	0.84	124.04	24.69	83,660.28
S.S. Lane Victory	0.13	0.22	1.32	0.00	0.56	0.11	378.80
Ralph J Scott Fireboat Museum	0.13	0.22	1.32	0.00	0.56	0.11	378.80
Mercardo Warehouse 9 & 10 Reuse	2.05	4.83	29.49	0.08	12.51	2.49	8,438.19
Warehouse 9 & 10 Reuse	0.58	1.08	6.61	0.02	2.80	0.56	1,891.65
Red Car Museum	0.13	0.22	1.35	0.00	0.57	0.11	386.73
Red Car Maintenance Facility	0.55	0.98	6.23	0.02	2.59	0.52	1,752.10
Millennium Tugboat Office	0.40	0.73	4.63	0.01	1.92	0.38	1,301.46
Waterfront Promenade Town Sq	0.79	1.85	11.20	0.03	4.78	0.95	3,219.77
Fisherman Park	0.31	0.72	4.39	0.01	1.87	0.37	1,262.65
Research & Dev at Westways	2.50	6.25	37.89	0.11	16.16	3.22	10,891.02
Crowley Tugboat	0.11	0.20	1.28	0.00	0.53	0.11	361.11
Outer Harbor Park	0.45	1.08	6.55	0.02	2.79	0.56	1,883.25
TOTALS (lbs/day, unmitigated)	131.32	224.93	1,376.10	3.92	582.77	116.01	393,236.32

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	8,580.00	12,526.80	120,633.08
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development		44.32	1000 sq ft	175.00	7,756.00	71,293.15

S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				35,792.20	334,946.58

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_4_2022_wkend.urb924

Project Name: San Pedro Waterfront Alternative 4 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	127.43	226.83	1,370.60	4.07	599.81	119.34	404,817.62

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	127.43	226.83	1,370.60	4.07	599.81	119.34	404,817.62

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	71.56	87.95	534.73	1.58	232.87	46.33	157,278.15
Los Angeles Maritime Institute	0.06	0.03	0.19	0.00	0.08	0.02	56.58
Conference Facilities at POC	2.22	2.33	14.01	0.04	6.16	1.23	4,155.14
San Pedro Park at 22nd & Miner St	2.77	7.15	42.95	0.13	18.89	3.76	12,741.58
Port of Call Restaurant Development	27.35	71.38	429.65	1.28	188.60	37.52	127,225.87

Port of Call Retail Development	17.50	44.52	267.99	0.80	117.64	23.40	79,355.72
S.S. Lane Victory	0.16	0.32	1.91	0.01	0.84	0.17	568.19
Ralph J Scott Fireboat Museum	0.16	0.32	1.91	0.01	0.84	0.17	568.19
Mercardo Warehouse 9 & 10 Reuse	1.84	4.49	27.06	0.08	11.86	2.36	8,004.23
Warehouse 9 & 10 Reuse	0.26	0.28	1.66	0.00	0.73	0.14	490.99
Red Car Museum	0.17	0.33	1.96	0.01	0.86	0.17	580.09
Red Car Maintenance Facility	0.52	0.97	6.05	0.02	2.59	0.52	1,757.94
Millennium Tugboat Office	0.16	0.12	0.76	0.00	0.32	0.06	219.53
Waterfront Promenade Town Sq	0.75	1.81	10.83	0.03	4.78	0.95	3,219.73
Fisherman Park	0.29	0.71	4.25	0.01	1.87	0.37	1,262.64
Research & Dev at Westways	0.71	1.73	10.34	0.03	4.56	0.91	3,072.21
Crowley Tugboat	0.04	0.03	0.22	0.00	0.09	0.02	62.57
Outer Harbor Park	0.91	2.36	14.13	0.04	6.23	1.24	4,198.27
TOTALS (lbs/day, unmitigated)	127.43	226.83	1,370.60	4.07	599.81	119.34	404,817.62

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.62	passengers	8,580.00	13,899.60	133,853.15
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development		42.04	1000 sq ft	175.00	7,357.00	67,625.54

S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				36,832.80	344,804.88

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_4_2037_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 4 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	13.08	21.92	137.89	0.73	111.87	22.01	73,427.47

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	13.08	21.92	137.89	0.73	111.87	22.01	73,427.47

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	7.26	8.62	54.51	0.29	44.05	8.67	28,935.43
Los Angeles Maritime Institute	0.01	0.02	0.12	0.00	0.10	0.02	66.06
Conference Facilities at POC	0.29	0.44	2.75	0.01	2.24	0.44	1,470.20
San Pedro Park at 22nd & Miner St	0.13	0.30	1.89	0.01	1.54	0.30	1,012.06
Port of Call Restaurant Development	2.71	6.41	40.21	0.22	32.71	6.43	21,456.16

Port of Call Retail Development	1.91	4.42	27.74	0.15	22.56	4.44	14,800.57
S.S. Lane Victory	0.01	0.02	0.13	0.00	0.10	0.02	67.01
Ralph J Scott Fireboat Museum	0.01	0.02	0.13	0.00	0.10	0.02	67.01
Mercardo Warehouse 9 & 10 Reuse	0.20	0.45	2.80	0.02	2.28	0.45	1,492.83
Warehouse 9 & 10 Reuse	0.05	0.10	0.63	0.00	0.51	0.10	334.66
Red Car Museum	0.01	0.02	0.13	0.00	0.10	0.02	68.42
Red Car Maintenance Facility	0.05	0.09	0.59	0.00	0.47	0.09	310.01
Millennium Tugboat Office	0.04	0.07	0.44	0.00	0.35	0.07	230.28
Waterfront Promenade Town Sq	0.08	0.17	1.06	0.01	0.87	0.17	569.61
Fisherman Park	0.03	0.07	0.42	0.00	0.34	0.07	223.38
Research & Dev at Westways	0.24	0.58	3.60	0.02	2.94	0.58	1,926.73
Crowley Tugboat	0.01	0.02	0.12	0.00	0.10	0.02	63.89
Outer Harbor Park	0.04	0.10	0.62	0.00	0.51	0.10	333.16
TOTALS (tons/year, unmitigated)	13.08	21.92	137.89	0.73	111.87	22.01	73,427.47

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	9,900.00	14,454.00	139,192.02
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development		44.32	1000 sq ft	175.00	7,756.00	71,293.15

S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				37,719.40	353,505.52

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_4_2037_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 4 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	72.77	114.22	786.21	4.24	613.01	120.59	414,075.24

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	72.77	114.22	786.21	4.24	613.01	120.59	414,075.24

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	42.19	44.94	310.92	1.68	241.39	47.49	163,170.13
Los Angeles Maritime Institute	0.07	0.10	0.71	0.00	0.55	0.11	372.53
Conference Facilities at POC	1.66	2.29	15.68	0.09	12.28	2.42	8,291.01
San Pedro Park at 22nd & Miner St	0.69	1.58	10.80	0.06	8.46	1.66	5,707.40
Port of Call Restaurant Development	14.08	33.42	229.22	1.24	179.22	35.25	120,998.28

Port of Call Retail Development	9.93	23.05	158.11	0.86	123.63	24.31	83,465.27
S.S. Lane Victory	0.07	0.10	0.71	0.00	0.56	0.11	377.91
Ralph J Scott Fireboat Museum	0.07	0.10	0.71	0.00	0.56	0.11	377.91
Mercardo Warehouse 9 & 10 Reuse	1.04	2.32	15.96	0.09	12.47	2.45	8,418.52
Warehouse 9 & 10 Reuse	0.30	0.52	3.58	0.02	2.79	0.55	1,887.24
Red Car Museum	0.07	0.11	0.73	0.00	0.57	0.11	385.83
Red Car Maintenance Facility	0.28	0.47	3.37	0.02	2.58	0.51	1,748.02
Millennium Tugboat Office	0.20	0.35	2.50	0.01	1.91	0.38	1,298.42
Waterfront Promenade Town Sq	0.40	0.89	6.07	0.03	4.76	0.94	3,212.27
Fisherman Park	0.16	0.35	2.38	0.01	1.87	0.37	1,259.71
Research & Dev at Westways	1.27	3.01	20.52	0.11	16.10	3.17	10,865.66
Crowley Tugboat	0.06	0.10	0.69	0.00	0.53	0.10	360.27
Outer Harbor Park	0.23	0.52	3.55	0.02	2.78	0.55	1,878.86
TOTALS (lbs/day, unmitigated)	72.77	114.22	786.21	4.24	613.01	120.59	414,075.24

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	9,900.00	14,454.00	139,192.02
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	317.79
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development		44.32	1000 sq ft	175.00	7,756.00	71,293.15

S.S. Lane Victory	3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum	3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse	22.17	1000 sq ft	35.00	775.95	7,189.18
Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Museum	3.60	1000 sq ft	10.00	36.00	329.60
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				37,719.40	353,505.52

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_4_2037_wkend.urb924

Project Name: San Pedro Waterfront Alternative 4 2037 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	72.40	111.56	780.53	4.13	607.22	119.44	410,970.18

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	72.40	111.56	780.53	4.13	607.22	119.44	410,970.18

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	42.26	44.31	311.65	1.64	241.40	47.49	163,502.72
Los Angeles Maritime Institute	0.03	0.02	0.11	0.00	0.08	0.02	56.56
Conference Facilities at POC	1.19	1.13	7.86	0.04	6.14	1.21	4,153.94
San Pedro Park at 22nd & Miner St	1.49	3.46	24.10	0.13	18.84	3.70	12,737.89
Port of Call Restaurant Development	14.77	34.57	241.01	1.28	188.01	36.97	127,188.86

Port of Call Retail Development	9.45	21.56	150.33	0.80	117.27	23.06	79,332.64
S.S. Lane Victory	0.09	0.15	1.07	0.01	0.84	0.17	568.02
Ralph J Scott Fireboat Museum	0.09	0.15	1.07	0.01	0.84	0.17	568.02
Mercardo Warehouse 9 & 10 Reuse	0.99	2.17	15.18	0.08	11.83	2.33	8,001.89
Warehouse 9 & 10 Reuse	0.14	0.13	0.93	0.00	0.73	0.14	490.84
Red Car Museum	0.09	0.16	1.10	0.01	0.86	0.17	579.92
Red Car Maintenance Facility	0.28	0.47	3.39	0.02	2.59	0.51	1,757.39
Millennium Tugboat Office	0.08	0.06	0.42	0.00	0.32	0.06	219.46
Waterfront Promenade Town Sq	0.40	0.88	6.08	0.03	4.76	0.94	3,218.80
Fisherman Park	0.16	0.34	2.38	0.01	1.87	0.37	1,262.28
Research & Dev at Westways	0.38	0.84	5.80	0.03	4.54	0.89	3,071.33
Crowley Tugboat	0.02	0.02	0.12	0.00	0.09	0.02	62.55
Outer Harbor Park	0.49	1.14	7.93	0.04	6.21	1.22	4,197.07
TOTALS (lbs/day, unmitigated)	72.40	111.56	780.53	4.13	607.22	119.44	410,970.18

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	9,900.00	14,454.00	139,192.02
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	48.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development		42.04	1000 sq ft	175.00	7,357.00	67,625.54

S.S. Lane Victory	5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum	5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse	21.03	1000 sq ft	35.00	736.05	6,819.50
Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Museum	5.40	1000 sq ft	10.00	54.00	494.40
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	15.30	306.00	2,745.74
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				37,387.20	350,143.75

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Los Angeles Maritime Institute				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Museum				7.0	3.5	89.5
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_5_2015_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 5 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	28.67	65.19	318.46	0.63	100.93	20.40	65,946.70

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	28.67	65.19	318.46	0.63	100.93	20.40	65,946.70

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	13.39	21.70	106.58	0.22	33.63	6.80	21,990.46
Conference Facilities at POC	0.73	1.46	7.10	0.01	2.26	0.46	1,474.85
San Pedro Park at 22nd & Miner St	0.35	1.01	4.89	0.01	1.56	0.31	1,015.27
Port of Call Restaurant Development	7.27	21.30	103.75	0.21	32.96	6.66	21,524.17
Port of Call Retail Development	5.08	14.69	71.57	0.15	22.74	4.60	14,847.49

S.S. Lane Victory	0.03	0.07	0.32	0.00	0.10	0.02	67.22
Ralph J Scott Fireboat Museum	0.03	0.07	0.32	0.00	0.10	0.02	67.22
Mercardo Warehouse 9 & 10 Reuse	0.53	1.48	7.23	0.01	2.29	0.46	1,497.57
Warehouse 9 & 10 Reuse	0.14	0.33	1.62	0.00	0.51	0.10	335.72
Red Car Maintenance Facility	0.13	0.30	1.52	0.00	0.47	0.10	311.00
Millennium Tugboat Office	0.10	0.22	1.13	0.00	0.35	0.07	231.01
Waterfront Promenade Town Sq	0.01	0.03	0.14	0.00	0.05	0.01	29.50
Fisherman Park	0.08	0.22	1.08	0.00	0.34	0.07	224.08
Research & Dev at Westways	0.65	1.92	9.29	0.02	2.96	0.60	1,932.82
Crowley Tugboat	0.03	0.06	0.31	0.00	0.10	0.02	64.10
Outer Harbor Park	0.12	0.33	1.61	0.00	0.51	0.10	334.22
TOTALS (tons/year, unmitigated)	28.67	65.19	318.46	0.63	100.93	20.40	65,946.70

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,500.00	10,950.00	105,448.50
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development		44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum		3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse		22.17	1000 sq ft	35.00	775.95	7,189.18

Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	0.79	15.80	141.77
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				33,856.20	316,510.64

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_5_2015_wkend.urb924

Project Name: San Pedro Waterfront Alternative 5 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	28.44	64.54	315.15	0.64	99.90	20.20	65,267.67

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	28.44	64.54	315.15	0.64	99.90	20.20	65,267.67

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	13.39	21.70	106.58	0.22	33.63	6.80	21,990.46
Conference Facilities at POC	0.49	0.73	3.55	0.01	1.13	0.23	737.43
San Pedro Park at 22nd & Miner St	0.77	2.24	10.88	0.02	3.46	0.70	2,261.29
Port of Call Restaurant Development	7.62	22.35	108.84	0.22	34.58	6.99	22,579.44
Port of Call Retail Development	4.83	13.94	67.89	0.14	21.57	4.36	14,083.68

S.S. Lane Victory	0.04	0.10	0.48	0.00	0.15	0.03	100.84
Ralph J Scott Fireboat Museum	0.04	0.10	0.48	0.00	0.15	0.03	100.84
Mercardo Warehouse 9 & 10 Reuse	0.50	1.41	6.85	0.01	2.17	0.44	1,420.56
Warehouse 9 & 10 Reuse	0.06	0.09	0.42	0.00	0.13	0.03	87.14
Red Car Maintenance Facility	0.13	0.30	1.52	0.00	0.48	0.10	312.03
Millennium Tugboat Office	0.03	0.04	0.19	0.00	0.06	0.01	38.97
Waterfront Promenade Town Sq	0.01	0.03	0.14	0.00	0.05	0.01	29.50
Fisherman Park	0.08	0.22	1.08	0.00	0.34	0.07	224.08
Research & Dev at Westways	0.19	0.54	2.62	0.01	0.84	0.17	545.23
Crowley Tugboat	0.01	0.01	0.05	0.00	0.02	0.00	11.11
Outer Harbor Park	0.25	0.74	3.58	0.01	1.14	0.23	745.07
TOTALS (tons/year, unmitigated)	28.44	64.54	315.15	0.64	99.90	20.20	65,267.67

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,500.00	10,950.00	105,448.50
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development		42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum		5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse		21.03	1000 sq ft	35.00	736.05	6,819.50

Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	0.79	15.80	141.77
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				33,534.00	313,253.71

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_5_2015_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 5 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	159.37	339.16	1,795.74	3.72	553.10	111.81	371,718.19

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	159.37	339.16	1,795.74	3.72	553.10	111.81	371,718.19

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	78.48	112.86	601.45	1.25	184.28	37.26	123,949.31
Conference Facilities at POC	4.18	7.60	40.00	0.08	12.38	2.50	8,313.42
San Pedro Park at 22nd & Miner St	1.87	5.23	27.54	0.06	8.52	1.72	5,722.83
Port of Call Restaurant Development	38.19	110.82	584.81	1.22	180.60	36.51	121,325.65
Port of Call Retail Development	26.82	76.45	403.41	0.84	124.58	25.18	83,691.10

S.S. Lane Victory	0.17	0.35	1.82	0.00	0.56	0.11	378.93
Ralph J Scott Fireboat Museum	0.17	0.35	1.82	0.00	0.56	0.11	378.93
Mercardo Warehouse 9 & 10 Reuse	2.80	7.71	40.74	0.08	12.56	2.54	8,441.31
Warehouse 9 & 10 Reuse	0.77	1.73	9.13	0.02	2.82	0.57	1,892.35
Red Car Maintenance Facility	0.72	1.57	8.61	0.02	2.60	0.53	1,752.78
Millennium Tugboat Office	0.52	1.17	6.39	0.01	1.93	0.39	1,301.96
Waterfront Promenade Town Sq	0.06	0.15	0.80	0.00	0.25	0.05	166.31
Fisherman Park	0.42	1.16	6.07	0.01	1.88	0.38	1,263.12
Research & Dev at Westways	3.44	9.97	52.33	0.11	16.23	3.28	10,895.00
Crowley Tugboat	0.15	0.32	1.77	0.00	0.54	0.11	361.25
Outer Harbor Park	0.61	1.72	9.05	0.02	2.81	0.57	1,883.94
TOTALS (lbs/day, unmitigated)	159.37	339.16	1,795.74	3.72	553.10	111.81	371,718.19

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,500.00	10,950.00	105,448.50
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development		44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum		3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse		22.17	1000 sq ft	35.00	775.95	7,189.18

Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	0.79	15.80	141.77
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				33,856.20	316,510.64

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9

Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_5_2015_wkend.urb924

Project Name: San Pedro Waterfront Alternative 5 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	158.21	335.67	1,777.21	3.70	547.43	110.68	367,890.69

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	158.21	335.67	1,777.21	3.70	547.43	110.68	367,890.69

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	78.48	112.86	601.45	1.25	184.28	37.26	123,949.31
Conference Facilities at POC	2.89	3.80	20.00	0.04	6.19	1.25	4,156.71
San Pedro Park at 22nd & Miner St	4.04	11.65	61.33	0.13	18.98	3.84	12,746.39
Port of Call Restaurant Development	40.03	116.26	613.48	1.28	189.46	38.30	127,273.92
Port of Call Retail Development	25.49	72.51	382.65	0.80	118.17	23.89	79,385.69

S.S. Lane Victory	0.23	0.52	2.73	0.01	0.85	0.17	568.40
Ralph J Scott Fireboat Museum	0.23	0.52	2.73	0.01	0.85	0.17	568.40
Mercardo Warehouse 9 & 10 Reuse	2.66	7.31	38.64	0.08	11.92	2.41	8,007.25
Warehouse 9 & 10 Reuse	0.34	0.45	2.37	0.00	0.73	0.15	491.17
Red Car Maintenance Facility	0.73	1.57	8.64	0.02	2.61	0.53	1,758.59
Millennium Tugboat Office	0.20	0.20	1.08	0.00	0.33	0.07	219.61
Waterfront Promenade Town Sq	0.06	0.15	0.80	0.00	0.25	0.05	166.31
Fisherman Park	0.42	1.16	6.07	0.01	1.88	0.38	1,263.12
Research & Dev at Westways	1.02	2.81	14.76	0.03	4.58	0.93	3,073.37
Crowley Tugboat	0.06	0.06	0.31	0.00	0.09	0.02	62.59
Outer Harbor Park	1.33	3.84	20.17	0.04	6.26	1.26	4,199.86
TOTALS (lbs/day, unmitigated)	158.21	335.67	1,777.21	3.70	547.43	110.68	367,890.69

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	7,500.00	10,950.00	105,448.50
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development		42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum		5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse		21.03	1000 sq ft	35.00	736.05	6,819.50

Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	0.79	15.80	141.77
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				33,534.00	313,253.71

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_5_2022_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 5 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	23.23	42.86	240.96	0.66	105.33	20.97	69,075.27

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	23.23	42.86	240.96	0.66	105.33	20.97	69,075.27

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	12.06	15.57	88.02	0.25	38.31	7.63	25,143.14
Conference Facilities at POC	0.57	0.92	5.12	0.01	2.25	0.45	1,474.05
San Pedro Park at 22nd & Miner St	0.26	0.63	3.53	0.01	1.55	0.31	1,014.71
Port of Call Restaurant Development	5.28	13.36	74.89	0.21	32.82	6.53	21,512.35
Port of Call Retail Development	3.70	9.22	51.66	0.15	22.64	4.51	14,839.34

S.S. Lane Victory	0.02	0.04	0.23	0.00	0.10	0.02	67.19
Ralph J Scott Fireboat Museum	0.02	0.04	0.23	0.00	0.10	0.02	67.19
Mercardo Warehouse 9 & 10 Reuse	0.39	0.93	5.22	0.01	2.28	0.45	1,496.74
Warehouse 9 & 10 Reuse	0.11	0.21	1.17	0.00	0.51	0.10	335.54
Red Car Maintenance Facility	0.10	0.19	1.10	0.00	0.47	0.09	310.82
Millennium Tugboat Office	0.07	0.14	0.81	0.00	0.35	0.07	230.88
Waterfront Promenade Town Sq	0.01	0.02	0.10	0.00	0.05	0.01	29.49
Fisherman Park	0.06	0.14	0.78	0.00	0.34	0.07	223.96
Research & Dev at Westways	0.48	1.20	6.71	0.02	2.95	0.59	1,931.77
Crowley Tugboat	0.02	0.04	0.23	0.00	0.10	0.02	64.06
Outer Harbor Park	0.08	0.21	1.16	0.00	0.51	0.10	334.04
TOTALS (tons/year, unmitigated)	23.23	42.86	240.96	0.66	105.33	20.97	69,075.27

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	8,580.00	12,526.80	120,633.08
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development		44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum		3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse		22.17	1000 sq ft	35.00	775.95	7,189.18

Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	0.79	15.80	141.77
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				35,433.00	331,695.22

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_5_2022_wkend.urb924

Project Name: San Pedro Waterfront Alternative 5 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	22.56	43.23	239.66	0.69	108.47	21.59	71,144.62

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	22.56	43.23	239.66	0.69	108.47	21.59	71,144.62

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	12.18	16.92	94.30	0.27	42.50	8.46	27,895.76
Conference Facilities at POC	0.37	0.45	2.47	0.01	1.12	0.22	736.94
San Pedro Park at 22nd & Miner St	0.53	1.38	7.58	0.02	3.45	0.69	2,259.81
Port of Call Restaurant Development	5.21	13.73	75.84	0.22	34.42	6.85	22,564.66
Port of Call Retail Development	3.32	8.56	47.31	0.14	21.47	4.27	14,074.45

S.S. Lane Victory	0.03	0.06	0.34	0.00	0.15	0.03	100.77
Ralph J Scott Fireboat Museum	0.03	0.06	0.34	0.00	0.15	0.03	100.77
Mercardo Warehouse 9 & 10 Reuse	0.35	0.86	4.78	0.01	2.17	0.43	1,419.63
Warehouse 9 & 10 Reuse	0.04	0.05	0.29	0.00	0.13	0.03	87.08
Red Car Maintenance Facility	0.09	0.19	1.06	0.00	0.47	0.09	311.83
Millennium Tugboat Office	0.03	0.02	0.13	0.00	0.06	0.01	38.94
Waterfront Promenade Town Sq	0.01	0.02	0.10	0.00	0.05	0.01	29.48
Fisherman Park	0.06	0.14	0.75	0.00	0.34	0.07	223.94
Research & Dev at Westways	0.13	0.33	1.83	0.01	0.83	0.17	544.87
Crowley Tugboat	0.01	0.01	0.04	0.00	0.02	0.00	11.10
Outer Harbor Park	0.17	0.45	2.50	0.01	1.14	0.23	744.59
TOTALS (tons/year, unmitigated)	22.56	43.23	239.66	0.69	108.47	21.59	71,144.62

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.62	passengers	8,580.00	13,899.60	133,853.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development		42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum		5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse		21.03	1000 sq ft	35.00	736.05	6,819.50

Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	0.79	15.80	141.77
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				36,483.60	341,658.36

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_5_2022_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 5 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	130.31	222.75	1,362.82	3.89	577.12	114.89	389,422.66

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	130.31	222.75	1,362.82	3.89	577.12	114.89	389,422.66

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	71.20	80.92	498.12	1.42	209.91	41.79	141,745.02
Conference Facilities at POC	3.25	4.76	28.96	0.08	12.33	2.45	8,310.37
San Pedro Park at 22nd & Miner St	1.36	3.28	19.94	0.06	8.48	1.69	5,720.73
Port of Call Restaurant Development	27.72	69.46	423.43	1.22	179.82	35.79	121,280.98
Port of Call Retail Development	19.53	47.92	292.08	0.84	124.04	24.69	83,660.28

S.S. Lane Victory	0.13	0.22	1.32	0.00	0.56	0.11	378.80
Ralph J Scott Fireboat Museum	0.13	0.22	1.32	0.00	0.56	0.11	378.80
Mercardo Warehouse 9 & 10 Reuse	2.05	4.83	29.49	0.08	12.51	2.49	8,438.19
Warehouse 9 & 10 Reuse	0.58	1.08	6.61	0.02	2.80	0.56	1,891.65
Red Car Maintenance Facility	0.55	0.98	6.23	0.02	2.59	0.52	1,752.10
Millennium Tugboat Office	0.40	0.73	4.63	0.01	1.92	0.38	1,301.46
Waterfront Promenade Town Sq	0.04	0.10	0.58	0.00	0.25	0.05	166.25
Fisherman Park	0.31	0.72	4.39	0.01	1.87	0.37	1,262.65
Research & Dev at Westways	2.50	6.25	37.89	0.11	16.16	3.22	10,891.02
Crowley Tugboat	0.11	0.20	1.28	0.00	0.53	0.11	361.11
Outer Harbor Park	0.45	1.08	6.55	0.02	2.79	0.56	1,883.25
TOTALS (lbs/day, unmitigated)	130.31	222.75	1,362.82	3.89	577.12	114.89	389,422.66

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	8,580.00	12,526.80	120,633.08
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development		44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum		3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse		22.17	1000 sq ft	35.00	775.95	7,189.18

Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	0.79	15.80	141.77
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				35,433.00	331,695.22

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_5_2022_wkend.urb924

Project Name: San Pedro Waterfront Alternative 5 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	126.49	224.75	1,358.18	4.03	594.34	118.25	401,127.47

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	126.49	224.75	1,358.18	4.03	594.34	118.25	401,127.47

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	71.56	87.95	534.73	1.58	232.87	46.33	157,278.15
Conference Facilities at POC	2.22	2.33	14.01	0.04	6.16	1.23	4,155.14
San Pedro Park at 22nd & Miner St	2.77	7.15	42.95	0.13	18.89	3.76	12,741.58
Port of Call Restaurant Development	27.35	71.38	429.65	1.28	188.60	37.52	127,225.87
Port of Call Retail Development	17.50	44.52	267.99	0.80	117.64	23.40	79,355.72

S.S. Lane Victory	0.16	0.32	1.91	0.01	0.84	0.17	568.19
Ralph J Scott Fireboat Museum	0.16	0.32	1.91	0.01	0.84	0.17	568.19
Mercardo Warehouse 9 & 10 Reuse	1.84	4.49	27.06	0.08	11.86	2.36	8,004.23
Warehouse 9 & 10 Reuse	0.26	0.28	1.66	0.00	0.73	0.14	490.99
Red Car Maintenance Facility	0.52	0.97	6.05	0.02	2.59	0.52	1,757.94
Millennium Tugboat Office	0.16	0.12	0.76	0.00	0.32	0.06	219.53
Waterfront Promenade Town Sq	0.04	0.09	0.56	0.00	0.25	0.05	166.25
Fisherman Park	0.29	0.71	4.25	0.01	1.87	0.37	1,262.64
Research & Dev at Westways	0.71	1.73	10.34	0.03	4.56	0.91	3,072.21
Crowley Tugboat	0.04	0.03	0.22	0.00	0.09	0.02	62.57
Outer Harbor Park	0.91	2.36	14.13	0.04	6.23	1.24	4,198.27
TOTALS (lbs/day, unmitigated)	126.49	224.75	1,358.18	4.03	594.34	118.25	401,127.47

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.62	passengers	8,580.00	13,899.60	133,853.15
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development		42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum		5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse		21.03	1000 sq ft	35.00	736.05	6,819.50

Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	0.79	15.80	141.77
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				36,483.60	341,658.36

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_5_2037_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 5 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	12.98	21.72	136.63	0.72	110.84	21.81	72,752.79

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	12.98	21.72	136.63	0.72	110.84	21.81	72,752.79

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	7.26	8.62	54.51	0.29	44.05	8.67	28,935.43
Conference Facilities at POC	0.29	0.44	2.75	0.01	2.24	0.44	1,470.20
San Pedro Park at 22nd & Miner St	0.13	0.30	1.89	0.01	1.54	0.30	1,012.06
Port of Call Restaurant Development	2.71	6.41	40.21	0.22	32.71	6.43	21,456.16
Port of Call Retail Development	1.91	4.42	27.74	0.15	22.56	4.44	14,800.57

S.S. Lane Victory	0.01	0.02	0.13	0.00	0.10	0.02	67.01
Ralph J Scott Fireboat Museum	0.01	0.02	0.13	0.00	0.10	0.02	67.01
Mercardo Warehouse 9 & 10 Reuse	0.20	0.45	2.80	0.02	2.28	0.45	1,492.83
Warehouse 9 & 10 Reuse	0.05	0.10	0.63	0.00	0.51	0.10	334.66
Red Car Maintenance Facility	0.05	0.09	0.59	0.00	0.47	0.09	310.01
Millennium Tugboat Office	0.04	0.07	0.44	0.00	0.35	0.07	230.28
Waterfront Promenade Town Sq	0.00	0.01	0.05	0.00	0.04	0.01	29.41
Fisherman Park	0.03	0.07	0.42	0.00	0.34	0.07	223.38
Research & Dev at Westways	0.24	0.58	3.60	0.02	2.94	0.58	1,926.73
Crowley Tugboat	0.01	0.02	0.12	0.00	0.10	0.02	63.89
Outer Harbor Park	0.04	0.10	0.62	0.00	0.51	0.10	333.16
TOTALS (tons/year, unmitigated)	12.98	21.72	136.63	0.72	110.84	21.81	72,752.79

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	9,900.00	14,454.00	139,192.02
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development		44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum		3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse		22.17	1000 sq ft	35.00	775.95	7,189.18

Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	0.79	15.80	141.77
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				37,360.20	350,254.16

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_5_2037_wkend.urb924

Project Name: San Pedro Waterfront Alternative 5 2037 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	12.92	21.21	135.66	0.70	109.81	21.60	72,217.97

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	12.92	21.21	135.66	0.70	109.81	21.60	72,217.97

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	7.27	8.50	54.63	0.28	44.06	8.67	28,992.52
Conference Facilities at POC	0.20	0.22	1.38	0.01	1.12	0.22	736.55
San Pedro Park at 22nd & Miner St	0.29	0.66	4.23	0.02	3.44	0.68	2,258.59
Port of Call Restaurant Development	2.85	6.63	42.28	0.22	34.31	6.75	22,552.43
Port of Call Retail Development	1.81	4.13	26.37	0.14	21.40	4.21	14,066.83

S.S. Lane Victory	0.02	0.03	0.19	0.00	0.15	0.03	100.72
Ralph J Scott Fireboat Museum	0.02	0.03	0.19	0.00	0.15	0.03	100.72
Mercardo Warehouse 9 & 10 Reuse	0.19	0.42	2.66	0.01	2.16	0.42	1,418.86
Warehouse 9 & 10 Reuse	0.02	0.03	0.16	0.00	0.13	0.03	87.03
Red Car Maintenance Facility	0.05	0.09	0.59	0.00	0.47	0.09	311.65
Millennium Tugboat Office	0.01	0.01	0.07	0.00	0.06	0.01	38.92
Waterfront Promenade Town Sq	0.00	0.01	0.06	0.00	0.04	0.01	29.47
Fisherman Park	0.03	0.07	0.42	0.00	0.34	0.07	223.82
Research & Dev at Westways	0.07	0.16	1.02	0.01	0.83	0.16	544.58
Crowley Tugboat	0.00	0.00	0.02	0.00	0.02	0.00	11.09
Outer Harbor Park	0.09	0.22	1.39	0.01	1.13	0.22	744.19
TOTALS (tons/year, unmitigated)	12.92	21.21	135.66	0.70	109.81	21.60	72,217.97

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	9,900.00	14,454.00	139,192.02
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development		42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum		5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse		21.03	1000 sq ft	35.00	736.05	6,819.50

Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	0.79	15.80	141.77
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				37,038.00	346,997.23

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_5_2037_wkdy.urb924

Project Name: San Pedro Waterfront Alternative 5 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	72.25	113.17	779.01	4.21	607.38	119.48	410,270.47

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	72.25	113.17	779.01	4.21	607.38	119.48	410,270.47

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	42.19	44.94	310.92	1.68	241.39	47.49	163,170.13
Conference Facilities at POC	1.66	2.29	15.68	0.09	12.28	2.42	8,291.01
San Pedro Park at 22nd & Miner St	0.69	1.58	10.80	0.06	8.46	1.66	5,707.40
Port of Call Restaurant Development	14.08	33.42	229.22	1.24	179.22	35.25	120,998.28
Port of Call Retail Development	9.93	23.05	158.11	0.86	123.63	24.31	83,465.27

S.S. Lane Victory	0.07	0.10	0.71	0.00	0.56	0.11	377.91
Ralph J Scott Fireboat Museum	0.07	0.10	0.71	0.00	0.56	0.11	377.91
Mercardo Warehouse 9 & 10 Reuse	1.04	2.32	15.96	0.09	12.47	2.45	8,418.52
Warehouse 9 & 10 Reuse	0.30	0.52	3.58	0.02	2.79	0.55	1,887.24
Red Car Maintenance Facility	0.28	0.47	3.37	0.02	2.58	0.51	1,748.02
Millennium Tugboat Office	0.20	0.35	2.50	0.01	1.91	0.38	1,298.42
Waterfront Promenade Town Sq	0.02	0.05	0.31	0.00	0.25	0.05	165.86
Fisherman Park	0.16	0.35	2.38	0.01	1.87	0.37	1,259.71
Research & Dev at Westways	1.27	3.01	20.52	0.11	16.10	3.17	10,865.66
Crowley Tugboat	0.06	0.10	0.69	0.00	0.53	0.10	360.27
Outer Harbor Park	0.23	0.52	3.55	0.02	2.78	0.55	1,878.86
TOTALS (lbs/day, unmitigated)	72.25	113.17	779.01	4.21	607.38	119.48	410,270.47

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	9,900.00	14,454.00	139,192.02
Conference Facilities at POC		2.60	attendees	300.00	780.00	7,084.35
San Pedro Park at 22nd & Miner St		29.83	acres	18.00	536.94	4,876.76
Port of Call Restaurant Development		89.95	1000 sq ft	125.00	11,243.75	103,352.54
Port of Call Retail Development		44.32	1000 sq ft	175.00	7,756.00	71,293.15
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Ralph J Scott Fireboat Museum		3.60	1000 sq ft	10.00	36.00	323.03
Mercardo Warehouse 9 & 10 Reuse		22.17	1000 sq ft	35.00	775.95	7,189.18

Warehouse 9 & 10 Reuse	4.97	1000 sq ft	35.00	173.95	1,611.65
Red Car Maintenance Facility	3.02	employees	37.00	111.74	1,486.14
Millennium Tugboat Office	3.32	employees	25.00	83.00	1,103.90
Waterfront Promenade Town Sq	20.00	acres	0.79	15.80	141.77
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	79.62	acres	13.00	1,035.06	9,287.59
Crowley Tugboat	3.29	employees	7.00	23.03	306.30
Outer Harbor Park	29.83	acres	6.00	178.98	1,605.99
				37,360.20	350,254.16

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_Alternative_5_2037_wkend.urb924

Project Name: San Pedro Waterfront Alternative 5 2037 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	71.90	110.55	773.55	4.09	601.77	118.36	407,281.10

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	71.90	110.55	773.55	4.09	601.77	118.36	407,281.10

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Cruise Ship Terminal Berth 91-93	42.26	44.31	311.65	1.64	241.40	47.49	163,502.72
Conference Facilities at POC	1.19	1.13	7.86	0.04	6.14	1.21	4,153.94
San Pedro Park at 22nd & Miner St	1.49	3.46	24.10	0.13	18.84	3.70	12,737.89
Port of Call Restaurant Development	14.77	34.57	241.01	1.28	188.01	36.97	127,188.86
Port of Call Retail Development	9.45	21.56	150.33	0.80	117.27	23.06	79,332.64

S.S. Lane Victory	0.09	0.15	1.07	0.01	0.84	0.17	568.02
Ralph J Scott Fireboat Museum	0.09	0.15	1.07	0.01	0.84	0.17	568.02
Mercardo Warehouse 9 & 10 Reuse	0.99	2.17	15.18	0.08	11.83	2.33	8,001.89
Warehouse 9 & 10 Reuse	0.14	0.13	0.93	0.00	0.73	0.14	490.84
Red Car Maintenance Facility	0.28	0.47	3.39	0.02	2.59	0.51	1,757.39
Millennium Tugboat Office	0.08	0.06	0.42	0.00	0.32	0.06	219.46
Waterfront Promenade Town Sq	0.02	0.05	0.31	0.00	0.25	0.05	166.20
Fisherman Park	0.16	0.34	2.38	0.01	1.87	0.37	1,262.28
Research & Dev at Westways	0.38	0.84	5.80	0.03	4.54	0.89	3,071.33
Crowley Tugboat	0.02	0.02	0.12	0.00	0.09	0.02	62.55
Outer Harbor Park	0.49	1.14	7.93	0.04	6.21	1.22	4,197.07
TOTALS (lbs/day, unmitigated)	71.90	110.55	773.55	4.09	601.77	118.36	407,281.10

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Cruise Ship Terminal Berth 91-93		1.46	passengers	9,900.00	14,454.00	139,192.02
Conference Facilities at POC		1.30	attendees	300.00	390.00	3,542.17
San Pedro Park at 22nd & Miner St		66.44	acres	18.00	1,195.92	10,861.94
Port of Call Restaurant Development		94.36	1000 sq ft	125.00	11,795.00	108,419.64
Port of Call Retail Development		42.04	1000 sq ft	175.00	7,357.00	67,625.54
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Ralph J Scott Fireboat Museum		5.40	1000 sq ft	10.00	54.00	484.54
Mercardo Warehouse 9 & 10 Reuse		21.03	1000 sq ft	35.00	736.05	6,819.50

Warehouse 9 & 10 Reuse	1.29	1000 sq ft	35.00	45.15	418.31
Red Car Maintenance Facility	3.03	employees	37.00	112.11	1,491.06
Millennium Tugboat Office	0.56	employees	25.00	14.00	186.20
Waterfront Promenade Town Sq	20.00	acres	0.79	15.80	141.77
Fisherman Park	20.00	acres	6.00	120.00	1,076.76
Research & Dev at Westways	22.46	acres	13.00	291.98	2,619.94
Crowley Tugboat	0.57	employees	7.00	3.99	53.07
Outer Harbor Park	66.50	acres	6.00	399.00	3,580.23
				37,038.00	346,997.23

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Cruise Ship Terminal Berth 91-93				20.0	10.0	70.0
Conference Facilities at POC				5.0	2.5	92.5
San Pedro Park at 22nd & Miner St				5.0	2.5	92.5
Port of Call Restaurant Development				8.0	4.0	88.0
Port of Call Retail Development				8.0	4.0	88.0
S.S. Lane Victory				2.0	1.0	97.0
Ralph J Scott Fireboat Museum				2.0	1.0	97.0
Mercardo Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Warehouse 9 & 10 Reuse				10.0	5.0	85.0
Red Car Maintenance Facility				100.0	0.0	0.0
Millennium Tugboat Office				100.0	0.0	0.0
Waterfront Promenade Town Sq				2.0	1.0	97.0
Fisherman Park				2.0	1.0	97.0
Research & Dev at Westways				2.0	1.0	97.0
Crowley Tugboat				100.0	0.0	0.0
Outer Harbor Park				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_No_Project_2015_wkdy.urb924

Project Name: San Pedro Waterfront No Project 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	18.08	35.01	170.01	0.34	54.12	10.94	35,333.03

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	18.08	35.01	170.01	0.34	54.12	10.94	35,333.03

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Port of Call Resturant Development	3.49	10.23	49.80	0.10	15.82	3.20	10,331.60
Port of Call Retail Development	1.15	3.32	16.14	0.03	5.14	1.04	3,352.84
Downtown Harbor Docking Slips	0.03	0.07	0.33	0.00	0.10	0.02	68.07
Port of Call Docking Slips	0.34	0.70	3.39	0.01	1.08	0.22	705.21
Temporary Red Car Maint Facility	0.03	0.07	0.36	0.00	0.11	0.02	74.02
Warehouses 9 & 10 Operations	0.06	0.13	0.64	0.00	0.20	0.04	130.59

S.S. Lane Victory	0.03	0.07	0.32	0.00	0.10	0.02	67.22
Cruise Ship Terminal Berth 87-93	12.88	20.27	98.27	0.20	31.33	6.33	20,447.53
Los Angeles Maritime Institute	0.04	0.09	0.45	0.00	0.14	0.03	91.85
Crowley Tugboat Office	0.03	0.06	0.31	0.00	0.10	0.02	64.10
TOTALS (tons/year, unmitigated)	18.08	35.01	170.01	0.34	54.12	10.94	35,333.03

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		89.95	1000 sq ft	60.00	5,397.00	49,609.22
Port of Call Retail Development		44.33	1000 sq ft	40.00	1,773.20	16,105.09
Downtown Harbor Docking Slips		3.00	slips	12.00	36.00	326.97
Port of Call Docking Slips		2.96	slips	126.00	372.96	3,387.41
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Warehouses 9 & 10 Operations		3.00	employees	20.00	60.00	624.88
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Cruise Ship Terminal Berth 87-93		1.46	passengers	7,500.00	10,950.00	98,254.35
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	438.90
Crowley Tugboat Office		3.29	employees	7.00	23.03	306.30
					18,714.19	169,730.08

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0

Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Port of Call Resturant Development	8.0	4.0	88.0
Port of Call Retail Development	5.0	2.5	92.5
Downtown Harbor Docking Slips	5.0	2.5	92.5
Port of Call Docking Slips	5.0	2.5	92.5
Temporary Red Car Maint Facility	50.0	25.0	25.0
Warehouses 9 & 10 Operations	41.5	20.8	37.8
S.S. Lane Victory	2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93	2.0	1.0	97.0
Los Angeles Maritime Institute	100.0	0.0	0.0
Crowley Tugboat Office	100.0	0.0	0.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_No_Project_2015_wkend.urb924

Project Name: San Pedro Waterfront No Project 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	18.14	35.21	171.04	0.35	54.46	10.99	35,551.51

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	18.14	35.21	171.04	0.35	54.46	10.99	35,551.51

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Port of Call Resturant Development	3.66	10.73	52.25	0.11	16.60	3.36	10,839.28
Port of Call Retail Development	1.09	3.15	15.31	0.03	4.87	0.98	3,180.39
Downtown Harbor Docking Slips	0.03	0.07	0.35	0.00	0.11	0.02	73.74
Port of Call Docking Slips	0.36	0.76	3.69	0.01	1.18	0.24	767.15
Temporary Red Car Maint Facility	0.03	0.07	0.36	0.00	0.11	0.02	74.02
Warehouses 9 & 10 Operations	0.03	0.04	0.21	0.00	0.07	0.01	43.53

S.S. Lane Victory	0.04	0.10	0.48	0.00	0.15	0.03	100.84
Cruise Ship Terminal Berth 87-93	12.88	20.27	98.27	0.20	31.33	6.33	20,447.53
Los Angeles Maritime Institute	0.01	0.01	0.07	0.00	0.02	0.00	13.92
Crowley Tugboat Office	0.01	0.01	0.05	0.00	0.02	0.00	11.11
TOTALS (tons/year, unmitigated)	18.14	35.21	171.04	0.35	54.46	10.99	35,551.51

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		94.37	1000 sq ft	60.00	5,662.20	52,046.94
Port of Call Retail Development		42.05	1000 sq ft	40.00	1,682.00	15,276.76
Downtown Harbor Docking Slips		3.25	slips	12.00	39.00	354.22
Port of Call Docking Slips		3.22	slips	126.00	405.72	3,684.95
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Warehouses 9 & 10 Operations		1.00	employees	20.00	20.00	208.29
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Cruise Ship Terminal Berth 87-93		1.46	passengers	7,500.00	10,950.00	98,254.35
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	66.50
Crowley Tugboat Office		0.57	employees	7.00	3.99	53.07
					18,854.91	170,783.55

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0

Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commuter	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Port of Call Resturant Development				8.0	4.0	88.0
Port of Call Retail Development				5.0	2.5	92.5
Downtown Harbor Docking Slips				5.0	2.5	92.5
Port of Call Docking Slips				5.0	2.5	92.5
Temporary Red Car Maint Facility				50.0	25.0	25.0
Warehouses 9 & 10 Operations				41.5	20.8	37.8
S.S. Lane Victory				2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93				2.0	1.0	97.0
Los Angeles Maritime Institute				100.0	0.0	0.0
Crowley Tugboat Office				100.0	0.0	0.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_No_Project_2015_wkdy.urb924

Project Name: San Pedro Waterfront No Project 2015 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	103.36	182.10	957.99	2.00	296.59	59.96	199,164.61

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	103.36	182.10	957.99	2.00	296.59	59.96	199,164.61

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Port of Call Resturant Development	18.33	53.20	280.71	0.59	86.69	17.52	58,236.31
Port of Call Retail Development	6.06	17.28	90.94	0.19	28.14	5.69	18,899.17
Downtown Harbor Docking Slips	0.18	0.35	1.85	0.00	0.57	0.12	383.70
Port of Call Docking Slips	1.90	3.63	19.13	0.04	5.92	1.20	3,975.09
Temporary Red Car Maint Facility	0.19	0.38	2.05	0.00	0.62	0.13	417.19
Warehouses 9 & 10 Operations	0.33	0.67	3.61	0.01	1.09	0.22	736.05

S.S. Lane Victory	0.17	0.35	1.82	0.00	0.56	0.11	378.93
Cruise Ship Terminal Berth 87-93	75.84	105.46	553.57	1.16	171.69	34.70	115,259.27
Los Angeles Maritime Institute	0.21	0.46	2.54	0.01	0.77	0.16	517.65
Crowley Tugboat Office	0.15	0.32	1.77	0.00	0.54	0.11	361.25
TOTALS (lbs/day, unmitigated)	103.36	182.10	957.99	2.00	296.59	59.96	199,164.61

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		89.95	1000 sq ft	60.00	5,397.00	49,609.22
Port of Call Retail Development		44.33	1000 sq ft	40.00	1,773.20	16,105.09
Downtown Harbor Docking Slips		3.00	slips	12.00	36.00	326.97
Port of Call Docking Slips		2.96	slips	126.00	372.96	3,387.41
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Warehouses 9 & 10 Operations		3.00	employees	20.00	60.00	624.88
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Cruise Ship Terminal Berth 87-93		1.46	passengers	7,500.00	10,950.00	98,254.35
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	438.90
Crowley Tugboat Office		3.29	employees	7.00	23.03	306.30
					18,714.19	169,730.08

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0

Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Port of Call Resturant Development	8.0	4.0	88.0
Port of Call Retail Development	5.0	2.5	92.5
Downtown Harbor Docking Slips	5.0	2.5	92.5
Port of Call Docking Slips	5.0	2.5	92.5
Temporary Red Car Maint Facility	50.0	25.0	25.0
Warehouses 9 & 10 Operations	41.5	20.8	37.8
S.S. Lane Victory	2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93	2.0	1.0	97.0
Los Angeles Maritime Institute	100.0	0.0	0.0
Crowley Tugboat Office	100.0	0.0	0.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_No_Project_2015_wkend.urb924

Project Name: San Pedro Waterfront No Project 2015 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	103.76	183.24	963.82	2.00	298.43	60.33	200,396.26

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	103.76	183.24	963.82	2.00	298.43	60.33	200,396.26

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Port of Call Resturant Development	19.22	55.81	294.50	0.61	90.95	18.39	61,097.96
Port of Call Retail Development	5.76	16.39	86.26	0.18	26.69	5.40	17,927.14
Downtown Harbor Docking Slips	0.19	0.38	2.00	0.00	0.62	0.13	415.67
Port of Call Docking Slips	2.01	3.95	20.81	0.04	6.44	1.30	4,324.26
Temporary Red Car Maint Facility	0.19	0.38	2.05	0.00	0.62	0.13	417.19
Warehouses 9 & 10 Operations	0.18	0.22	1.20	0.00	0.36	0.07	245.35

S.S. Lane Victory	0.23	0.52	2.73	0.01	0.85	0.17	568.40
Cruise Ship Terminal Berth 87-93	75.84	105.46	553.57	1.16	171.69	34.70	115,259.27
Los Angeles Maritime Institute	0.08	0.07	0.39	0.00	0.12	0.02	78.43
Crowley Tugboat Office	0.06	0.06	0.31	0.00	0.09	0.02	62.59
TOTALS (lbs/day, unmitigated)	103.76	183.24	963.82	2.00	298.43	60.33	200,396.26

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		94.37	1000 sq ft	60.00	5,662.20	52,046.94
Port of Call Retail Development		42.05	1000 sq ft	40.00	1,682.00	15,276.76
Downtown Harbor Docking Slips		3.25	slips	12.00	39.00	354.22
Port of Call Docking Slips		3.22	slips	126.00	405.72	3,684.95
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Warehouses 9 & 10 Operations		1.00	employees	20.00	20.00	208.29
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Cruise Ship Terminal Berth 87-93		1.46	passengers	7,500.00	10,950.00	98,254.35
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	66.50
Crowley Tugboat Office		0.57	employees	7.00	3.99	53.07
					18,854.91	170,783.55

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0

Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commuter	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Port of Call Resturant Development				8.0	4.0	88.0
Port of Call Retail Development				5.0	2.5	92.5
Downtown Harbor Docking Slips				5.0	2.5	92.5
Port of Call Docking Slips				5.0	2.5	92.5
Temporary Red Car Maint Facility				50.0	25.0	25.0
Warehouses 9 & 10 Operations				41.5	20.8	37.8
S.S. Lane Victory				2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93				2.0	1.0	97.0
Los Angeles Maritime Institute				100.0	0.0	0.0
Crowley Tugboat Office				100.0	0.0	0.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_No_Project_2022_wkdy.urb924

Project Name: San Pedro Waterfront No Project 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	15.22	23.48	131.24	0.36	57.63	11.47	37,766.04

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	15.22	23.48	131.24	0.36	57.63	11.47	37,766.04

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Port of Call Resturant Development	2.53	6.41	35.95	0.10	15.75	3.14	10,325.93
Port of Call Retail Development	0.84	2.08	11.65	0.03	5.11	1.02	3,351.00
Downtown Harbor Docking Slips	0.02	0.04	0.24	0.00	0.10	0.02	68.03
Port of Call Docking Slips	0.26	0.44	2.45	0.01	1.08	0.21	704.82
Temporary Red Car Maint Facility	0.03	0.05	0.26	0.00	0.11	0.02	73.98
Warehouses 9 & 10 Operations	0.05	0.08	0.46	0.00	0.20	0.04	130.52

S.S. Lane Victory	0.02	0.04	0.23	0.00	0.10	0.02	67.19
Cruise Ship Terminal Berth 87-93	11.42	14.24	79.45	0.22	34.94	6.95	22,888.72
Los Angeles Maritime Institute	0.03	0.06	0.32	0.00	0.14	0.03	91.79
Crowley Tugboat Office	0.02	0.04	0.23	0.00	0.10	0.02	64.06
TOTALS (tons/year, unmitigated)	15.22	23.48	131.24	0.36	57.63	11.47	37,766.04

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		89.95	1000 sq ft	60.00	5,397.00	49,609.22
Port of Call Retail Development		44.33	1000 sq ft	40.00	1,773.20	16,105.09
Downtown Harbor Docking Slips		3.00	slips	12.00	36.00	326.97
Port of Call Docking Slips		2.96	slips	126.00	372.96	3,387.41
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Warehouses 9 & 10 Operations		3.00	employees	20.00	60.00	624.88
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Cruise Ship Terminal Berth 87-93		1.46	passengers	8,400.00	12,264.00	110,044.87
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	438.90
Crowley Tugboat Office		3.29	employees	7.00	23.03	306.30
					20,028.19	181,520.60

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0

Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Port of Call Resturant Development				8.0	4.0	88.0
Port of Call Retail Development				5.0	2.5	92.5
Downtown Harbor Docking Slips				5.0	2.5	92.5
Port of Call Docking Slips				5.0	2.5	92.5
Temporary Red Car Maint Facility				50.0	25.0	25.0
Warehouses 9 & 10 Operations				41.5	20.8	37.8
S.S. Lane Victory				2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93				2.0	1.0	97.0
Los Angeles Maritime Institute				100.0	0.0	0.0
Crowley Tugboat Office				100.0	0.0	0.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_No_Project_2022_wkend.urb924

Project Name: San Pedro Waterfront No Project 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	14.56	23.14	127.42	0.37	57.95	11.51	37,980.31

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	14.56	23.14	127.42	0.37	57.95	11.51	37,980.31

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Port of Call Resturant Development	2.50	6.59	36.41	0.11	16.52	3.29	10,832.18
Port of Call Retail Development	0.75	1.94	10.67	0.03	4.85	0.96	3,178.31
Downtown Harbor Docking Slips	0.02	0.04	0.25	0.00	0.11	0.02	73.69
Port of Call Docking Slips	0.26	0.47	2.57	0.01	1.17	0.23	766.65
Temporary Red Car Maint Facility	0.02	0.04	0.25	0.00	0.11	0.02	73.97
Warehouses 9 & 10 Operations	0.02	0.03	0.15	0.00	0.07	0.01	43.50

S.S. Lane Victory	0.03	0.06	0.34	0.00	0.15	0.03	100.77
Cruise Ship Terminal Berth 87-93	10.94	13.95	76.69	0.22	34.93	6.95	22,886.23
Los Angeles Maritime Institute	0.01	0.01	0.05	0.00	0.02	0.00	13.91
Crowley Tugboat Office	0.01	0.01	0.04	0.00	0.02	0.00	11.10
TOTALS (tons/year, unmitigated)	14.56	23.14	127.42	0.37	57.95	11.51	37,980.31

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		94.37	1000 sq ft	60.00	5,662.20	52,046.94
Port of Call Retail Development		42.05	1000 sq ft	40.00	1,682.00	15,276.76
Downtown Harbor Docking Slips		3.25	slips	12.00	39.00	354.22
Port of Call Docking Slips		3.22	slips	126.00	405.72	3,684.95
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Warehouses 9 & 10 Operations		1.00	employees	20.00	20.00	208.29
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Cruise Ship Terminal Berth 87-93		1.46	passengers	8,400.00	12,264.00	110,044.87
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	66.50
Crowley Tugboat Office		0.57	employees	7.00	3.99	53.07
					20,168.91	182,574.07

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0

Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Port of Call Resturant Development				8.0	4.0	88.0
Port of Call Retail Development				5.0	2.5	92.5
Downtown Harbor Docking Slips				5.0	2.5	92.5
Port of Call Docking Slips				5.0	2.5	92.5
Temporary Red Car Maint Facility				50.0	25.0	25.0
Warehouses 9 & 10 Operations				41.5	20.8	37.8
S.S. Lane Victory				2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93				2.0	1.0	97.0
Los Angeles Maritime Institute				100.0	0.0	0.0
Crowley Tugboat Office				100.0	0.0	0.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_No_Project_2022_wkdy.urb924

Project Name: San Pedro Waterfront No Project 2022 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	87.80	122.08	741.74	2.12	315.82	62.85	212,917.71

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	87.80	122.08	741.74	2.12	315.82	62.85	212,917.71

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Port of Call Resturant Development	13.30	33.34	203.24	0.58	86.32	17.18	58,214.87
Port of Call Retail Development	4.42	10.83	65.84	0.19	28.02	5.58	18,892.24
Downtown Harbor Docking Slips	0.14	0.22	1.34	0.00	0.57	0.11	383.56
Port of Call Docking Slips	1.47	2.28	13.85	0.04	5.89	1.17	3,973.64
Temporary Red Car Maint Facility	0.14	0.24	1.49	0.00	0.62	0.12	417.03
Warehouses 9 & 10 Operations	0.26	0.42	2.61	0.01	1.09	0.22	735.77

S.S. Lane Victory	0.13	0.22	1.32	0.00	0.56	0.11	378.80
Cruise Ship Terminal Berth 87-93	67.67	74.04	448.93	1.29	191.46	38.10	129,043.24
Los Angeles Maritime Institute	0.16	0.29	1.84	0.01	0.76	0.15	517.45
Crowley Tugboat Office	0.11	0.20	1.28	0.00	0.53	0.11	361.11
TOTALS (lbs/day, unmitigated)	87.80	122.08	741.74	2.12	315.82	62.85	212,917.71

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		89.95	1000 sq ft	60.00	5,397.00	49,609.22
Port of Call Retail Development		44.33	1000 sq ft	40.00	1,773.20	16,105.09
Downtown Harbor Docking Slips		3.00	slips	12.00	36.00	326.97
Port of Call Docking Slips		2.96	slips	126.00	372.96	3,387.41
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Warehouses 9 & 10 Operations		3.00	employees	20.00	60.00	624.88
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Cruise Ship Terminal Berth 87-93		1.46	passengers	8,400.00	12,264.00	110,044.87
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	438.90
Crowley Tugboat Office		3.29	employees	7.00	23.03	306.30
					20,028.19	181,520.60

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0

Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Port of Call Resturant Development				8.0	4.0	88.0
Port of Call Retail Development				5.0	2.5	92.5
Downtown Harbor Docking Slips				5.0	2.5	92.5
Port of Call Docking Slips				5.0	2.5	92.5
Temporary Red Car Maint Facility				50.0	25.0	25.0
Warehouses 9 & 10 Operations				41.5	20.8	37.8
S.S. Lane Victory				2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93				2.0	1.0	97.0
Los Angeles Maritime Institute				100.0	0.0	0.0
Crowley Tugboat Office				100.0	0.0	0.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_No_Project_2022_wkend.urb924

Project Name: San Pedro Waterfront No Project 2022 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	84.19	120.28	721.50	2.14	317.59	63.16	214,146.48

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	84.19	120.28	721.50	2.14	317.59	63.16	214,146.48

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Port of Call Resturant Development	13.13	34.27	206.25	0.61	90.54	18.01	61,074.89
Port of Call Retail Development	3.96	10.06	60.41	0.18	26.57	5.29	17,920.37
Downtown Harbor Docking Slips	0.14	0.23	1.40	0.00	0.62	0.12	415.51
Port of Call Docking Slips	1.48	2.43	14.57	0.04	6.41	1.27	4,322.62
Temporary Red Car Maint Facility	0.14	0.23	1.44	0.00	0.62	0.12	417.04
Warehouses 9 & 10 Operations	0.14	0.14	0.84	0.00	0.36	0.07	245.26

S.S. Lane Victory	0.16	0.32	1.91	0.01	0.84	0.17	568.19
Cruise Ship Terminal Berth 87-93	64.94	72.53	434.19	1.30	191.42	38.07	129,041.63
Los Angeles Maritime Institute	0.06	0.04	0.27	0.00	0.12	0.02	78.40
Crowley Tugboat Office	0.04	0.03	0.22	0.00	0.09	0.02	62.57
TOTALS (lbs/day, unmitigated)	84.19	120.28	721.50	2.14	317.59	63.16	214,146.48

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		94.37	1000 sq ft	60.00	5,662.20	52,046.94
Port of Call Retail Development		42.05	1000 sq ft	40.00	1,682.00	15,276.76
Downtown Harbor Docking Slips		3.25	slips	12.00	39.00	354.22
Port of Call Docking Slips		3.22	slips	126.00	405.72	3,684.95
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Warehouses 9 & 10 Operations		1.00	employees	20.00	20.00	208.29
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Cruise Ship Terminal Berth 87-93		1.46	passengers	8,400.00	12,264.00	110,044.87
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	66.50
Crowley Tugboat Office		0.57	employees	7.00	3.99	53.07
					20,168.91	182,574.07

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0

Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Port of Call Resturant Development				8.0	4.0	88.0
Port of Call Retail Development				5.0	2.5	92.5
Downtown Harbor Docking Slips				5.0	2.5	92.5
Port of Call Docking Slips				5.0	2.5	92.5
Temporary Red Car Maint Facility				50.0	25.0	25.0
Warehouses 9 & 10 Operations				41.5	20.8	37.8
S.S. Lane Victory				2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93				2.0	1.0	97.0
Los Angeles Maritime Institute				100.0	0.0	0.0
Crowley Tugboat Office				100.0	0.0	0.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_No_Project_2037_wkdy.urb924

Project Name: San Pedro Waterfront No Project 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	8.96	12.49	78.09	0.41	63.66	12.52	41,744.06

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	8.96	12.49	78.09	0.41	63.66	12.52	41,744.06

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Port of Call Resturant Development	1.30	3.08	19.30	0.10	15.70	3.09	10,298.96
Port of Call Retail Development	0.43	1.00	6.25	0.03	5.10	1.00	3,342.25
Downtown Harbor Docking Slips	0.01	0.02	0.13	0.00	0.10	0.02	67.86
Port of Call Docking Slips	0.13	0.21	1.32	0.01	1.07	0.21	702.98
Temporary Red Car Maint Facility	0.01	0.02	0.14	0.00	0.11	0.02	73.79
Warehouses 9 & 10 Operations	0.02	0.04	0.25	0.00	0.20	0.04	130.18

S.S. Lane Victory	0.01	0.02	0.13	0.00	0.10	0.02	67.01
Cruise Ship Terminal Berth 87-93	7.03	8.05	50.28	0.27	41.04	8.07	26,905.58
Los Angeles Maritime Institute	0.01	0.03	0.17	0.00	0.14	0.03	91.56
Crowley Tugboat Office	0.01	0.02	0.12	0.00	0.10	0.02	63.89
TOTALS (tons/year, unmitigated)	8.96	12.49	78.09	0.41	63.66	12.52	41,744.06

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		89.95	1000 sq ft	60.00	5,397.00	49,609.22
Port of Call Retail Development		44.33	1000 sq ft	40.00	1,773.20	16,105.09
Downtown Harbor Docking Slips		3.00	slips	12.00	36.00	326.97
Port of Call Docking Slips		2.96	slips	126.00	372.96	3,387.41
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Warehouses 9 & 10 Operations		3.00	employees	20.00	60.00	624.88
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Cruise Ship Terminal Berth 87-93		1.46	passengers	9,900.00	14,454.00	129,695.74
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	438.90
Crowley Tugboat Office		3.29	employees	7.00	23.03	306.30
					22,218.19	201,171.47

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0

Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Port of Call Resturant Development	8.0	4.0	88.0
Port of Call Retail Development	5.0	2.5	92.5
Downtown Harbor Docking Slips	5.0	2.5	92.5
Port of Call Docking Slips	5.0	2.5	92.5
Temporary Red Car Maint Facility	50.0	25.0	25.0
Warehouses 9 & 10 Operations	41.5	20.8	37.8
S.S. Lane Victory	2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93	2.0	1.0	97.0
Los Angeles Maritime Institute	100.0	0.0	0.0
Crowley Tugboat Office	100.0	0.0	0.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_No_Project_2037_wkend.urb924

Project Name: San Pedro Waterfront No Project 2037 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	9.02	12.36	78.67	0.41	63.99	12.57	42,044.43

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	9.02	12.36	78.67	0.41	63.99	12.57	42,044.43

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Port of Call Resturant Development	1.37	3.18	20.29	0.11	16.47	3.24	10,826.31
Port of Call Retail Development	0.41	0.93	5.95	0.03	4.83	0.95	3,176.59
Downtown Harbor Docking Slips	0.01	0.02	0.14	0.00	0.11	0.02	73.65
Port of Call Docking Slips	0.14	0.23	1.43	0.01	1.17	0.23	766.23
Temporary Red Car Maint Facility	0.01	0.02	0.14	0.00	0.11	0.02	73.93
Warehouses 9 & 10 Operations	0.01	0.01	0.08	0.00	0.07	0.01	43.48

S.S. Lane Victory	0.02	0.03	0.19	0.00	0.15	0.03	100.72
Cruise Ship Terminal Berth 87-93	7.04	7.94	50.40	0.26	41.04	8.07	26,958.53
Los Angeles Maritime Institute	0.01	0.00	0.03	0.00	0.02	0.00	13.90
Crowley Tugboat Office	0.00	0.00	0.02	0.00	0.02	0.00	11.09
TOTALS (tons/year, unmitigated)	9.02	12.36	78.67	0.41	63.99	12.57	42,044.43

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		94.37	1000 sq ft	60.00	5,662.20	52,046.94
Port of Call Retail Development		42.05	1000 sq ft	40.00	1,682.00	15,276.76
Downtown Harbor Docking Slips		3.25	slips	12.00	39.00	354.22
Port of Call Docking Slips		3.22	slips	126.00	405.72	3,684.95
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Warehouses 9 & 10 Operations		1.00	employees	20.00	20.00	208.29
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Cruise Ship Terminal Berth 87-93		1.46	passengers	9,900.00	14,454.00	129,695.74
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	66.50
Crowley Tugboat Office		0.57	employees	7.00	3.99	53.07
					22,358.91	202,224.94

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0

Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Port of Call Resturant Development				8.0	4.0	88.0
Port of Call Retail Development				5.0	2.5	92.5
Downtown Harbor Docking Slips				5.0	2.5	92.5
Port of Call Docking Slips				5.0	2.5	92.5
Temporary Red Car Maint Facility				50.0	25.0	25.0
Warehouses 9 & 10 Operations				41.5	20.8	37.8
S.S. Lane Victory				2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93				2.0	1.0	97.0
Los Angeles Maritime Institute				100.0	0.0	0.0
Crowley Tugboat Office				100.0	0.0	0.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_No_Project_2037_wkdy.urb924

Project Name: San Pedro Waterfront No Project 2037 Weekday Daily

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	51.20	65.09	445.03	2.41	348.83	68.59	235,411.41

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	51.20	65.09	445.03	2.41	348.83	68.59	235,411.41

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Port of Call Resturant Development	6.76	16.04	110.02	0.60	86.03	16.92	58,079.17
Port of Call Retail Development	2.24	5.21	35.65	0.19	27.93	5.49	18,848.22
Downtown Harbor Docking Slips	0.07	0.11	0.72	0.00	0.57	0.11	382.66
Port of Call Docking Slips	0.75	1.10	7.50	0.04	5.87	1.16	3,964.38
Temporary Red Car Maint Facility	0.07	0.11	0.80	0.00	0.61	0.12	416.06
Warehouses 9 & 10 Operations	0.13	0.20	1.41	0.01	1.08	0.21	734.05

S.S. Lane Victory	0.07	0.10	0.71	0.00	0.56	0.11	377.91
Cruise Ship Terminal Berth 87-93	40.97	41.98	286.53	1.56	224.89	44.22	151,732.45
Los Angeles Maritime Institute	0.08	0.14	1.00	0.01	0.76	0.15	516.24
Crowley Tugboat Office	0.06	0.10	0.69	0.00	0.53	0.10	360.27
TOTALS (lbs/day, unmitigated)	51.20	65.09	445.03	2.41	348.83	68.59	235,411.41

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		89.95	1000 sq ft	60.00	5,397.00	49,609.22
Port of Call Retail Development		44.33	1000 sq ft	40.00	1,773.20	16,105.09
Downtown Harbor Docking Slips		3.00	slips	12.00	36.00	326.97
Port of Call Docking Slips		2.96	slips	126.00	372.96	3,387.41
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Warehouses 9 & 10 Operations		3.00	employees	20.00	60.00	624.88
S.S. Lane Victory		3.60	1000 sq ft	10.00	36.00	323.03
Cruise Ship Terminal Berth 87-93		1.46	passengers	9,900.00	14,454.00	129,695.74
Los Angeles Maritime Institute		3.30	employees	10.00	33.00	438.90
Crowley Tugboat Office		3.29	employees	7.00	23.03	306.30
					22,218.19	201,171.47

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.2	99.6	0.2
Light Truck < 3750 lbs	7.4	1.4	95.9	2.7
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0

Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Port of Call Resturant Development				8.0	4.0	88.0
Port of Call Retail Development				5.0	2.5	92.5
Downtown Harbor Docking Slips				5.0	2.5	92.5
Port of Call Docking Slips				5.0	2.5	92.5
Temporary Red Car Maint Facility				50.0	25.0	25.0
Warehouses 9 & 10 Operations				41.5	20.8	37.8
S.S. Lane Victory				2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93				2.0	1.0	97.0
Los Angeles Maritime Institute				100.0	0.0	0.0
Crowley Tugboat Office				100.0	0.0	0.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mslavick\Application Data\Urbemis\Version9a\Projects\SPW_No_Project_2037_wkend.urb924

Project Name: San Pedro Waterfront No Project 2037 Weekend

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	51.43	64.51	448.36	2.37	350.67	68.96	237,121.18

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	51.43	64.51	448.36	2.37	350.67	68.96	237,121.18

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
Port of Call Resturant Development	7.09	16.59	115.70	0.61	90.26	17.75	61,057.12
Port of Call Retail Development	2.14	4.87	33.89	0.18	26.49	5.21	17,915.19
Downtown Harbor Docking Slips	0.08	0.11	0.79	0.00	0.61	0.12	415.39
Port of Call Docking Slips	0.79	1.18	8.18	0.04	6.39	1.26	4,321.37
Temporary Red Car Maint Facility	0.07	0.11	0.80	0.00	0.61	0.12	416.91
Warehouses 9 & 10 Operations	0.08	0.07	0.47	0.00	0.36	0.07	245.18

S.S. Lane Victory	0.09	0.15	1.07	0.01	0.84	0.17	568.02
Cruise Ship Terminal Berth 87-93	41.04	41.39	287.19	1.53	224.90	44.22	152,041.07
Los Angeles Maritime Institute	0.03	0.02	0.15	0.00	0.12	0.02	78.38
Crowley Tugboat Office	0.02	0.02	0.12	0.00	0.09	0.02	62.55
TOTALS (lbs/day, unmitigated)	51.43	64.51	448.36	2.37	350.67	68.96	237,121.18

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Port of Call Resturant Development		94.37	1000 sq ft	60.00	5,662.20	52,046.94
Port of Call Retail Development		42.05	1000 sq ft	40.00	1,682.00	15,276.76
Downtown Harbor Docking Slips		3.25	slips	12.00	39.00	354.22
Port of Call Docking Slips		3.22	slips	126.00	405.72	3,684.95
Temporary Red Car Maint Facility		3.00	employees	11.00	33.00	353.93
Warehouses 9 & 10 Operations		1.00	employees	20.00	20.00	208.29
S.S. Lane Victory		5.40	1000 sq ft	10.00	54.00	484.54
Cruise Ship Terminal Berth 87-93		1.46	passengers	9,900.00	14,454.00	129,695.74
Los Angeles Maritime Institute		0.50	employees	10.00	5.00	66.50
Crowley Tugboat Office		0.57	employees	7.00	3.99	53.07
					22,358.91	202,224.94

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	52.0	0.0	100.0	0.0
Light Truck < 3750 lbs	7.4	0.0	98.6	1.4
Light Truck 3751-5750 lbs	22.6	0.0	100.0	0.0

Med Truck 5751-8500 lbs	10.5	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	2.5	0.0	0.0	100.0
Other Bus	4.2	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	41.4	58.6	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Port of Call Resturant Development				8.0	4.0	88.0
Port of Call Retail Development				5.0	2.5	92.5
Downtown Harbor Docking Slips				5.0	2.5	92.5
Port of Call Docking Slips				5.0	2.5	92.5
Temporary Red Car Maint Facility				50.0	25.0	25.0
Warehouses 9 & 10 Operations				41.5	20.8	37.8
S.S. Lane Victory				2.0	1.0	97.0
Cruise Ship Terminal Berth 87-93				2.0	1.0	97.0
Los Angeles Maritime Institute				100.0	0.0	0.0
Crowley Tugboat Office				100.0	0.0	0.0

<i>Equipment Type</i>	<i>Daily Emissions Before Mitigation (lb/day)</i>								
	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
Inner Harbor Cruise Terminals									
Diesel Forklifts	2.1	7.4	17.1	0.1	0.9	0.8	1,285.8	0.2	0.0
Diesel Forklifts - Berth 87	3.8	13.4	31.1	0.2	1.6	1.5	2,337.9	0.3	0.0
Propane Forklifts	0.0	3.3	2.4	0.0	0.0	0.0	267.7	0.3	0.0
Diesel Fuel Trucks	0.3	0.9	3.5	0.0	0.1	0.1	283.6	0.0	0.0
Subtotal	6.2	25.0	54.0	0.4	2.7	2.5	4,175.0	0.9	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	6.2	25.0	54.0	0.4	2.7	2.5	4,175.0	0.9	0.0

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Forklifts - Berth 87	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Diesel Forklifts - Berth 87
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.3	0.9	3.5	0.0	0.1	0.1	283.6	0.0	0.0		
0.3	0.9	3.5	0.0	0.1	0.1	283.6	0.0	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.3	0.9	3.5	0.0	0.1	0.1	283.6	0.0	0.0		

<i>Equipment Type</i>	<i>Annual Emissions Before Mitigation (lbs/year)</i>								
	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
Inner Harbor Cruise Terminals									
Diesel Forklifts	411.6	1,449.1	3,364.8	24.7	178.5	164.2	253,309.9	37.1	0.0
Diesel Forklifts - Berth 87	57.0	200.6	465.8	3.4	24.7	22.7	35,068.3	5.1	0.0
Propane Forklifts	7.0	651.8	466.2	0.0	4.7	4.7	52,742.1	58.7	0.0
Diesel Fuel Trucks	63.6	182.8	690.9	5.4	25.1	23.1	55,860.0	5.7	0.0
Subtotal	539.1	2,484.3	4,987.8	33.6	233.0	214.7	396,980.4	106.7	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	539.1	2,484.3	4,987.8	33.6	233.0	214.7	396,980.4	106.7	0.0

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Forklifts - Berth 87	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Diesel Forklifts - Berth 87
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
63.6	182.8	690.9	5.4	25.1	23.1	55,860.0	5.7	0.0		
63.6	182.8	690.9	5.4	25.1	23.1	55,860.0	5.7	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
63.6	182.8	690.9	5.4	25.1	23.1	55,860.0	5.7	0.0		

Existing 2006

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.065808	0.231710	0.538023	0.003950	0.028540	0.026257	40.503871	0.005938	0.000000
Diesel Forklifts	0.119651	0.421291	0.978224	0.007181	0.051891	0.047740	73.643401	0.010796	0.000000
Propane Forklifts	0.001120	0.104221	0.074551	0.000000	0.000750	0.000749	8.433389	0.009385	0.000000
Diesel Fuel Trucks	0.010165	0.029229	0.110477	0.000871	0.004014	0.003692	8.931929	0.000917	0.000000
Subtotal	0.196744	0.786451	1.701275	0.012002	0.085195	0.078438	131.512590	0.027036	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.196744	0.786451	1.701275	0.012002	0.085195	0.078438	131.512590	0.027036	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.010165	0.029229	0.110477	0.000871	0.004014	0.003692	8.931929	0.000917	0.000000
Subtotal	0.010165	0.029229	0.110477	0.000871	0.004014	0.003692	8.931929	0.000917	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.010165	0.029229	0.110477	0.000871	0.004014	0.003692	8.931929	0.000917	0.000000

Existing 2006

Equipment Type	Square meters	Emissions Before Mitigation (grams/second/meter squared)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	236798.2	2.779089E-07	9.785128E-07	2.272074E-06	1.667973E-08	1.205255E-07	1.108835E-07	1.710481E-04	2.507527E-08	0.000000E+00
Diesel Forklifts	236798.2	5.052889E-07	1.779114E-06	4.131045E-06	3.032678E-08	2.191374E-07	2.016064E-07	3.109965E-04	4.559140E-08	0.000000E+00
Propane Forklifts	236798.2	4.727884E-09	4.401239E-07	3.148286E-07	0.000000E+00	3.167306E-09	3.160971E-09	3.561424E-05	3.963173E-08	0.000000E+00
Diesel Fuel Trucks	236798.2	4.292729E-08	1.234357E-07	4.665442E-07	3.678219E-09	1.694906E-08	1.559314E-08	3.771958E-05	3.873260E-09	0.000000E+00
Subtotal		8.308530E-07	3.321187E-06	7.184492E-06	5.068473E-08	3.597793E-07	3.312440E-07	5.553783E-04	1.141717E-07	0.000000E+00
Outer Harbor Cruise Terminals										
Diesel Forklifts	208041	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	208041	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	208041	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal		0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total		8.308530E-07	3.321187E-06	7.184492E-06	5.068473E-08	3.597793E-07	3.312440E-07	5.553783E-04	1.141717E-07	0.000000E+00

Equipment Type	Square meters	Emissions After Mitigation (grams/second/meter squared)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	236798.2	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Forklifts	236798.2	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	236798.2	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	236798.2	4.292729E-08	1.234357E-07	4.665442E-07	3.678219E-09	1.694906E-08	1.559314E-08	3.771958E-05	3.873260E-09	0.000000E+00
Subtotal		4.292729E-08	1.234357E-07	4.665442E-07	3.678219E-09	1.694906E-08	1.559314E-08	3.771958E-05	3.873260E-09	0.000000E+00
Outer Harbor Cruise Terminals										
Diesel Forklifts	208041	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	208041	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	208041	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal		0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total		4.292729E-08	1.234357E-07	4.665442E-07	3.678219E-09	1.694906E-08	1.559314E-08	3.771958E-05	3.873260E-09	0.000000E+00

Existing 2006

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.1867	0.6573	1.5263	0.0112	0.0810	0.0745	114.9006	0.0168	0.0000
Diesel Forklifts	0.0258	0.0910	0.2113	0.0016	0.0112	0.0103	15.9069	0.0023	0.0000
Propane Forklifts	0.0032	0.2957	0.2115	0.0000	0.0021	0.0021	23.9237	0.0266	0.0000
Diesel Fuel Trucks	0.0288	0.0829	0.3134	0.0025	0.0114	0.0105	25.3379	0.0026	0.0000
Subtotal	0.2445	1.1269	2.2624	0.0152	0.1057	0.0974	180.0691	0.0484	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.2445	1.1269	2.2624	0.0152	0.1057	0.0974	180.0691	0.0484	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0288	0.0829	0.3134	0.0025	0.0114	0.0105	25.3379	0.0026	0.0000
Subtotal	0.0288	0.0829	0.3134	0.0025	0.0114	0.0105	25.3379	0.0026	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0288	0.0829	0.3134	0.0025	0.0114	0.0105	25.3379	0.0026	0.0000

Table 2

Proposed Project 2011

<i>Equipment Type</i>	<i>EF ID</i>	<i>Hp Rating</i>	<i>Load Factor</i>	<i>Scenario Year</i>	<i>Number Active</i>	<i>Equip-Hrs Day</i>	<i>Daily hp-hr</i>	<i>Total Work Days</i>
Inner Harbor Cruise Terminals								
Diesel Forklifts	Offroad	175	0.50	2006	6	4	2,100	197
Propane Forklifts	Offroad	50	0.50	2006	13	4	1,300	197
Diesel Fuel Trucks	Offroad	250	0.60	2006	1	4	600	197
<i>Subtotal</i>								
Outer Harbor Cruise Terminals								
Diesel Forklifts	Offroad	175	0.50	2006	5	4	1,750	197
Propane Forklifts	Offroad	50	0.50	2006	12	4	1,200	197
Diesel Fuel Trucks	Offroad	250	0.60	2006	1	4	600	197
<i>Subtotal</i>								
Total								
Note: emission factors of ROG, NO _x , CO, SO ₂ , PM ₁₀ , CO ₂ , CH ₄ , and N ₂ O were from Offroad2007. PM _{2.5} emission factors were obtained from the SCAQMD PM _{2.5} to PM ₁₀ Fraction (SCAQMD, October 2006) for diesel (0.92) and Gaseous Fuel (0.998) offroad vehicles.								

<i>Equipment Type</i>	<i>E.F. Units</i>	<i>Emission Factors</i>								
		<i>ROG</i>	<i>CO</i>	<i>NO_x</i>	<i>SO_x</i>	<i>PM₁₀</i>	<i>PM_{2.5}</i>	<i>CO₂</i>	<i>CH₄</i>	<i>N₂O</i>
Inner Harbor Cruise Terminals										
Diesel Forklifts	g/Hp-hr	0.178543	0.845816	1.47728	0.001705	0.082389	0.0757978	151.495	0.0161	0
Propane Forklifts	g/Hp-hr	0.011611	2.500171	0.79699	0	0.018	0.0179643	202.4013	0.0973	0
Diesel Fuel Trucks	g/Hp-hr	0.079951	0.247058	0.95159	0.001206	0.030245	0.0278254	107.1831	0.0072	0
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	g/Hp-hr	0.178543	0.845816	1.47728	0.001705	0.082389	0.0757978	151.495	0.0161	0
Propane Forklifts	g/Hp-hr	0.011611	2.500171	0.79699	0	0.018	0.0179643	202.4013	0.0973	0
Diesel Fuel Trucks	g/Hp-hr	0.079951	0.247058	0.95159	0.001206	0.030245	0.0278254	107.1831	0.0072	0

Table 2

Proposed Project 2011

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.8	3.9	6.8	0.0	0.4	0.4	701.4	0.1	0.0
Propane Forklifts	0.0	7.2	2.3	0.0	0.1	0.1	580.1	0.3	0.0
Diesel Fuel Trucks	0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	1.0	11.4	10.4	0.0	0.5	0.4	1,423.2	0.4	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.7	3.3	5.7	0.0	0.3	0.3	584.5	0.1	0.0
Propane Forklifts	0.0	6.6	2.1	0.0	0.0	0.0	535.5	0.3	0.0
Diesel Fuel Trucks	0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.8	10.2	9.1	0.0	0.4	0.4	1,261.7	0.3	0.0
Total	1.8	21.6	19.4	0.0	0.9	0.8	2,684.9	0.7	0.0

Table 2

Proposed Project 2011

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
<i>Subtotal</i>
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0		
0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0		
0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0		
Total										
0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0		

<i>Equipment Type</i>	<i>Annual Emissions Before Mitigation (lbs/year)</i>								
	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
Inner Harbor Cruise Terminals									
Diesel Forklifts	162.8	771.4	1,347.3	1.6	75.1	69.1	138,169.1	14.7	0.0
Propane Forklifts	6.6	1,411.6	450.0	0.0	10.2	10.1	114,274.6	55.0	0.0
Diesel Fuel Trucks	20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0
Subtotal	190.2	2,247.4	2,045.3	1.9	93.2	86.5	280,373.7	71.5	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	135.7	642.8	1,122.8	1.3	62.6	57.6	115,140.9	12.2	0.0
Propane Forklifts	6.1	1,303.0	415.4	0.0	9.4	9.4	105,484.3	50.7	0.0
Diesel Fuel Trucks	20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0
Subtotal	162.6	2,010.2	1,786.1	1.6	79.9	74.2	248,555.2	64.8	0.0
Total	352.8	4,257.6	3,831.4	3.5	173.1	160.7	528,928.9	136.4	0.0

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0		
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0		
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0		
41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0		

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.026038	0.123348	0.215437	0.000249	0.012015	0.011054	22.093023	0.002349	0.000000
Propane Forklifts	0.001048	0.225710	0.071950	0.000000	0.001625	0.001622	18.272341	0.008787	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.030417	0.359352	0.327037	0.000299	0.014900	0.013835	44.831328	0.011437	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.021698	0.102790	0.179531	0.000207	0.010013	0.009212	18.410853	0.001958	0.000000
Propane Forklifts	0.000968	0.208348	0.066416	0.000000	0.001500	0.001497	16.866776	0.008111	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.025997	0.321432	0.285596	0.000257	0.012773	0.011868	39.743593	0.010369	0.000000
Total	0.056414	0.680784	0.612633	0.000556	0.027673	0.025703	84.574921	0.021806	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Total	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000

Equipment Type	Square meters	Emissions Before Mitigation (grams/second/meter squared)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	236798.2	1.099568E-07	5.209001E-07	9.097900E-07	1.049773E-09	5.073960E-08	4.668043E-08	9.329895E-05	9.921227E-09	0.000000E+00
Propane Forklifts	236798.2	4.426606E-09	9.531742E-07	3.038471E-07	0.000000E+00	6.862497E-09	6.848772E-09	7.716419E-05	3.710626E-08	0.000000E+00
Diesel Fuel Trucks	236798.2	1.406810E-08	4.347200E-08	1.674404E-07	2.122050E-10	5.321875E-09	4.896125E-09	1.885979E-05	1.269342E-09	0.000000E+00
Subtotal		1.284515E-07	1.517546E-06	1.381078E-06	1.261978E-09	6.292397E-08	5.842533E-08	1.893229E-04	4.829683E-08	0.000000E+00
Outer Harbor Cruise Terminals										
Diesel Forklifts	208041	1.042966E-07	4.940861E-07	8.629574E-07	9.957349E-10	4.812772E-08	4.427750E-08	8.849627E-05	9.410520E-09	0.000000E+00
Propane Forklifts	208041	4.650913E-09	1.001474E-06	3.192438E-07	0.000000E+00	7.210236E-09	7.195816E-09	8.107429E-05	3.898652E-08	0.000000E+00
Diesel Fuel Trucks	208041	1.601271E-08	4.948107E-08	1.905854E-07	2.415378E-10	6.057510E-09	5.572909E-09	2.146675E-05	1.444802E-09	0.000000E+00
Subtotal		1.249603E-07	1.545041E-06	1.372787E-06	1.237273E-09	6.139546E-08	5.704622E-08	1.910373E-04	4.984185E-08	0.000000E+00
Total		2.534118E-07	3.062587E-06	2.753864E-06	2.499251E-09	1.243194E-07	1.154716E-07	3.803602E-04	9.813867E-08	0.000000E+00

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Emissions After Mitigation (grams/second/meter squared)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
1.406810E-08	4.347200E-08	1.674404E-07	2.122050E-10	5.321875E-09	4.896125E-09	1.885979E-05	1.269342E-09	0.000000E+00	
1.406810E-08	4.347200E-08	1.674404E-07	2.122050E-10	5.321875E-09	4.896125E-09	1.885979E-05	1.269342E-09	0.000000E+00	
0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
1.601271E-08	4.948107E-08	1.905854E-07	2.415378E-10	6.057510E-09	5.572909E-09	2.146675E-05	1.444802E-09	0.000000E+00	
1.601271E-08	4.948107E-08	1.905854E-07	2.415378E-10	6.057510E-09	5.572909E-09	2.146675E-05	1.444802E-09	0.000000E+00	
3.008081E-08	9.295307E-08	3.580258E-07	4.537427E-10	1.137938E-08	1.046903E-08	4.032654E-05	2.714144E-09	0.000000E+00	

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0739	0.3499	0.6111	0.0007	0.0341	0.0314	62.6731	0.0067	0.0000
Propane Forklifts	0.0030	0.6403	0.2041	0.0000	0.0046	0.0046	51.8346	0.0249	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0863	1.0194	0.9277	0.0008	0.0423	0.0392	127.1767	0.0324	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0616	0.2916	0.5093	0.0006	0.0284	0.0261	52.2276	0.0056	0.0000
Propane Forklifts	0.0027	0.5910	0.1884	0.0000	0.0043	0.0042	47.8474	0.0230	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0737	0.9118	0.8102	0.0007	0.0362	0.0337	112.7439	0.0294	0.0000
Total	0.1600	1.9312	1.7379	0.0016	0.0785	0.0729	239.9206	0.0619	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Total	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000

Table 3

Alternative 1 - Scenario 1 - 2011

Equipment Type	EF ID	Hp Rating	Load Factor	Scenario Year	Number Active	Equip-Hrs Day	Daily hp-hr	Total Work Days	
Inner Harbor Cruise Terminals									
Diesel Forklifts	Offroad	175	0.50	2006	6	4	2,100	197	
Propane Forklifts	Offroad	50	0.50	2006	13	4	1,300	197	
Diesel Fuel Trucks	Offroad	250	0.60	2006	1	4	600	197	
Subtotal									
Outer Harbor Cruise Terminals									
Diesel Forklifts	Offroad	175	0.50	2006	3	4	1,050	197	
Propane Forklifts	Offroad	50	0.50	2006	6	4	600	197	
Diesel Fuel Trucks	Offroad	250	0.60	2006	1	4	600	197	
Subtotal									
Total									

Note: emission factors of ROG, NOx, CO, SO2, PM10, CO2, CH4, and N2O were from Offroad2007. PM2.5 emission factors were obtained from the SCAQMD PM2.5 to PM10 Fraction (SCAQMD, October 2006) for diesel (0.92) and Gaseous Fuel (0.998) offroad vehicles.

Equipment Type	E.F. Units	Emission Factors								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	g/Hp-hr	0.178543	0.845816	1.47728	0.001705	0.082389	0.0757978	151.495	0.01611	0
Propane Forklifts	g/Hp-hr	0.011611	2.500171	0.79699	0	0.018	0.0179643	202.4013	0.09733	0
Diesel Fuel Trucks	g/Hp-hr	0.079951	0.247058	0.95159	0.001206	0.030245	0.0278254	107.1831	0.007214	0
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	g/Hp-hr	0.178543	0.845816	1.47728	0.001705	0.082389	0.0757978	151.495	0.01611	0
Propane Forklifts	g/Hp-hr	0.011611	2.500171	0.79699	0	0.018	0.0179643	202.4013	0.09733	0
Diesel Fuel Trucks	g/Hp-hr	0.079951	0.247058	0.95159	0.001206	0.030245	0.0278254	107.1831	0.007214	0

Table 3

Alternative 1 - Scenario 1 - 2011

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.8	3.9	6.8	0.0	0.4	0.4	701.4	0.1	0.0
Propane Forklifts	0.0	7.2	2.3	0.0	0.1	0.1	580.1	0.3	0.0
Diesel Fuel Trucks	0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	1.0	11.4	10.4	0.0	0.5	0.4	1,423.2	0.4	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.4	2.0	3.4	0.0	0.2	0.2	350.7	0.0	0.0
Propane Forklifts	0.0	3.3	1.1	0.0	0.0	0.0	267.7	0.1	0.0
Diesel Fuel Trucks	0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.5	5.6	5.7	0.0	0.3	0.2	760.2	0.2	0.0
Total	1.5	17.0	16.1	0.0	0.7	0.7	2,183.4	0.5	0.0

Table 3

Alternative 1 - Scenario 1 - 2011

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

Daily Emissions After Mitigation (lb/day)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0	
<i>0.1</i>	<i>0.3</i>	<i>1.3</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>141.8</i>	<i>0.0</i>	<i>0.0</i>	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0	
<i>0.1</i>	<i>0.3</i>	<i>1.3</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>141.8</i>	<i>0.0</i>	<i>0.0</i>	
0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0	

Table 3

Alternative 1 - Scenario 1 - 2011

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	162.8	771.4	1,347.3	1.6	75.1	69.1	138,169.1	14.7	0.0
Propane Forklifts	6.6	1,411.6	450.0	0.0	10.2	10.1	114,274.6	55.0	0.0
Diesel Fuel Trucks	20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0
Subtotal	190.2	2,247.4	2,045.3	1.9	93.2	86.5	280,373.7	71.5	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	81.4	385.7	673.7	0.8	37.6	34.6	69,084.5	7.3	0.0
Propane Forklifts	3.0	651.5	207.7	0.0	4.7	4.7	52,742.1	25.4	0.0
Diesel Fuel Trucks	20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0
Subtotal	105.3	1,101.6	1,129.3	1.1	50.1	46.5	149,756.7	34.6	0.0
Total	295.5	3,349.0	3,174.6	3.0	143.3	133.0	430,130.4	106.1	0.0

Table 3

Alternative 1 - Scenario 1 - 2011

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0	
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0	
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0	
41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0	

Table 3

Alternative 1 - Scenario 1 - 2011

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.026038	0.123348	0.215437	0.000249	0.012015	0.011054	22.093023	0.002349	0.000000
Propane Forklifts	0.001048	0.225710	0.071950	0.000000	0.001625	0.001622	18.272341	0.008787	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.030417	0.359352	0.327037	0.000299	0.014900	0.013835	44.831328	0.011437	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.013019	0.061674	0.107718	0.000124	0.006008	0.005527	11.046512	0.001175	0.000000
Propane Forklifts	0.000484	0.104174	0.033208	0.000000	0.000750	0.000749	8.433388	0.004055	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.016834	0.176142	0.180576	0.000175	0.008018	0.007435	23.945864	0.005531	0.000000
Total	0.047251	0.535494	0.507612	0.000473	0.022918	0.021270	68.777192	0.016967	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Total	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000

Table 3

Alternative 1 - Scenario 1 - 2011

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	1.099568E-07	5.209001E-07	9.097900E-07	1.049773E-09	5.073960E-08	4.668043E-08	9.329895E-05	9.921227E-09	0.000000E+00
Propane Forklifts	4.426606E-09	9.531742E-07	3.038471E-07	0.000000E+00	6.862497E-09	6.848772E-09	7.716419E-05	3.710626E-08	0.000000E+00
Diesel Fuel Trucks	1.406810E-08	4.347200E-08	1.674404E-07	2.122050E-10	5.321875E-09	4.896125E-09	1.885979E-05	1.269342E-09	0.000000E+00
Subtotal	1.284515E-07	1.517546E-06	1.381078E-06	1.261978E-09	6.292397E-08	5.842533E-08	1.893229E-04	4.829683E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	6.257799E-08	2.964517E-07	5.177745E-07	5.974409E-10	2.887663E-08	2.656650E-08	5.309776E-05	5.646312E-09	0.000000E+00
Propane Forklifts	2.325456E-09	5.007369E-07	1.596219E-07	0.000000E+00	3.605118E-09	3.597908E-09	4.053714E-05	1.949326E-08	0.000000E+00
Diesel Fuel Trucks	1.601271E-08	4.948107E-08	1.905854E-07	2.415378E-10	6.057510E-09	5.572909E-09	2.146675E-05	1.444802E-09	0.000000E+00
Subtotal	8.091615E-08	8.466697E-07	8.679818E-07	8.389787E-10	3.853926E-08	3.573732E-08	1.151017E-04	2.658438E-08	0.000000E+00
Total	2.093677E-07	2.364216E-06	2.249059E-06	2.100957E-09	1.014632E-07	9.416264E-08	3.044246E-04	7.488120E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.406810E-08	4.347200E-08	1.674404E-07	2.122050E-10	5.321875E-09	4.896125E-09	1.885979E-05	1.269342E-09	0.000000E+00
Subtotal	1.406810E-08	4.347200E-08	1.674404E-07	2.122050E-10	5.321875E-09	4.896125E-09	1.885979E-05	1.269342E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.601271E-08	4.948107E-08	1.905854E-07	2.415378E-10	6.057510E-09	5.572909E-09	2.146675E-05	1.444802E-09	0.000000E+00
Subtotal	1.601271E-08	4.948107E-08	1.905854E-07	2.415378E-10	6.057510E-09	5.572909E-09	2.146675E-05	1.444802E-09	0.000000E+00
Total	3.008081E-08	9.295307E-08	3.580258E-07	4.537427E-10	1.137938E-08	1.046903E-08	4.032654E-05	2.714144E-09	0.000000E+00

Table 3

Alternative 1 - Scenario 1 - 2011

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0739	0.3499	0.6111	0.0007	0.0341	0.0314	62.6731	0.0067	0.0000
Propane Forklifts	0.0030	0.6403	0.2041	0.0000	0.0046	0.0046	51.8346	0.0249	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0863	1.0194	0.9277	0.0008	0.0423	0.0392	127.1767	0.0324	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0369	0.1750	0.3056	0.0004	0.0170	0.0157	31.3365	0.0033	0.0000
Propane Forklifts	0.0014	0.2955	0.0942	0.0000	0.0021	0.0021	23.9237	0.0115	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0478	0.4997	0.5123	0.0005	0.0227	0.0211	67.9292	0.0157	0.0000
Total	0.1340	1.5191	1.4400	0.0013	0.0650	0.0603	195.1059	0.0481	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Total	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000

Table 4

Alternative 2 - Scenario 2 - 2011

<i>Equipment Type</i>	<i>EF ID</i>	<i>Hp Rating</i>	<i>Load Factor</i>	<i>Scenario Year</i>	<i>Number Active</i>	<i>Equip-Hrs Day</i>	<i>Daily hp-hr</i>	<i>Total Work Days</i>
Inner Harbor Cruise Terminals								
Diesel Forklifts	Offroad	175	0.50	2006	6	4	2,100	197
Propane Forklifts	Offroad	50	0.50	2006	13	4	1,300	197
Diesel Fuel Trucks	Offroad	250	0.60	2006	1	4	600	197
<i>Subtotal</i>								
Outer Harbor Cruise Terminals								
Diesel Forklifts	Offroad	175	0.50	2006	5	4	1,750	197
Propane Forklifts	Offroad	50	0.50	2006	12	4	1,200	197
Diesel Fuel Trucks	Offroad	250	0.60	2006	1	4	600	197
<i>Subtotal</i>								
Total								
Note: emission factors of ROG, NOx, CO, SO2, PM10, CO2, CH4, and N2O were from Offroad2007. PM2.5 emission factors were obtained from the SCAQMD PM2.5 to PM10 Fraction (SCAQMD, October 2006) for diesel (0.92) and Gaseous Fuel (0.998) offroad vehicles.								

<i>Equipment Type</i>	<i>E.F. Units</i>	<i>Emission Factors</i>								
		<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
Inner Harbor Cruise Terminals										
Diesel Forklifts	g/Hp-hr	0.178543361	0.845816216	1.477279792	0.001704579	0.082388885	0.075797775	151.4950158	0.016109683	0
Propane Forklifts	g/Hp-hr	0.011610967	2.5001715	0.796989667	0	0.018000297	0.017964297	202.4013106	0.097329547	0
Diesel Fuel Trucks	g/Hp-hr	0.079951204	0.2470582	0.951589907	0.001205994	0.030245049	0.027825445	107.1831495	0.007213871	0
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	g/Hp-hr	0.178543361	0.845816216	1.477279792	0.001704579	0.082388885	0.075797775	151.4950158	0.016109683	0
Propane Forklifts	g/Hp-hr	0.011610967	2.5001715	0.796989667	0	0.018000297	0.017964297	202.4013106	0.097329547	0
Diesel Fuel Trucks	g/Hp-hr	0.079951204	0.2470582	0.951589907	0.001205994	0.030245049	0.027825445	107.1831495	0.007213871	0

Table 4

Alternative 2 - Scenario 2 - 2011

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.8	3.9	6.8	0.0	0.4	0.4	701.4	0.1	0.0
Propane Forklifts	0.0	7.2	2.3	0.0	0.1	0.1	580.1	0.3	0.0
Diesel Fuel Trucks	0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	1.0	11.4	10.4	0.0	0.5	0.4	1,423.2	0.4	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.7	3.3	5.7	0.0	0.3	0.3	584.5	0.1	0.0
Propane Forklifts	0.0	6.6	2.1	0.0	0.0	0.0	535.5	0.3	0.0
Diesel Fuel Trucks	0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.8	10.2	9.1	0.0	0.4	0.4	1,261.7	0.3	0.0
Total	1.8	21.6	19.4	0.0	0.9	0.8	2,684.9	0.7	0.0

Table 4

Alternative 2 - Scenario 2 - 2011

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0		
<i>0.1</i>	<i>0.3</i>	<i>1.3</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>141.8</i>	<i>0.0</i>	<i>0.0</i>		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0		
<i>0.1</i>	<i>0.3</i>	<i>1.3</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>141.8</i>	<i>0.0</i>	<i>0.0</i>		
0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0		

Table 4

Alternative 2 - Scenario 2 - 2011

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	162.8	771.4	1,347.3	1.6	75.1	69.1	138,169.1	14.7	0.0
Propane Forklifts	6.6	1,411.6	450.0	0.0	10.2	10.1	114,274.6	55.0	0.0
Diesel Fuel Trucks	20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0
Subtotal	190.2	2,247.4	2,045.3	1.9	93.2	86.5	280,373.7	71.5	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	135.7	642.8	1,122.8	1.3	62.6	57.6	115,140.9	12.2	0.0
Propane Forklifts	6.1	1,303.0	415.4	0.0	9.4	9.4	105,484.3	50.7	0.0
Diesel Fuel Trucks	20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0
Subtotal	162.6	2,010.2	1,786.1	1.6	79.9	74.2	248,555.2	64.8	0.0
Total	352.8	4,257.6	3,831.4	3.5	173.1	160.7	528,928.9	136.4	0.0

Table 4

Alternative 2 - Scenario 2 - 2011

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0	
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0	
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0	
41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0	

Table 4

Alternative 2 - Scenario 2 - 2011

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NO _x	SO _x	PM10	PM2.5	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.026038	0.123348	0.215437	0.000249	0.012015	0.011054	22.093023	0.002349	0.000000
Propane Forklifts	0.001048	0.225710	0.071950	0.000000	0.001625	0.001622	18.272341	0.008787	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.030417	0.359352	0.327037	0.000299	0.014900	0.013835	44.831328	0.011437	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.021698	0.102790	0.179531	0.000207	0.010013	0.009212	18.410853	0.001958	0.000000
Propane Forklifts	0.000968	0.208348	0.066416	0.000000	0.001500	0.001497	16.866776	0.008111	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.025997	0.321432	0.285596	0.000257	0.012773	0.011868	39.743593	0.010369	0.000000
Total	0.056414	0.680784	0.612633	0.000556	0.027673	0.025703	84.574921	0.021806	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NO _x	SO _x	PM10	PM2.5	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Total	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000

Table 4

Alternative 2 - Scenario 2 - 2011

Equipment Type	Square meters	Emissions Before Mitigation (grams/second/meter squared)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	236798.2	1.099568E-07	5.209001E-07	9.097900E-07	1.049773E-09	5.073960E-08	4.668043E-08	9.329895E-05	9.921227E-09	0.000000E+00
Propane Forklifts	236798.2	4.426606E-09	9.531742E-07	3.038471E-07	0.000000E+00	6.862497E-09	6.848772E-09	7.716419E-05	3.710626E-08	0.000000E+00
Diesel Fuel Trucks	236798.2	1.406810E-08	4.347200E-08	1.674404E-07	2.122050E-10	5.321875E-09	4.896125E-09	1.885979E-05	1.269342E-09	0.000000E+00
Subtotal		1.284515E-07	1.517546E-06	1.381078E-06	1.261978E-09	6.292397E-08	5.842533E-08	1.893229E-04	4.829683E-08	0.000000E+00
Outer Harbor Cruise Terminals										
Diesel Forklifts	208041	1.042966E-07	4.940861E-07	8.629574E-07	9.957349E-10	4.812772E-08	4.427750E-08	8.849627E-05	9.410520E-09	0.000000E+00
Propane Forklifts	208041	4.650913E-09	1.001474E-06	3.192438E-07	0.000000E+00	7.210236E-09	7.195816E-09	8.107429E-05	3.898652E-08	0.000000E+00
Diesel Fuel Trucks	208041	1.601271E-08	4.948107E-08	1.905854E-07	2.415378E-10	6.057510E-09	5.572909E-09	2.146675E-05	1.444802E-09	0.000000E+00
Subtotal		1.249603E-07	1.545041E-06	1.372787E-06	1.237273E-09	6.139546E-08	5.704622E-08	1.910373E-04	4.984185E-08	0.000000E+00
Total		2.534118E-07	3.062587E-06	2.753864E-06	2.499251E-09	1.243194E-07	1.154716E-07	3.803602E-04	9.813867E-08	0.000000E+00

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Emissions After Mitigation (grams/second/meter squared)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
1.406810E-08	4.347200E-08	1.674404E-07	2.122050E-10	5.321875E-09	4.896125E-09	1.885979E-05	1.269342E-09	0.000000E+00	0.000000E+00
1.406810E-08	4.347200E-08	1.674404E-07	2.122050E-10	5.321875E-09	4.896125E-09	1.885979E-05	1.269342E-09	0.000000E+00	0.000000E+00
Outer Harbor Cruise Terminals									
0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
1.601271E-08	4.948107E-08	1.905854E-07	2.415378E-10	6.057510E-09	5.572909E-09	2.146675E-05	1.444802E-09	0.000000E+00	0.000000E+00
1.601271E-08	4.948107E-08	1.905854E-07	2.415378E-10	6.057510E-09	5.572909E-09	2.146675E-05	1.444802E-09	0.000000E+00	0.000000E+00
3.008081E-08	9.295307E-08	3.580258E-07	4.537427E-10	1.137938E-08	1.046903E-08	4.032654E-05	2.714144E-09	0.000000E+00	0.000000E+00

Table 4

Alternative 2 - Scenario 2 - 2011

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NO _x	SO _x	PM10	PM2.5	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0739	0.3499	0.6111	0.0007	0.0341	0.0314	62.6731	0.0067	0.0000
Propane Forklifts	0.0030	0.6403	0.2041	0.0000	0.0046	0.0046	51.8346	0.0249	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0863	1.0194	0.9277	0.0008	0.0423	0.0392	127.1767	0.0324	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0616	0.2916	0.5093	0.0006	0.0284	0.0261	52.2276	0.0056	0.0000
Propane Forklifts	0.0027	0.5910	0.1884	0.0000	0.0043	0.0042	47.8474	0.0230	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0737	0.9118	0.8102	0.0007	0.0362	0.0337	112.7439	0.0294	0.0000
Total	0.1600	1.9312	1.7379	0.0016	0.0785	0.0729	239.9206	0.0619	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NO _x	SO _x	PM10	PM2.5	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Total	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000

Table 5

Alternative 3 - Reduced Project - 2011

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.8	3.9	6.8	0.0	0.4	0.4	701.4	0.1	0.0
Propane Forklifts	0.0	7.2	2.3	0.0	0.1	0.1	580.1	0.3	0.0
Diesel Fuel Trucks	0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	1.0	11.4	10.4	0.0	0.5	0.4	1,423.2	0.4	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.4	2.0	3.4	0.0	0.2	0.2	350.7	0.0	0.0
Propane Forklifts	0.0	3.3	1.1	0.0	0.0	0.0	267.7	0.1	0.0
Diesel Fuel Trucks	0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.5	5.6	5.7	0.0	0.3	0.2	760.2	0.2	0.0
Total	1.5	17.0	16.1	0.0	0.7	0.7	2,183.4	0.5	0.0

Table 5

Alternative 3 - Reduced Project - 2011

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0		
<i>0.1</i>	<i>0.3</i>	<i>1.3</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>141.8</i>	<i>0.0</i>	<i>0.0</i>		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.1	0.3	1.3	0.0	0.0	0.0	141.8	0.0	0.0		
<i>0.1</i>	<i>0.3</i>	<i>1.3</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>141.8</i>	<i>0.0</i>	<i>0.0</i>		
0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0		

Table 5

Alternative 3 - Reduced Project - 2011

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	162.8	771.4	1,347.3	1.6	75.1	69.1	138,169.1	14.7	0.0
Propane Forklifts	6.6	1,411.6	450.0	0.0	10.2	10.1	114,274.6	55.0	0.0
Diesel Fuel Trucks	20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0
Subtotal	190.2	2,247.4	2,045.3	1.9	93.2	86.5	280,373.7	71.5	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	81.4	385.7	673.7	0.8	37.6	34.6	69,084.5	7.3	0.0
Propane Forklifts	3.0	651.5	207.7	0.0	4.7	4.7	52,742.1	25.4	0.0
Diesel Fuel Trucks	20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0
Subtotal	105.3	1,101.6	1,129.3	1.1	50.1	46.5	149,756.7	34.6	0.0
Total	295.5	3,349.0	3,174.6	3.0	143.3	133.0	430,130.4	106.1	0.0

Table 5

Alternative 3 - Reduced Project - 2011

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0	
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0	
20.8	64.4	248.0	0.3	7.9	7.3	27,930.0	1.9	0.0	
Total									
41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0	

Table 5

Alternative 3 - Reduced Project - 2011

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.026038	0.123348	0.215437	0.000249	0.012015	0.011054	22.093023	0.002349	0.000000
Propane Forklifts	0.001048	0.225710	0.071950	0.000000	0.001625	0.001622	18.272341	0.008787	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.030417	0.359352	0.327037	0.000299	0.014900	0.013835	44.831328	0.011437	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.013019	0.061674	0.107718	0.000124	0.006008	0.005527	11.046512	0.001175	0.000000
Propane Forklifts	0.000484	0.104174	0.033208	0.000000	0.000750	0.000749	8.433388	0.004055	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.016834	0.176142	0.180576	0.000175	0.008018	0.007435	23.945864	0.005531	0.000000
Total	0.047251	0.535494	0.507612	0.000473	0.022918	0.021270	68.777192	0.016967	0.000000
Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Subtotal	0.003331	0.010294	0.039650	0.000050	0.001260	0.001159	4.465965	0.000301	0.000000
Total	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000

Table 5

Alternative 3 - Reduced Project - 2011

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NO _x	SO _x	PM10	PM2.5	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	1.099568E-07	5.209001E-07	9.097900E-07	1.049773E-09	5.073960E-08	4.668043E-08	9.329895E-05	9.921227E-09	0.000000E+00
Propane Forklifts	4.426606E-09	9.531742E-07	3.038471E-07	0.000000E+00	6.862497E-09	6.848772E-09	7.716419E-05	3.710626E-08	0.000000E+00
Diesel Fuel Trucks	1.406810E-08	4.347200E-08	1.674404E-07	2.122050E-10	5.321875E-09	4.896125E-09	1.885979E-05	1.269342E-09	0.000000E+00
Subtotal	1.284515E-07	1.517546E-06	1.381078E-06	1.261978E-09	6.292397E-08	5.842533E-08	1.893229E-04	4.829683E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	6.257799E-08	2.964517E-07	5.177745E-07	5.974409E-10	2.887663E-08	2.656650E-08	5.309776E-05	5.646312E-09	0.000000E+00
Propane Forklifts	2.325456E-09	5.007369E-07	1.596219E-07	0.000000E+00	3.605118E-09	3.597908E-09	4.053714E-05	1.949326E-08	0.000000E+00
Diesel Fuel Trucks	1.601271E-08	4.948107E-08	1.905854E-07	2.415378E-10	6.057510E-09	5.572909E-09	2.146675E-05	1.444802E-09	0.000000E+00
Subtotal	8.091615E-08	8.466697E-07	8.679818E-07	8.389787E-10	3.853926E-08	3.573732E-08	1.151017E-04	2.658438E-08	0.000000E+00
Total	2.093677E-07	2.364216E-06	2.249059E-06	2.100957E-09	1.014632E-07	9.416264E-08	3.044246E-04	7.488120E-08	0.000000E+00
Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NO _x	SO _x	PM10	PM2.5	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.406810E-08	4.347200E-08	1.674404E-07	2.122050E-10	5.321875E-09	4.896125E-09	1.885979E-05	1.269342E-09	0.000000E+00
Subtotal	1.406810E-08	4.347200E-08	1.674404E-07	2.122050E-10	5.321875E-09	4.896125E-09	1.885979E-05	1.269342E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.601271E-08	4.948107E-08	1.905854E-07	2.415378E-10	6.057510E-09	5.572909E-09	2.146675E-05	1.444802E-09	0.000000E+00
Subtotal	1.601271E-08	4.948107E-08	1.905854E-07	2.415378E-10	6.057510E-09	5.572909E-09	2.146675E-05	1.444802E-09	0.000000E+00
Total	3.008081E-08	9.295307E-08	3.580258E-07	4.537427E-10	1.137938E-08	1.046903E-08	4.032654E-05	2.714144E-09	0.000000E+00

Table 5

Alternative 3 - Reduced Project - 2011

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0739	0.3499	0.6111	0.0007	0.0341	0.0314	62.6731	0.0067	0.0000
Propane Forklifts	0.0030	0.6403	0.2041	0.0000	0.0046	0.0046	51.8346	0.0249	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0863	1.0194	0.9277	0.0008	0.0423	0.0392	127.1767	0.0324	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0369	0.1750	0.3056	0.0004	0.0170	0.0157	31.3365	0.0033	0.0000
Propane Forklifts	0.0014	0.2955	0.0942	0.0000	0.0021	0.0021	23.9237	0.0115	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0478	0.4997	0.5123	0.0005	0.0227	0.0211	67.9292	0.0157	0.0000
Total	0.1340	1.5191	1.4400	0.0013	0.0650	0.0603	195.1059	0.0481	0.0000
Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Subtotal	0.0095	0.0292	0.1125	0.0001	0.0036	0.0033	12.6690	0.0009	0.0000
Total	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000

Table 6

Alternative 4 - Scenario 4 - 2011

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	1.2	5.9	10.3	0.0	0.6	0.5	1,052.0	0.1	0.0
Propane Forklifts	0.0	10.5	3.3	0.0	0.1	0.1	847.8	0.4	0.0
Diesel Fuel Trucks	0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0
Subtotal	1.5	17.0	16.1	0.0	0.7	0.7	2,183.4	0.5	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.5	17.0	16.1	0.0	0.7	0.7	2,183.4	0.5	0.0

Table 6

Alternative 4 - Scenario 4 - 2011

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0		
<i>0.2</i>	<i>0.7</i>	<i>2.5</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>283.6</i>	<i>0.0</i>	<i>0.0</i>		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>		
0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0		

Table 6

Alternative 4 - Scenario 4 - 2011

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	244.3	1,157.1	2,021.0	2.3	112.7	103.7	207,253.6	22.0	0.0
Propane Forklifts	9.6	2,063.1	657.7	0.0	14.9	14.8	167,016.8	80.3	0.0
Diesel Fuel Trucks	41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0
Subtotal	295.5	3,349.0	3,174.6	3.0	143.3	133.0	430,130.4	106.1	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	295.5	3,349.0	3,174.6	3.0	143.3	133.0	430,130.4	106.1	0.0

Table 6

Alternative 4 - Scenario 4 - 2011

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0	
41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0	

Table 6

Alternative 4 - Scenario 4 - 2011

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.039056	0.185022	0.323155	0.000373	0.018023	0.016581	33.139535	0.003524	0.000000
Propane Forklifts	0.001532	0.329884	0.105158	0.000000	0.002375	0.002370	26.705728	0.012842	0.000000
Diesel Fuel Trucks	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000
Subtotal	0.047251	0.535494	0.507612	0.000473	0.022918	0.021270	68.777192	0.016967	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.047251	0.535494	0.507612	0.000473	0.022918	0.021270	68.777192	0.016967	0.000000
Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000
Subtotal	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000

Table 6

Alternative 4 - Scenario 4 - 2011

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	1.649352E-07	7.813501E-07	1.364685E-06	1.574660E-09	7.610940E-08	7.002065E-08	1.399484E-04	1.488184E-08	0.000000E+00
Propane Forklifts	6.469655E-09	1.393101E-06	4.440843E-07	0.000000E+00	1.002980E-08	1.000974E-08	1.127784E-04	5.423222E-08	0.000000E+00
Diesel Fuel Trucks	2.813620E-08	8.694400E-08	3.348808E-07	4.244100E-10	1.064375E-08	9.792250E-09	3.771958E-05	2.538685E-09	0.000000E+00
Subtotal	1.995411E-07	2.261395E-06	2.143650E-06	1.999070E-09	9.678295E-08	8.982264E-08	2.904464E-04	7.165275E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	1.995411E-07	2.261395E-06	2.143650E-06	1.999070E-09	9.678295E-08	8.982264E-08	2.904464E-04	7.165275E-08	0.000000E+00
Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	2.813620E-08	8.694400E-08	3.348808E-07	4.244100E-10	1.064375E-08	9.792250E-09	3.771958E-05	2.538685E-09	0.000000E+00
Subtotal	2.813620E-08	8.694400E-08	3.348808E-07	4.244100E-10	1.064375E-08	9.792250E-09	3.771958E-05	2.538685E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	2.813620E-08	8.694400E-08	3.348808E-07	4.244100E-10	1.064375E-08	9.792250E-09	3.771958E-05	2.538685E-09	0.000000E+00

Table 6

Alternative 4 - Scenario 4 - 2011

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.1108	0.5249	0.9167	0.0011	0.0511	0.0470	94.0096	0.0100	0.0000
Propane Forklifts	0.0043	0.9358	0.2983	0.0000	0.0067	0.0067	75.7583	0.0364	0.0000
Diesel Fuel Trucks	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000
Subtotal	0.1340	1.5191	1.4400	0.0013	0.0650	0.0603	195.1059	0.0481	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1340	1.5191	1.4400	0.0013	0.0650	0.0603	195.1059	0.0481	0.0000
Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000
Subtotal	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000

Table 7

Alternative 5 - NEPA Baseline 2011

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	1.2	5.9	10.3	0.0	0.6	0.5	1,052.0	0.1	0.0
Propane Forklifts	0.0	10.5	3.3	0.0	0.1	0.1	847.8	0.4	0.0
Diesel Fuel Trucks	0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0
Subtotal	1.5	17.0	16.1	0.0	0.7	0.7	2,183.4	0.5	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.5	17.0	16.1	0.0	0.7	0.7	2,183.4	0.5	0.0

Table 7

Alternative 5 - NEPA Baseline 2011

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type	Daily Emissions After Mitigation (lb/day)									
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals										
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Diesel Fuel Trucks	0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0	
Subtotal	0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0	
Outer Harbor Cruise Terminals										
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0	

Table 7

Alternative 5 - NEPA Baseline 2011

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	244.3	1,157.1	2,021.0	2.3	112.7	103.7	207,253.6	22.0	0.0
Propane Forklifts	9.6	2,063.1	657.7	0.0	14.9	14.8	167,016.8	80.3	0.0
Diesel Fuel Trucks	41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0
Subtotal	295.5	3,349.0	3,174.6	3.0	143.3	133.0	430,130.4	106.1	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	295.5	3,349.0	3,174.6	3.0	143.3	133.0	430,130.4	106.1	0.0

Table 7

Alternative 5 - NEPA Baseline 2011

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0	
41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0	

Table 7

Alternative 5 - NEPA Baseline 2011

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.039056	0.185022	0.323155	0.000373	0.018023	0.016581	33.139535	0.003524	0.000000
Propane Forklifts	0.001532	0.329884	0.105158	0.000000	0.002375	0.002370	26.705728	0.012842	0.000000
Diesel Fuel Trucks	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000
Subtotal	0.047251	0.535494	0.507612	0.000473	0.022918	0.021270	68.777192	0.016967	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.047251	0.535494	0.507612	0.000473	0.022918	0.021270	68.777192	0.016967	0.000000
Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000
Subtotal	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000

Table 7

Alternative 5 - NEPA Baseline 2011

Equipment Type	Square meters	Emissions Before Mitigation (grams/second/meter squared)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	236798.2	1.649352E-07	7.813501E-07	1.364685E-06	1.574660E-09	7.610940E-08	7.002065E-08	1.399484E-04	1.488184E-08	0.000000E+00
Propane Forklifts	236798.2	6.469655E-09	1.393101E-06	4.440843E-07	0.000000E+00	1.002980E-08	1.000974E-08	1.127784E-04	5.423222E-08	0.000000E+00
Diesel Fuel Trucks	236798.2	2.813620E-08	8.694400E-08	3.348808E-07	4.244100E-10	1.064375E-08	9.792250E-09	3.771958E-05	2.538685E-09	0.000000E+00
Subtotal		1.995411E-07	2.261395E-06	2.143650E-06	1.999070E-09	9.678295E-08	8.982264E-08	2.904464E-04	7.165275E-08	0.000000E+00
Outer Harbor Cruise Terminals										
Diesel Forklifts	208041	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	208041	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	208041	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal		0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total		1.995411E-07	2.261395E-06	2.143650E-06	1.999070E-09	9.678295E-08	8.982264E-08	2.904464E-04	7.165275E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)									
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals										
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	2.813620E-08	8.694400E-08	3.348808E-07	4.244100E-10	1.064375E-08	9.792250E-09	3.771958E-05	2.538685E-09	0.000000E+00	
Subtotal	2.813620E-08	8.694400E-08	3.348808E-07	4.244100E-10	1.064375E-08	9.792250E-09	3.771958E-05	2.538685E-09	0.000000E+00	
Outer Harbor Cruise Terminals										
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	
Total	2.813620E-08	8.694400E-08	3.348808E-07	4.244100E-10	1.064375E-08	9.792250E-09	3.771958E-05	2.538685E-09	0.000000E+00	

Table 7

Alternative 5 - NEPA Baseline 2011

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.1108	0.5249	0.9167	0.0011	0.0511	0.0470	94.0096	0.0100	0.0000
Propane Forklifts	0.0043	0.9358	0.2983	0.0000	0.0067	0.0067	75.7583	0.0364	0.0000
Diesel Fuel Trucks	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000
Subtotal	0.1340	1.5191	1.4400	0.0013	0.0650	0.0603	195.1059	0.0481	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1340	1.5191	1.4400	0.0013	0.0650	0.0603	195.1059	0.0481	0.0000
Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000
Subtotal	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000

Table 8

Alternative 6 - No Project 2011

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts									
Propane Forklifts	1.2	5.9	10.3	0.0	0.6	0.5	1,052.0	0.1	0.0
Diesel Fuel Trucks	0.0	10.5	3.3	0.0	0.1	0.1	847.8	0.4	0.0
Subtotal	0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0
Outer Harbor Cruise Terminals	1.5	17.0	16.1	0.0	0.7	0.7	2,183.4	0.5	0.0
Diesel Forklifts									
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total									
	1.5	17.0	16.1	0.0	0.7	0.7	2,183.4	0.5	0.0

Table 8

Alternative 6 - No Project 2011

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals								
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0
<i>0.2</i>	<i>0.7</i>	<i>2.5</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>283.6</i>	<i>0.0</i>	<i>0.0</i>
Outer Harbor Cruise Terminals								
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
0.2	0.7	2.5	0.0	0.1	0.1	283.6	0.0	0.0

Table 8

Alternative 6 - No Project 2011

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	244.3	1,157.1	2,021.0	2.3	112.7	103.7	207,253.6	22.0	0.0
Propane Forklifts	9.6	2,063.1	657.7	0.0	14.9	14.8	167,016.8	80.3	0.0
Diesel Fuel Trucks	41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0
Subtotal	295.5	3,349.0	3,174.6	3.0	143.3	133.0	430,130.4	106.1	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	295.5	3,349.0	3,174.6	3.0	143.3	133.0	430,130.4	106.1	0.0

Table 8

Alternative 6 - No Project 2011

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0	
41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
41.7	128.8	495.9	0.6	15.8	14.5	55,860.0	3.8	0.0	

Table 8

Alternative 6 - No Project 2011

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.039056	0.185022	0.323155	0.000373	0.018023	0.016581	33.139535	0.003524	0.000000
Propane Forklifts	0.001532	0.329884	0.105158	0.000000	0.002375	0.002370	26.705728	0.012842	0.000000
Diesel Fuel Trucks	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000
Subtotal	0.047251	0.535494	0.507612	0.000473	0.022918	0.021270	68.777192	0.016967	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.047251	0.535494	0.507612	0.000473	0.022918	0.021270	68.777192	0.016967	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000
Subtotal	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.006663	0.020588	0.079299	0.000100	0.002520	0.002319	8.931929	0.000601	0.000000

Table 8

Alternative 6 - No Project 2011

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	1.649352E-07	7.813501E-07	1.364685E-06	1.574660E-09	7.610940E-08	7.002065E-08	1.399484E-04	1.488184E-08	0.000000E+00
Propane Forklifts	6.469655E-09	1.393101E-06	4.440843E-07	0.000000E+00	1.002980E-08	1.000974E-08	1.127784E-04	5.423222E-08	0.000000E+00
Diesel Fuel Trucks	2.813620E-08	8.694400E-08	3.348808E-07	4.244100E-10	1.064375E-08	9.792250E-09	3.771958E-05	2.538685E-09	0.000000E+00
Subtotal	1.995411E-07	2.261395E-06	2.143650E-06	1.999070E-09	9.678295E-08	8.982264E-08	2.904464E-04	7.165275E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	1.995411E-07	2.261395E-06	2.143650E-06	1.999070E-09	9.678295E-08	8.982264E-08	2.904464E-04	7.165275E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	2.813620E-08	8.694400E-08	3.348808E-07	4.244100E-10	1.064375E-08	9.792250E-09	3.771958E-05	2.538685E-09	0.000000E+00
Subtotal	2.813620E-08	8.694400E-08	3.348808E-07	4.244100E-10	1.064375E-08	9.792250E-09	3.771958E-05	2.538685E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	2.813620E-08	8.694400E-08	3.348808E-07	4.244100E-10	1.064375E-08	9.792250E-09	3.771958E-05	2.538685E-09	0.000000E+00

Table 8

Alternative 6 - No Project 2011

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.1108	0.5249	0.9167	0.0011	0.0511	0.0470	94.0096	0.0100	0.0000
Propane Forklifts	0.0043	0.9358	0.2983	0.0000	0.0067	0.0067	75.7583	0.0364	0.0000
Diesel Fuel Trucks	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000
Subtotal	0.1340	1.5191	1.4400	0.0013	0.0650	0.0603	195.1059	0.0481	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1340	1.5191	1.4400	0.0013	0.0650	0.0603	195.1059	0.0481	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000
Subtotal	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0189	0.0584	0.2250	0.0003	0.0071	0.0066	25.3379	0.0017	0.0000

Table 9

Proposed Project 2015

<i>Equipment Type</i>	<i>Daily Emissions Before Mitigation (lb/day)</i>								
	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.6	3.9	5.2	0.0	0.3	0.3	701.4	0.1	0.0
Propane Forklifts	0.0	7.2	2.0	0.0	0.1	0.1	580.1	0.2	0.0
Diesel Fuel Trucks	0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.8	11.4	8.1	0.0	0.4	0.3	1,423.2	0.3	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.5	3.3	4.4	0.0	0.2	0.2	584.5	0.0	0.0
Propane Forklifts	0.0	6.6	1.8	0.0	0.0	0.0	535.5	0.2	0.0
Diesel Fuel Trucks	0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.6	10.2	7.1	0.0	0.3	0.3	1,261.7	0.3	0.0
Total	1.4	21.6	15.2	0.0	0.7	0.6	2,684.9	0.6	0.0

Table 9
Proposed Project 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0	0.0	0.0
0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0	0.0	0.0
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0	0.0	0.0
0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0	0.0	0.0
0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0	0.0	0.0

Table 9

Proposed Project 2015

<i>Equipment Type</i>	<i>Annual Emissions Before Mitigation (lbs/year)</i>								
	<i>ROG</i>	<i>CO</i>	<i>NOx</i>	<i>SOx</i>	<i>PM10</i>	<i>PM2.5</i>	<i>CO2</i>	<i>CH4</i>	<i>N2O</i>
Inner Harbor Cruise Terminals									
Diesel Forklifts	126.7	770.5	1,032.5	1.6	55.4	51.0	138,169.1	11.4	0.0
Propane Forklifts	5.4	1,418.0	388.0	0.0	10.2	10.1	114,274.7	45.2	0.0
Diesel Fuel Trucks	16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0
Subtotal	148.9	2,246.3	1,602.0	1.9	71.2	66.3	280,373.8	58.1	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	105.6	642.1	860.4	1.3	46.2	42.5	115,140.9	9.5	0.0
Propane Forklifts	5.0	1,309.0	358.2	0.0	9.4	9.4	105,484.3	41.7	0.0
Diesel Fuel Trucks	16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0
Subtotal	127.3	2,008.8	1,400.0	1.6	61.2	57.0	248,555.2	52.8	0.0
Total	276.2	4,255.2	3,002.0	3.5	132.4	123.3	528,929.0	110.9	0.0

Table 9
Proposed Project 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0		
16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0		
16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0		
33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0		

Table 9

Proposed Project 2015

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.020262	0.123206	0.165088	0.000249	0.008865	0.008155	22.093027	0.001828	0.000000
Propane Forklifts	0.000862	0.226743	0.062048	0.000000	0.001625	0.001622	18.272348	0.007226	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.023802	0.359185	0.256152	0.000299	0.011387	0.010603	44.831338	0.009296	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.016885	0.102672	0.137574	0.000207	0.007387	0.006796	18.410856	0.001524	0.000000
Propane Forklifts	0.000796	0.209301	0.057275	0.000000	0.001500	0.001497	16.866782	0.006671	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.020358	0.321209	0.223864	0.000257	0.009784	0.009119	39.743602	0.008436	0.000000
Total	0.044160	0.680394	0.480016	0.000556	0.021171	0.019721	84.574941	0.017732	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Total	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000

Table 9

Proposed Project 2015

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	8.556715E-08	5.203014E-07	6.971691E-07	1.049774E-09	3.743486E-08	3.444007E-08	9.329896E-05	7.720590E-09	0.000000E+00
Propane Forklifts	3.640583E-09	9.575352E-07	2.620272E-07	0.000000E+00	6.862498E-09	6.848773E-09	7.716422E-05	3.051738E-08	0.000000E+00
Diesel Fuel Trucks	1.130663E-08	3.900358E-08	1.225335E-07	2.122050E-10	3.788710E-09	3.485614E-09	1.885979E-05	1.020179E-09	0.000000E+00
Subtotal	1.005144E-07	1.516840E-06	1.081730E-06	1.261979E-09	4.808607E-08	4.477446E-08	1.893230E-04	3.925814E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	8.116247E-08	4.935183E-07	6.612814E-07	9.957353E-10	3.550786E-08	3.266723E-08	8.849628E-05	7.323163E-09	0.000000E+00
Propane Forklifts	3.825060E-09	1.006056E-06	2.753048E-07	0.000000E+00	7.210237E-09	7.195817E-09	8.107432E-05	3.206377E-08	0.000000E+00
Diesel Fuel Trucks	1.286952E-08	4.439499E-08	1.394711E-07	2.415378E-10	4.312418E-09	3.967425E-09	2.146675E-05	1.161197E-09	0.000000E+00
Subtotal	9.785706E-08	1.543969E-06	1.076057E-06	1.237273E-09	4.703051E-08	4.383047E-08	1.910374E-04	4.054813E-08	0.000000E+00
Total	1.983714E-07	3.060809E-06	2.157787E-06	2.499252E-09	9.511658E-08	8.860493E-08	3.803603E-04	7.980627E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.130663E-08	3.900358E-08	1.225335E-07	2.122050E-10	3.788710E-09	3.485614E-09	1.885979E-05	1.020179E-09	0.000000E+00
Subtotal	1.130663E-08	3.900358E-08	1.225335E-07	2.122050E-10	3.788710E-09	3.485614E-09	1.885979E-05	1.020179E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.286952E-08	4.439499E-08	1.394711E-07	2.415378E-10	4.312418E-09	3.967425E-09	2.146675E-05	1.161197E-09	0.000000E+00
Subtotal	1.286952E-08	4.439499E-08	1.394711E-07	2.415378E-10	4.312418E-09	3.967425E-09	2.146675E-05	1.161197E-09	0.000000E+00
Total	2.417615E-08	8.339857E-08	2.620047E-07	4.537427E-10	8.101129E-09	7.453038E-09	4.032654E-05	2.181376E-09	0.000000E+00

Table 9

Proposed Project 2015

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0575	0.3495	0.4683	0.0007	0.0251	0.0231	62.6731	0.0052	0.0000
Propane Forklifts	0.0024	0.6432	0.1760	0.0000	0.0046	0.0046	51.8347	0.0205	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0675	1.0189	0.7266	0.0008	0.0323	0.0301	127.1767	0.0264	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0479	0.2913	0.3903	0.0006	0.0210	0.0193	52.2276	0.0043	0.0000
Propane Forklifts	0.0023	0.5937	0.1625	0.0000	0.0043	0.0042	47.8474	0.0189	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0578	0.9112	0.6351	0.0007	0.0278	0.0259	112.7439	0.0239	0.0000
Total	0.1253	1.9301	1.3617	0.0016	0.0601	0.0559	239.9206	0.0503	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Total	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000

Table 10

Alternative 1 - Scenario 1 - 2015

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.6	3.9	5.2	0.0	0.3	0.3	701.4	0.1	0.0
Propane Forklifts	0.0	7.2	2.0	0.0	0.1	0.1	580.1	0.2	0.0
Diesel Fuel Trucks	0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.8	11.4	8.1	0.0	0.4	0.3	1,423.2	0.3	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.3	2.0	2.6	0.0	0.1	0.1	350.7	0.0	0.0
Propane Forklifts	0.0	3.3	0.9	0.0	0.0	0.0	267.7	0.1	0.0
Diesel Fuel Trucks	0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.4	5.6	4.5	0.0	0.2	0.2	760.2	0.1	0.0
Total	1.2	17.0	12.6	0.0	0.6	0.5	2,183.4	0.4	0.0

Table 10

Alternative 1 - Scenario 1 - 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type	Daily Emissions After Mitigation (lb/day)									
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals										
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0	0.0
<i>Subtotal</i>	<i>0.1</i>	<i>0.3</i>	<i>0.9</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>141.8</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
Outer Harbor Cruise Terminals										
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0	0.0
<i>Subtotal</i>	<i>0.1</i>	<i>0.3</i>	<i>0.9</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>141.8</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
Total	0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0	0.0

Table 10

Alternative 1 - Scenario 1 - 2015

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	126.7	770.5	1,032.5	1.6	55.4	51.0	138,169.1	11.4	0.0
Propane Forklifts	5.4	1,418.0	388.0	0.0	10.2	10.1	114,274.7	45.2	0.0
Diesel Fuel Trucks	16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0
Subtotal	148.9	2,246.3	1,602.0	1.9	71.2	66.3	280,373.8	58.1	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	63.4	385.3	516.2	0.8	27.7	25.5	69,084.5	5.7	0.0
Propane Forklifts	2.5	654.5	179.1	0.0	4.7	4.7	52,742.2	20.9	0.0
Diesel Fuel Trucks	16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0
Subtotal	82.6	1,097.5	876.8	1.1	38.0	35.3	149,756.7	28.1	0.0
Total	231.4	3,343.8	2,478.8	3.0	109.2	101.7	430,130.5	86.2	0.0

Table 10

Alternative 1 - Scenario 1 - 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type	Annual Emissions After Mitigation (Lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0
<i>Subtotal</i>									
	16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0
<i>Subtotal</i>									
	16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0
Total									
	33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0

Table 10

Alternative 1 - Scenario 1 - 2015

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.020262	0.123206	0.165088	0.000249	0.008865	0.008155	22.093027	0.001828	0.000000
Propane Forklifts	0.000862	0.226743	0.062048	0.000000	0.001625	0.001622	18.272348	0.007226	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.023802	0.359185	0.256152	0.000299	0.011387	0.010603	44.831338	0.009296	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.010131	0.061603	0.082544	0.000124	0.004432	0.004078	11.046513	0.000914	0.000000
Propane Forklifts	0.000398	0.104650	0.028637	0.000000	0.000750	0.000749	8.433391	0.003335	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.013206	0.175490	0.140197	0.000175	0.006079	0.005652	23.945869	0.004491	0.000000
Total	0.037008	0.534675	0.396349	0.000473	0.017466	0.016254	68.777207	0.013787	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Total	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000

Table 10

Alternative 1 - Scenario 1 - 2015

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	8.556715E-08	5.203014E-07	6.971691E-07	1.049774E-09	3.743486E-08	3.444007E-08	9.329896E-05	7.720590E-09	0.000000E+00
Propane Forklifts	3.640583E-09	9.575352E-07	2.620272E-07	0.000000E+00	6.862498E-09	6.848773E-09	7.716422E-05	3.051738E-08	0.000000E+00
Diesel Fuel Trucks	1.130663E-08	3.900358E-08	1.225335E-07	2.122050E-10	3.788710E-09	3.485614E-09	1.885979E-05	1.020179E-09	0.000000E+00
Subtotal	1.005144E-07	1.516840E-06	1.081730E-06	1.261979E-09	4.808607E-08	4.477446E-08	1.893230E-04	3.925814E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	4.869748E-08	2.961110E-07	3.967689E-07	5.974412E-10	2.130471E-08	1.960034E-08	5.309777E-05	4.393898E-09	0.000000E+00
Propane Forklifts	1.912530E-09	5.030279E-07	1.376524E-07	0.000000E+00	3.605119E-09	3.597908E-09	4.053716E-05	1.603188E-08	0.000000E+00
Diesel Fuel Trucks	1.286952E-08	4.439499E-08	1.394711E-07	2.415378E-10	4.312418E-09	3.967425E-09	2.146675E-05	1.161197E-09	0.000000E+00
Subtotal	6.347954E-08	8.435339E-07	6.738924E-07	8.389790E-10	2.922225E-08	2.716567E-08	1.151017E-04	2.158698E-08	0.000000E+00
Total	1.639939E-07	2.360374E-06	1.755622E-06	2.100958E-09	7.730832E-08	7.194013E-08	3.044247E-04	6.084512E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.130663E-08	3.900358E-08	1.225335E-07	2.122050E-10	3.788710E-09	3.485614E-09	1.885979E-05	1.020179E-09	0.000000E+00
Subtotal	1.130663E-08	3.900358E-08	1.225335E-07	2.122050E-10	3.788710E-09	3.485614E-09	1.885979E-05	1.020179E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.286952E-08	4.439499E-08	1.394711E-07	2.415378E-10	4.312418E-09	3.967425E-09	2.146675E-05	1.161197E-09	0.000000E+00
Subtotal	1.286952E-08	4.439499E-08	1.394711E-07	2.415378E-10	4.312418E-09	3.967425E-09	2.146675E-05	1.161197E-09	0.000000E+00
Total	2.417615E-08	8.339857E-08	2.620047E-07	4.537427E-10	8.101129E-09	7.453038E-09	4.032654E-05	2.181376E-09	0.000000E+00

Table 10

Alternative 1 - Scenario 1 - 2015

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0575	0.3495	0.4683	0.0007	0.0251	0.0231	62.6731	0.0052	0.0000
Propane Forklifts	0.0024	0.6432	0.1760	0.0000	0.0046	0.0046	51.8347	0.0205	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0675	1.0189	0.7266	0.0008	0.0323	0.0301	127.1767	0.0264	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0287	0.1748	0.2342	0.0004	0.0126	0.0116	31.3365	0.0026	0.0000
Propane Forklifts	0.0011	0.2969	0.0812	0.0000	0.0021	0.0021	23.9237	0.0095	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0375	0.4978	0.3977	0.0005	0.0172	0.0160	67.9292	0.0127	0.0000
Total	0.1050	1.5168	1.1244	0.0013	0.0495	0.0461	195.1059	0.0391	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Total	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000

Table 11

Alternative 2 - Scenario 2 - 2015

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.6	3.9	5.2	0.0	0.3	0.3	701.4	0.1	0.0
Propane Forklifts	0.0	7.2	2.0	0.0	0.1	0.1	580.1	0.2	0.0
Diesel Fuel Trucks	0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.8	11.4	8.1	0.0	0.4	0.3	1,423.2	0.3	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.5	3.3	4.4	0.0	0.2	0.2	584.5	0.0	0.0
Propane Forklifts	0.0	6.6	1.8	0.0	0.0	0.0	535.5	0.2	0.0
Diesel Fuel Trucks	0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.6	10.2	7.1	0.0	0.3	0.3	1,261.7	0.3	0.0
Total	1.4	21.6	15.2	0.0	0.7	0.6	2,684.9	0.6	0.0

Table 11

Alternative 2 - Scenario 2 - 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0	0.0
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0	0.0

Table 11

Alternative 2 - Scenario 2 - 2015

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	126.7	770.5	1,032.5	1.6	55.4	51.0	138,169.1	11.4	0.0
Propane Forklifts	5.4	1,418.0	388.0	0.0	10.2	10.1	114,274.7	45.2	0.0
Diesel Fuel Trucks	16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0
Subtotal	148.9	2,246.3	1,602.0	1.9	71.2	66.3	280,373.8	58.1	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	105.6	642.1	860.4	1.3	46.2	42.5	115,140.9	9.5	0.0
Propane Forklifts	5.0	1,309.0	358.2	0.0	9.4	9.4	105,484.3	41.7	0.0
Diesel Fuel Trucks	16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0
Subtotal	127.3	2,008.8	1,400.0	1.6	61.2	57.0	248,555.2	52.8	0.0
Total	276.2	4,255.2	3,002.0	3.5	132.4	123.3	528,929.0	110.9	0.0

Table 11

Alternative 2 - Scenario 2 - 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0	
16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0	
16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0	
33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0	

Table 11

Alternative 2 - Scenario 2 - 2015

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.020262	0.123206	0.165088	0.000249	0.008865	0.008155	22.093027	0.001828	0.000000
Propane Forklifts	0.000862	0.226743	0.062048	0.000000	0.001625	0.001622	18.272348	0.007226	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.023802	0.359185	0.256152	0.000299	0.011387	0.010603	44.831338	0.009296	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.016885	0.102672	0.137574	0.000207	0.007387	0.006796	18.410856	0.001524	0.000000
Propane Forklifts	0.000796	0.209301	0.057275	0.000000	0.001500	0.001497	16.866782	0.006671	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.020358	0.321209	0.223864	0.000257	0.009784	0.009119	39.743602	0.008436	0.000000
Total	0.044160	0.680394	0.480016	0.000556	0.021171	0.019721	84.574941	0.017732	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Total	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000

Table 11

Alternative 2 - Scenario 2 - 2015

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	8.556715E-08	5.203014E-07	6.971691E-07	1.049774E-09	3.743486E-08	3.444007E-08	9.329896E-05	7.720590E-09	0.000000E+00
Propane Forklifts	3.640583E-09	9.575352E-07	2.620272E-07	0.000000E+00	6.862498E-09	6.848773E-09	7.716422E-05	3.051738E-08	0.000000E+00
Diesel Fuel Trucks	1.130663E-08	3.900358E-08	1.225335E-07	2.122050E-10	3.788710E-09	3.485614E-09	1.885979E-05	1.020179E-09	0.000000E+00
Subtotal	1.005144E-07	1.516840E-06	1.081730E-06	1.261979E-09	4.808607E-08	4.477446E-08	1.893230E-04	3.925814E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	8.116247E-08	4.935183E-07	6.612814E-07	9.957353E-10	3.550786E-08	3.266723E-08	8.849628E-05	7.323163E-09	0.000000E+00
Propane Forklifts	3.825060E-09	1.006056E-06	2.753048E-07	0.000000E+00	7.210237E-09	7.195817E-09	8.107432E-05	3.206377E-08	0.000000E+00
Diesel Fuel Trucks	1.286952E-08	4.439499E-08	1.394711E-07	2.415378E-10	4.312418E-09	3.967425E-09	2.146675E-05	1.161197E-09	0.000000E+00
Subtotal	9.785706E-08	1.543969E-06	1.076057E-06	1.237273E-09	4.703051E-08	4.383047E-08	1.910374E-04	4.054813E-08	0.000000E+00
Total	1.983714E-07	3.060809E-06	2.157787E-06	2.499252E-09	9.511658E-08	8.860493E-08	3.803603E-04	7.980627E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.130663E-08	3.900358E-08	1.225335E-07	2.122050E-10	3.788710E-09	3.485614E-09	1.885979E-05	1.020179E-09	0.000000E+00
Subtotal	1.130663E-08	3.900358E-08	1.225335E-07	2.122050E-10	3.788710E-09	3.485614E-09	1.885979E-05	1.020179E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.286952E-08	4.439499E-08	1.394711E-07	2.415378E-10	4.312418E-09	3.967425E-09	2.146675E-05	1.161197E-09	0.000000E+00
Subtotal	1.286952E-08	4.439499E-08	1.394711E-07	2.415378E-10	4.312418E-09	3.967425E-09	2.146675E-05	1.161197E-09	0.000000E+00
Total	2.417615E-08	8.339857E-08	2.620047E-07	4.537427E-10	8.101129E-09	7.453038E-09	4.032654E-05	2.181376E-09	0.000000E+00

Table 11

Alternative 2 - Scenario 2 - 2015

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0575	0.3495	0.4683	0.0007	0.0251	0.0231	62.6731	0.0052	0.0000
Propane Forklifts	0.0024	0.6432	0.1760	0.0000	0.0046	0.0046	51.8347	0.0205	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0675	1.0189	0.7266	0.0008	0.0323	0.0301	127.1767	0.0264	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0479	0.2913	0.3903	0.0006	0.0210	0.0193	52.2276	0.0043	0.0000
Propane Forklifts	0.0023	0.5937	0.1625	0.0000	0.0043	0.0042	47.8474	0.0189	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0578	0.9112	0.6351	0.0007	0.0278	0.0259	112.7439	0.0239	0.0000
Total	0.1253	1.9301	1.3617	0.0016	0.0601	0.0559	239.9206	0.0503	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Total	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000

Table 12

Alternative 3 - Reduced Project - 2015

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.6	3.9	5.2	0.0	0.3	0.3	701.4	0.1	0.0
Propane Forklifts	0.0	7.2	2.0	0.0	0.1	0.1	580.1	0.2	0.0
Diesel Fuel Trucks	0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.8	11.4	8.1	0.0	0.4	0.3	1,423.2	0.3	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.3	2.0	2.6	0.0	0.1	0.1	350.7	0.0	0.0
Propane Forklifts	0.0	3.3	0.9	0.0	0.0	0.0	267.7	0.1	0.0
Diesel Fuel Trucks	0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.4	5.6	4.5	0.0	0.2	0.2	760.2	0.1	0.0
Total	1.2	17.0	12.6	0.0	0.6	0.5	2,183.4	0.4	0.0

Table 12

Alternative 3 - Reduced Project - 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0		
<i>0.1</i>	<i>0.3</i>	<i>0.9</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>141.8</i>	<i>0.0</i>	<i>0.0</i>		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.1	0.3	0.9	0.0	0.0	0.0	141.8	0.0	0.0		
<i>0.1</i>	<i>0.3</i>	<i>0.9</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>141.8</i>	<i>0.0</i>	<i>0.0</i>		
0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0		

Table 12

Alternative 3 - Reduced Project - 2015

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	126.7	770.5	1,032.5	1.6	55.4	51.0	138,169.1	11.4	0.0
Propane Forklifts	5.4	1,418.0	388.0	0.0	10.2	10.1	114,274.7	45.2	0.0
Diesel Fuel Trucks	16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0
Subtotal	148.9	2,246.3	1,602.0	1.9	71.2	66.3	280,373.8	58.1	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	63.4	385.3	516.2	0.8	27.7	25.5	69,084.5	5.7	0.0
Propane Forklifts	2.5	654.5	179.1	0.0	4.7	4.7	52,742.2	20.9	0.0
Diesel Fuel Trucks	16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0
Subtotal	82.6	1,097.5	876.8	1.1	38.0	35.3	149,756.7	28.1	0.0
Total	231.4	3,343.8	2,478.8	3.0	109.2	101.7	430,130.5	86.2	0.0

Table 12

Alternative 3 - Reduced Project - 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0	
16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0	
16.7	57.8	181.5	0.3	5.6	5.2	27,930.0	1.5	0.0	
33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0	

Table 12

Alternative 3 - Reduced Project - 2015

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.020262	0.123206	0.165088	0.000249	0.008865	0.008155	22.093027	0.001828	0.000000
Propane Forklifts	0.000862	0.226743	0.062048	0.000000	0.001625	0.001622	18.272348	0.007226	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.023802	0.359185	0.256152	0.000299	0.011387	0.010603	44.831338	0.009296	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.010131	0.061603	0.082544	0.000124	0.004432	0.004078	11.046513	0.000914	0.000000
Propane Forklifts	0.000398	0.104650	0.028637	0.000000	0.000750	0.000749	8.433391	0.003335	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.013206	0.175490	0.140197	0.000175	0.006079	0.005652	23.945869	0.004491	0.000000
Total	0.037008	0.534675	0.396349	0.000473	0.017466	0.016254	68.777207	0.013787	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Subtotal	0.002677	0.009236	0.029016	0.000050	0.000897	0.000825	4.465964	0.000242	0.000000
Total	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000

Table 12

Alternative 3 - Reduced Project - 2015

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	8.556715E-08	5.203014E-07	6.971691E-07	1.049774E-09	3.743486E-08	3.444007E-08	9.329896E-05	7.720590E-09	0.000000E+00
Propane Forklifts	3.640583E-09	9.575352E-07	2.620272E-07	0.000000E+00	6.862498E-09	6.848773E-09	7.716422E-05	3.051738E-08	0.000000E+00
Diesel Fuel Trucks	1.130663E-08	3.900358E-08	1.225335E-07	2.122050E-10	3.788710E-09	3.485614E-09	1.885979E-05	1.020179E-09	0.000000E+00
Subtotal	1.005144E-07	1.516840E-06	1.081730E-06	1.261979E-09	4.808607E-08	4.477446E-08	1.893230E-04	3.925814E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	4.869748E-08	2.961110E-07	3.967689E-07	5.974412E-10	2.130471E-08	1.960034E-08	5.309777E-05	4.393898E-09	0.000000E+00
Propane Forklifts	1.912530E-09	5.030279E-07	1.376524E-07	0.000000E+00	3.605119E-09	3.597908E-09	4.053716E-05	1.603188E-08	0.000000E+00
Diesel Fuel Trucks	1.286952E-08	4.439499E-08	1.394711E-07	2.415378E-10	4.312418E-09	3.967425E-09	2.146675E-05	1.161197E-09	0.000000E+00
Subtotal	6.347954E-08	8.435339E-07	6.738924E-07	8.389790E-10	2.922225E-08	2.716567E-08	1.151017E-04	2.158698E-08	0.000000E+00
Total	1.639939E-07	2.360374E-06	1.755622E-06	2.100958E-09	7.730832E-08	7.194013E-08	3.044247E-04	6.084512E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.130663E-08	3.900358E-08	1.225335E-07	2.122050E-10	3.788710E-09	3.485614E-09	1.885979E-05	1.020179E-09	0.000000E+00
Subtotal	1.130663E-08	3.900358E-08	1.225335E-07	2.122050E-10	3.788710E-09	3.485614E-09	1.885979E-05	1.020179E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.286952E-08	4.439499E-08	1.394711E-07	2.415378E-10	4.312418E-09	3.967425E-09	2.146675E-05	1.161197E-09	0.000000E+00
Subtotal	1.286952E-08	4.439499E-08	1.394711E-07	2.415378E-10	4.312418E-09	3.967425E-09	2.146675E-05	1.161197E-09	0.000000E+00
Total	2.417615E-08	8.339857E-08	2.620047E-07	4.537427E-10	8.101129E-09	7.453038E-09	4.032654E-05	2.181376E-09	0.000000E+00

Table 12

Alternative 3 - Reduced Project - 2015

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0575	0.3495	0.4683	0.0007	0.0251	0.0231	62.6731	0.0052	0.0000
Propane Forklifts	0.0024	0.6432	0.1760	0.0000	0.0046	0.0046	51.8347	0.0205	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0675	1.0189	0.7266	0.0008	0.0323	0.0301	127.1767	0.0264	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0287	0.1748	0.2342	0.0004	0.0126	0.0116	31.3365	0.0026	0.0000
Propane Forklifts	0.0011	0.2969	0.0812	0.0000	0.0021	0.0021	23.9237	0.0095	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0375	0.4978	0.3977	0.0005	0.0172	0.0160	67.9292	0.0127	0.0000
Total	0.1050	1.5168	1.1244	0.0013	0.0495	0.0461	195.1059	0.0391	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Subtotal	0.0076	0.0262	0.0823	0.0001	0.0025	0.0023	12.6690	0.0007	0.0000
Total	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000

Table 13

Alternative 4 - Scenario 4 - 2015

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	1.0	5.9	7.9	0.0	0.4	0.4	1,052.0	0.1	0.0
Propane Forklifts	0.0	10.5	2.9	0.0	0.1	0.1	847.8	0.3	0.0
Diesel Fuel Trucks	0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0
Subtotal	1.2	17.0	12.6	0.0	0.6	0.5	2,183.4	0.4	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.2	17.0	12.6	0.0	0.6	0.5	2,183.4	0.4	0.0

Table 13

Alternative 4 - Scenario 4 - 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0	0.0
0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0	0.0
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0	0.0

Table 13

Alternative 4 - Scenario 4 - 2015

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	190.1	1,155.8	1,548.7	2.3	83.2	76.5	207,253.6	17.2	0.0
Propane Forklifts	7.9	2,072.5	567.1	0.0	14.9	14.8	167,016.8	66.1	0.0
Diesel Fuel Trucks	33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0
Subtotal	231.4	3,343.8	2,478.8	3.0	109.2	101.7	430,130.5	86.2	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	231.4	3,343.8	2,478.8	3.0	109.2	101.7	430,130.5	86.2	0.0

Table 13

Alternative 4 - Scenario 4 - 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0	
33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0	

Table 13

Alternative 4 - Scenario 4 - 2015

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.030393	0.184810	0.247633	0.000373	0.013297	0.012233	33.139540	0.002742	0.000000
Propane Forklifts	0.001260	0.331393	0.090685	0.000000	0.002375	0.002370	26.705739	0.010562	0.000000
Diesel Fuel Trucks	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000
Subtotal	0.037008	0.534675	0.396349	0.000473	0.017466	0.016254	68.777207	0.013787	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.037008	0.534675	0.396349	0.000473	0.017466	0.016254	68.777207	0.013787	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000
Subtotal	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000

Table 13

Alternative 4 - Scenario 4 - 2015

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	1.283507E-07	7.804522E-07	1.045754E-06	1.574661E-09	5.615229E-08	5.166011E-08	1.399484E-04	1.158088E-08	0.000000E+00
Propane Forklifts	5.320852E-09	1.399475E-06	3.829629E-07	0.000000E+00	1.002980E-08	1.000974E-08	1.127785E-04	4.460232E-08	0.000000E+00
Diesel Fuel Trucks	2.261325E-08	7.800717E-08	2.450670E-07	4.244100E-10	7.577421E-09	6.971227E-09	3.771958E-05	2.040358E-09	0.000000E+00
Subtotal	1.562848E-07	2.257934E-06	1.673784E-06	1.999071E-09	7.375952E-08	6.864108E-08	2.904465E-04	5.822356E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	1.562848E-07	2.257934E-06	1.673784E-06	1.999071E-09	7.375952E-08	6.864108E-08	2.904465E-04	5.822356E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	2.261325E-08	7.800717E-08	2.450670E-07	4.244100E-10	7.577421E-09	6.971227E-09	3.771958E-05	2.040358E-09	0.000000E+00
Subtotal	2.261325E-08	7.800717E-08	2.450670E-07	4.244100E-10	7.577421E-09	6.971227E-09	3.771958E-05	2.040358E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	2.261325E-08	7.800717E-08	2.450670E-07	4.244100E-10	7.577421E-09	6.971227E-09	3.771958E-05	2.040358E-09	0.000000E+00

Table 13

Alternative 4 - Scenario 4 - 2015

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0862	0.5243	0.7025	0.0011	0.0377	0.0347	94.0096	0.0078	0.0000
Propane Forklifts	0.0036	0.9401	0.2573	0.0000	0.0067	0.0067	75.7583	0.0300	0.0000
Diesel Fuel Trucks	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000
Subtotal	0.1050	1.5168	1.1244	0.0013	0.0495	0.0461	195.1059	0.0391	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1050	1.5168	1.1244	0.0013	0.0495	0.0461	195.1059	0.0391	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000
Subtotal	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000

Table 14

Alternative 5 - NEPA Baseline 2015

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	1.0	5.9	7.9	0.0	0.4	0.4	1,052.0	0.1	0.0
Propane Forklifts	0.0	10.5	2.9	0.0	0.1	0.1	847.8	0.3	0.0
Diesel Fuel Trucks	0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0
Subtotal	1.2	17.0	12.6	0.0	0.6	0.5	2,183.4	0.4	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.2	17.0	12.6	0.0	0.6	0.5	2,183.4	0.4	0.0

Table 14

Alternative 5 - NEPA Baseline 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

Daily Emissions After Mitigation (lb/day)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0	
<i>0.2</i>	<i>0.6</i>	<i>1.8</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>283.6</i>	<i>0.0</i>	<i>0.0</i>	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	
0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0	

Table 14

Alternative 5 - NEPA Baseline 2015

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	190.1	1,155.8	1,548.7	2.3	83.2	76.5	207,253.6	17.2	0.0
Propane Forklifts	7.9	2,072.5	567.1	0.0	14.9	14.8	167,016.8	66.1	0.0
Diesel Fuel Trucks	33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0
Subtotal	231.4	3,343.8	2,478.8	3.0	109.2	101.7	430,130.5	86.2	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	231.4	3,343.8	2,478.8	3.0	109.2	101.7	430,130.5	86.2	0.0

Table 14

Alternative 5 - NEPA Baseline 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0	
33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0	

Table 14

Alternative 5 - NEPA Baseline 2015

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.030393	0.184810	0.247633	0.000373	0.013297	0.012233	33.139540	0.002742	0.000000
Propane Forklifts	0.001260	0.331393	0.090685	0.000000	0.002375	0.002370	26.705739	0.010562	0.000000
Diesel Fuel Trucks	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000
Subtotal	0.037008	0.534675	0.396349	0.000473	0.017466	0.016254	68.777207	0.013787	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.037008	0.534675	0.396349	0.000473	0.017466	0.016254	68.777207	0.013787	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000
Subtotal	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000

Table 14

Alternative 5 - NEPA Baseline 2015

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	1.283507E-07	7.804522E-07	1.045754E-06	1.574661E-09	5.615229E-08	5.166011E-08	1.399484E-04	1.158088E-08	0.000000E+00
Propane Forklifts	5.320852E-09	1.399475E-06	3.829629E-07	0.000000E+00	1.002980E-08	1.000974E-08	1.127785E-04	4.460232E-08	0.000000E+00
Diesel Fuel Trucks	2.261325E-08	7.800717E-08	2.450670E-07	4.244100E-10	7.577421E-09	6.971227E-09	3.771958E-05	2.040358E-09	0.000000E+00
Subtotal	1.562848E-07	2.257934E-06	1.673784E-06	1.999071E-09	7.375952E-08	6.864108E-08	2.904465E-04	5.822356E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	1.562848E-07	2.257934E-06	1.673784E-06	1.999071E-09	7.375952E-08	6.864108E-08	2.904465E-04	5.822356E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	2.261325E-08	7.800717E-08	2.450670E-07	4.244100E-10	7.577421E-09	6.971227E-09	3.771958E-05	2.040358E-09	0.000000E+00
Subtotal	2.261325E-08	7.800717E-08	2.450670E-07	4.244100E-10	7.577421E-09	6.971227E-09	3.771958E-05	2.040358E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	2.261325E-08	7.800717E-08	2.450670E-07	4.244100E-10	7.577421E-09	6.971227E-09	3.771958E-05	2.040358E-09	0.000000E+00

Table 14

Alternative 5 - NEPA Baseline 2015

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0862	0.5243	0.7025	0.0011	0.0377	0.0347	94.0096	0.0078	0.0000
Propane Forklifts	0.0036	0.9401	0.2573	0.0000	0.0067	0.0067	75.7583	0.0300	0.0000
Diesel Fuel Trucks	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000
Subtotal	0.1050	1.5168	1.1244	0.0013	0.0495	0.0461	195.1059	0.0391	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1050	1.5168	1.1244	0.0013	0.0495	0.0461	195.1059	0.0391	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000
Subtotal	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000

Table 15

Alternative 6 - No Project 2015

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	1.0	5.9	7.9	0.0	0.4	0.4	1,052.0	0.1	0.0
Propane Forklifts	0.0	10.5	2.9	0.0	0.1	0.1	847.8	0.3	0.0
Diesel Fuel Trucks	0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0
Subtotal	1.2	17.0	12.6	0.0	0.6	0.5	2,183.4	0.4	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.2	17.0	12.6	0.0	0.6	0.5	2,183.4	0.4	0.0

Table 15

Alternative 6 - No Project 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0		
0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.2	0.6	1.8	0.0	0.1	0.1	283.6	0.0	0.0		

Table 15

Alternative 6 - No Project 2015

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	190.1	1,155.8	1,548.7	2.3	83.2	76.5	207,253.6	17.2	0.0
Propane Forklifts	7.9	2,072.5	567.1	0.0	14.9	14.8	167,016.8	66.1	0.0
Diesel Fuel Trucks	33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0
Subtotal	231.4	3,343.8	2,478.8	3.0	109.2	101.7	430,130.5	86.2	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	231.4	3,343.8	2,478.8	3.0	109.2	101.7	430,130.5	86.2	0.0

Table 15

Alternative 6 - No Project 2015

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0	
33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33.5	115.5	362.9	0.6	11.2	10.3	55,860.0	3.0	0.0	

Table 15

Alternative 6 - No Project 2015

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.030393	0.184810	0.247633	0.000373	0.013297	0.012233	33.139540	0.002742	0.000000
Propane Forklifts	0.001260	0.331393	0.090685	0.000000	0.002375	0.002370	26.705739	0.010562	0.000000
Diesel Fuel Trucks	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000
Subtotal	0.037008	0.534675	0.396349	0.000473	0.017466	0.016254	68.777207	0.013787	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.037008	0.534675	0.396349	0.000473	0.017466	0.016254	68.777207	0.013787	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000
Subtotal	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.005355	0.018472	0.058031	0.000100	0.001794	0.001651	8.931929	0.000483	0.000000

Table 15

Alternative 6 - No Project 2015

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	1.283507E-07	7.804522E-07	1.045754E-06	1.574661E-09	5.615229E-08	5.166011E-08	1.399484E-04	1.158088E-08	0.000000E+00
Propane Forklifts	5.320852E-09	1.399475E-06	3.829629E-07	0.000000E+00	1.002980E-08	1.000974E-08	1.127785E-04	4.460232E-08	0.000000E+00
Diesel Fuel Trucks	2.261325E-08	7.800717E-08	2.450670E-07	4.244100E-10	7.577421E-09	6.971227E-09	3.771958E-05	2.040358E-09	0.000000E+00
Subtotal	1.562848E-07	2.257934E-06	1.673784E-06	1.999071E-09	7.375952E-08	6.864108E-08	2.904465E-04	5.822356E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	1.562848E-07	2.257934E-06	1.673784E-06	1.999071E-09	7.375952E-08	6.864108E-08	2.904465E-04	5.822356E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	2.261325E-08	7.800717E-08	2.450670E-07	4.244100E-10	7.577421E-09	6.971227E-09	3.771958E-05	2.040358E-09	0.000000E+00
Subtotal	2.261325E-08	7.800717E-08	2.450670E-07	4.244100E-10	7.577421E-09	6.971227E-09	3.771958E-05	2.040358E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	2.261325E-08	7.800717E-08	2.450670E-07	4.244100E-10	7.577421E-09	6.971227E-09	3.771958E-05	2.040358E-09	0.000000E+00

Table 15

Alternative 6 - No Project 2015

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0862	0.5243	0.7025	0.0011	0.0377	0.0347	94.0096	0.0078	0.0000
Propane Forklifts	0.0036	0.9401	0.2573	0.0000	0.0067	0.0067	75.7583	0.0300	0.0000
Diesel Fuel Trucks	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000
Subtotal	0.1050	1.5168	1.1244	0.0013	0.0495	0.0461	195.1059	0.0391	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1050	1.5168	1.1244	0.0013	0.0495	0.0461	195.1059	0.0391	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000
Subtotal	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0152	0.0524	0.1646	0.0003	0.0051	0.0047	25.3379	0.0014	0.0000

Table 16

Proposed Project 2022

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.4	3.9	2.3	0.0	0.1	0.1	701.4	0.0	0.0
Propane Forklifts	0.0	7.2	1.9	0.0	0.1	0.1	580.1	0.2	0.0
Diesel Fuel Trucks	0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.5	11.3	4.6	0.0	0.2	0.2	1,423.2	0.3	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.3	3.2	1.9	0.0	0.1	0.1	584.5	0.0	0.0
Propane Forklifts	0.0	6.6	1.8	0.0	0.0	0.0	535.5	0.2	0.0
Diesel Fuel Trucks	0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.4	10.1	4.1	0.0	0.2	0.2	1,261.7	0.2	0.0
Total	0.8	21.4	8.7	0.0	0.3	0.3	2,684.9	0.5	0.0

Table 16

Proposed Project 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0
0.1	0.5	0.8	0.0	0.0	0.0	283.6	0.0	0.0

Table 16

Proposed Project 2022

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	73.1	767.4	452.1	1.6	24.1	22.1	138,169.1	6.6	0.0
Propane Forklifts	5.2	1,410.0	381.5	0.0	10.2	10.1	114,274.7	43.5	0.0
Diesel Fuel Trucks	11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0
Subtotal	89.4	2,230.1	909.1	1.9	36.7	34.6	280,373.8	51.1	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	60.9	639.5	376.7	1.3	20.0	18.4	115,140.9	5.5	0.0
Propane Forklifts	4.8	1,301.6	352.1	0.0	9.4	9.4	105,484.3	40.2	0.0
Diesel Fuel Trucks	11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0
Subtotal	76.8	1,993.7	804.4	1.6	31.9	30.1	248,555.2	46.7	0.0
Total	166.2	4,223.8	1,713.5	3.5	68.7	64.7	528,929.0	97.8	0.0

Table 16

Proposed Project 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0		
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0		
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0		
22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0		

Table 16

Proposed Project 2022

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.011685	0.122712	0.072284	0.000249	0.003846	0.003538	22.093025	0.001054	0.000000
Propane Forklifts	0.000831	0.225465	0.060997	0.000000	0.001625	0.001622	18.272346	0.006963	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.014297	0.356590	0.145363	0.000299	0.005872	0.005529	44.831337	0.008178	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.009738	0.102260	0.060236	0.000207	0.003205	0.002948	18.410854	0.000879	0.000000
Propane Forklifts	0.000767	0.208121	0.056305	0.000000	0.001500	0.001497	16.866781	0.006427	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.012286	0.318794	0.128624	0.000257	0.005106	0.004815	39.743601	0.007466	0.000000
Total	0.026583	0.675384	0.273987	0.000556	0.010979	0.010344	84.574937	0.015644	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Total	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000

Table 16
Proposed Project 2022

Equipment Type	Square meters	Emissions Before Mitigation (grams/second/meter squared)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	236798.2	4.934713E-08	5.182126E-07	3.052544E-07	1.049773E-09	1.624017E-08	1.494095E-08	9.329896E-05	4.452512E-09	0.000000E+00
Propane Forklifts	236798.2	3.507734E-09	9.521389E-07	2.575889E-07	0.000000E+00	6.862496E-09	6.848771E-09	7.716421E-05	2.940378E-08	0.000000E+00
Diesel Fuel Trucks	236798.2	7.521883E-09	3.552892E-08	5.102614E-08	2.122050E-10	1.696063E-09	1.560378E-09	1.885979E-05	6.786875E-10	0.000000E+00
Subtotal		6.037675E-08	1.505880E-06	6.138694E-07	1.261978E-09	2.479872E-08	2.335010E-08	1.893230E-04	3.453498E-08	0.000000E+00
Outer Harbor Cruise Terminals										
Diesel Forklifts	208041	4.680693E-08	4.915369E-07	2.895411E-07	9.957348E-10	1.540418E-08	1.417185E-08	8.849628E-05	4.223314E-09	0.000000E+00
Propane Forklifts	208041	3.685480E-09	1.000386E-06	2.706415E-07	0.000000E+00	7.210235E-09	7.195815E-09	8.107431E-05	3.089374E-08	0.000000E+00
Diesel Fuel Trucks	208041	8.561622E-09	4.044003E-08	5.807941E-08	2.415378E-10	1.930508E-09	1.776067E-09	2.146676E-05	7.725014E-10	0.000000E+00
Subtotal		5.905403E-08	1.532363E-06	6.182620E-07	1.237273E-09	2.454493E-08	2.314373E-08	1.910373E-04	3.588955E-08	0.000000E+00
Total		1.194308E-07	3.038243E-06	1.232131E-06	2.499251E-09	4.934365E-08	4.649383E-08	3.803603E-04	7.042453E-08	0.000000E+00

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Emissions After Mitigation (grams/second/meter squared)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
7.521883E-09	3.552892E-08	5.102614E-08	2.122050E-10	1.696063E-09	1.560378E-09	1.885979E-05	6.786875E-10	0.000000E+00	0.000000E+00
7.521883E-09	3.552892E-08	5.102614E-08	2.122050E-10	1.696063E-09	1.560378E-09	1.885979E-05	6.786875E-10	0.000000E+00	0.000000E+00
Outer Harbor Cruise Terminals									
0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
8.561622E-09	4.044003E-08	5.807941E-08	2.415378E-10	1.930508E-09	1.776067E-09	2.146676E-05	7.725014E-10	0.000000E+00	0.000000E+00
8.561622E-09	4.044003E-08	5.807941E-08	2.415378E-10	1.930508E-09	1.776067E-09	2.146676E-05	7.725014E-10	0.000000E+00	0.000000E+00
1.608351E-08	7.596895E-08	1.091056E-07	4.537429E-10	3.626571E-09	3.336445E-09	4.032655E-05	1.451189E-09	0.000000E+00	0.000000E+00

Table 16

Proposed Project 2022

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0331	0.3481	0.2051	0.0007	0.0109	0.0100	62.6731	0.0030	0.0000
Propane Forklifts	0.0024	0.6396	0.1730	0.0000	0.0046	0.0046	51.8347	0.0198	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0406	1.0116	0.4124	0.0008	0.0167	0.0157	127.1767	0.0232	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0276	0.2901	0.1709	0.0006	0.0091	0.0084	52.2276	0.0025	0.0000
Propane Forklifts	0.0022	0.5904	0.1597	0.0000	0.0043	0.0042	47.8474	0.0182	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0349	0.9043	0.3649	0.0007	0.0145	0.0137	112.7439	0.0212	0.0000
Total	0.0754	1.9159	0.7772	0.0016	0.0311	0.0293	239.9206	0.0444	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Total	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000

Table 17

Alternative 1 - Scenario 1 - 2022

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.4	3.9	2.3	0.0	0.1	0.1	701.4	0.0	0.0
Propane Forklifts	0.0	7.2	1.9	0.0	0.1	0.1	580.1	0.2	0.0
Diesel Fuel Trucks	0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.5	11.3	4.6	0.0	0.2	0.2	1,423.2	0.3	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.2	1.9	1.1	0.0	0.1	0.1	350.7	0.0	0.0
Propane Forklifts	0.0	3.3	0.9	0.0	0.0	0.0	267.7	0.1	0.0
Diesel Fuel Trucks	0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.3	5.5	2.4	0.0	0.1	0.1	760.2	0.1	0.0
Total	0.7	16.8	7.0	0.0	0.3	0.3	2,183.4	0.4	0.0

Table 17

Alternative 1 - Scenario 1 - 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0	0.0
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.1	0.5	0.8	0.0	0.0	0.0	283.6	0.0	0.0	0.0

Table 17

Alternative 1 - Scenario 1 - 2022

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	73.1	767.4	452.1	1.6	24.1	22.1	138,169.1	6.6	0.0
Propane Forklifts	5.2	1,410.0	381.5	0.0	10.2	10.1	114,274.7	43.5	0.0
Diesel Fuel Trucks	11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0
Subtotal	89.4	2,230.1	909.1	1.9	36.7	34.6	280,373.8	51.1	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	36.5	383.7	226.0	0.8	12.0	11.1	69,084.5	3.3	0.0
Propane Forklifts	2.4	650.8	176.1	0.0	4.7	4.7	52,742.2	20.1	0.0
Diesel Fuel Trucks	11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0
Subtotal	50.1	1,087.1	477.7	1.1	19.2	18.1	149,756.7	24.4	0.0
Total	139.5	3,317.2	1,386.8	3.0	56.0	52.6	430,130.5	75.5	0.0

Table 17

Alternative 1 - Scenario 1 - 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0	
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0	
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0	
22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0	

Table 17

Alternative 1 - Scenario 1 - 2022

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.011685	0.122712	0.072284	0.000249	0.003846	0.003538	22.093025	0.001054	0.000000
Propane Forklifts	0.000831	0.225465	0.060997	0.000000	0.001625	0.001622	18.272346	0.006963	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.014297	0.356590	0.145363	0.000299	0.005872	0.005529	44.831337	0.008178	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.005843	0.061356	0.036142	0.000124	0.001923	0.001769	11.046513	0.000527	0.000000
Propane Forklifts	0.000383	0.104061	0.028152	0.000000	0.000750	0.000749	8.433391	0.003214	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.008007	0.173830	0.076377	0.000175	0.003074	0.002887	23.945868	0.003901	0.000000
Total	0.022304	0.530420	0.221740	0.000473	0.008947	0.008416	68.777205	0.012079	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Total	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000

Table 17

Alternative 1 - Scenario 1 - 2022

Equipment Type	Square meters	Emissions Before Mitigation (grams/second/meter squared)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	236798.2	4.934713E-08	5.182126E-07	3.052544E-07	1.049773E-09	1.624017E-08	1.494095E-08	9.329896E-05	4.452512E-09	0.000000E+00
Propane Forklifts	236798.2	3.507734E-09	9.521389E-07	2.575889E-07	0.000000E+00	6.862496E-09	6.848771E-09	7.716421E-05	2.940378E-08	0.000000E+00
Diesel Fuel Trucks	236798.2	7.521883E-09	3.552892E-08	5.102614E-08	2.122050E-10	1.696063E-09	1.560378E-09	1.885979E-05	6.786875E-10	0.000000E+00
Subtotal		6.037675E-08	1.505880E-06	6.138694E-07	1.261978E-09	2.479872E-08	2.335010E-08	1.893230E-04	3.453498E-08	0.000000E+00
Outer Harbor Cruise Terminals										
Diesel Forklifts	208041	2.808416E-08	2.949222E-07	1.737246E-07	5.974409E-10	9.242510E-09	8.503109E-09	5.309777E-05	2.533988E-09	0.000000E+00
Propane Forklifts	208041	1.842740E-09	5.001931E-07	1.353208E-07	0.000000E+00	3.605118E-09	3.597907E-09	4.053716E-05	1.544687E-08	0.000000E+00
Diesel Fuel Trucks	208041	8.561622E-09	4.044003E-08	5.807941E-08	2.415378E-10	1.930508E-09	1.776067E-09	2.146676E-05	7.725014E-10	0.000000E+00
Subtotal		3.848852E-08	8.355552E-07	3.671248E-07	8.389787E-10	1.477814E-08	1.387708E-08	1.151017E-04	1.875336E-08	0.000000E+00
Total		9.886527E-08	2.341436E-06	9.809942E-07	2.100957E-09	3.957686E-08	3.722719E-08	3.044246E-04	5.328834E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)									
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals										
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	7.521883E-09	3.552892E-08	5.102614E-08	2.122050E-10	1.696063E-09	1.560378E-09	1.885979E-05	6.786875E-10	0.000000E+00	0.000000E+00
Subtotal	7.521883E-09	3.552892E-08	5.102614E-08	2.122050E-10	1.696063E-09	1.560378E-09	1.885979E-05	6.786875E-10	0.000000E+00	0.000000E+00
Outer Harbor Cruise Terminals										
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	8.561622E-09	4.044003E-08	5.807941E-08	2.415378E-10	1.930508E-09	1.776067E-09	2.146676E-05	7.725014E-10	0.000000E+00	0.000000E+00
Subtotal	8.561622E-09	4.044003E-08	5.807941E-08	2.415378E-10	1.930508E-09	1.776067E-09	2.146676E-05	7.725014E-10	0.000000E+00	0.000000E+00
Total	1.608351E-08	7.596895E-08	1.091056E-07	4.537429E-10	3.626571E-09	3.336445E-09	4.032655E-05	1.451189E-09	0.000000E+00	0.000000E+00

Table 17

Alternative 1 - Scenario 1 - 2022

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0331	0.3481	0.2051	0.0007	0.0109	0.0100	62.6731	0.0030	0.0000
Propane Forklifts	0.0024	0.6396	0.1730	0.0000	0.0046	0.0046	51.8347	0.0198	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0406	1.0116	0.4124	0.0008	0.0167	0.0157	127.1767	0.0232	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0166	0.1741	0.1025	0.0004	0.0055	0.0050	31.3365	0.0015	0.0000
Propane Forklifts	0.0011	0.2952	0.0799	0.0000	0.0021	0.0021	23.9237	0.0091	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0227	0.4931	0.2167	0.0005	0.0087	0.0082	67.9292	0.0111	0.0000
Total	0.0633	1.5047	0.6290	0.0013	0.0254	0.0239	195.1059	0.0343	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Total	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000

Table 18

Alternative 2 - Scenario 2 - 2022

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.4	3.9	2.3	0.0	0.1	0.1	701.4	0.0	0.0
Propane Forklifts	0.0	7.2	1.9	0.0	0.1	0.1	580.1	0.2	0.0
Diesel Fuel Trucks	0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.5	11.3	4.6	0.0	0.2	0.2	1,423.2	0.3	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.3	3.2	1.9	0.0	0.1	0.1	584.5	0.0	0.0
Propane Forklifts	0.0	6.6	1.8	0.0	0.0	0.0	535.5	0.2	0.0
Diesel Fuel Trucks	0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.4	10.1	4.1	0.0	0.2	0.2	1,261.7	0.2	0.0
Total	0.8	21.4	8.7	0.0	0.3	0.3	2,684.9	0.5	0.0

Table 18

Alternative 2 - Scenario 2 - 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

Daily Emissions After Mitigation (lb/day)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0	0.0
<i>0.1</i>	<i>0.3</i>	<i>0.4</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>141.8</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0	0.0
<i>0.1</i>	<i>0.3</i>	<i>0.4</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>141.8</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>
0.1	0.5	0.8	0.0	0.0	0.0	283.6	0.0	0.0	0.0

Table 18

Alternative 2 - Scenario 2 - 2022

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	73.1	767.4	452.1	1.6	24.1	22.1	138,169.1	6.6	0.0
Propane Forklifts	5.2	1,410.0	381.5	0.0	10.2	10.1	114,274.7	43.5	0.0
Diesel Fuel Trucks	11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0
Subtotal	89.4	2,230.1	909.1	1.9	36.7	34.6	280,373.8	51.1	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	60.9	639.5	376.7	1.3	20.0	18.4	115,140.9	5.5	0.0
Propane Forklifts	4.8	1,301.6	352.1	0.0	9.4	9.4	105,484.3	40.2	0.0
Diesel Fuel Trucks	11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0
Subtotal	76.8	1,993.7	804.4	1.6	31.9	30.1	248,555.2	46.7	0.0
Total	166.2	4,223.8	1,713.5	3.5	68.7	64.7	528,929.0	97.8	0.0

Table 18

Alternative 2 - Scenario 2 - 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0		
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0		
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0		
22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0		

Table 18

Alternative 2 - Scenario 2 - 2022

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.011685	0.122712	0.072284	0.000249	0.003846	0.003538	22.093025	0.001054	0.000000
Propane Forklifts	0.000831	0.225465	0.060997	0.000000	0.001625	0.001622	18.272346	0.006963	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.014297	0.356590	0.145363	0.000299	0.005872	0.005529	44.831337	0.008178	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.009738	0.102260	0.060236	0.000207	0.003205	0.002948	18.410854	0.000879	0.000000
Propane Forklifts	0.000767	0.208121	0.056305	0.000000	0.001500	0.001497	16.866781	0.006427	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.012286	0.318794	0.128624	0.000257	0.005106	0.004815	39.743601	0.007466	0.000000
Total	0.026583	0.675384	0.273987	0.000556	0.010979	0.010344	84.574937	0.015644	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Total	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000

Table 18

Alternative 2 - Scenario 2 - 2022

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	4.934713E-08	5.182126E-07	3.052544E-07	1.049773E-09	1.624017E-08	1.494095E-08	9.329896E-05	4.452512E-09	0.000000E+00
Propane Forklifts	3.507734E-09	9.521389E-07	2.575889E-07	0.000000E+00	6.862496E-09	6.848771E-09	7.716421E-05	2.940378E-08	0.000000E+00
Diesel Fuel Trucks	7.521883E-09	3.552892E-08	5.102614E-08	2.122050E-10	1.696063E-09	1.560378E-09	1.885979E-05	6.786875E-10	0.000000E+00
Subtotal	6.037675E-08	1.505880E-06	6.138694E-07	1.261978E-09	2.479872E-08	2.335010E-08	1.893230E-04	3.453498E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	4.680693E-08	4.915369E-07	2.895411E-07	9.957348E-10	1.540418E-08	1.417185E-08	8.849628E-05	4.223314E-09	0.000000E+00
Propane Forklifts	3.685480E-09	1.000386E-06	2.706415E-07	0.000000E+00	7.210235E-09	7.195815E-09	8.107431E-05	3.089374E-08	0.000000E+00
Diesel Fuel Trucks	8.561622E-09	4.044003E-08	5.807941E-08	2.415378E-10	1.930508E-09	1.776067E-09	2.146676E-05	7.725014E-10	0.000000E+00
Subtotal	5.905403E-08	1.532363E-06	6.182620E-07	1.237273E-09	2.454493E-08	2.314373E-08	1.910373E-04	3.588955E-08	0.000000E+00
Total	1.194308E-07	3.038243E-06	1.232131E-06	2.499251E-09	4.934365E-08	4.649383E-08	3.803603E-04	7.042453E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	7.521883E-09	3.552892E-08	5.102614E-08	2.122050E-10	1.696063E-09	1.560378E-09	1.885979E-05	6.786875E-10	0.000000E+00
Subtotal	7.521883E-09	3.552892E-08	5.102614E-08	2.122050E-10	1.696063E-09	1.560378E-09	1.885979E-05	6.786875E-10	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	8.561622E-09	4.044003E-08	5.807941E-08	2.415378E-10	1.930508E-09	1.776067E-09	2.146676E-05	7.725014E-10	0.000000E+00
Subtotal	8.561622E-09	4.044003E-08	5.807941E-08	2.415378E-10	1.930508E-09	1.776067E-09	2.146676E-05	7.725014E-10	0.000000E+00
Total	1.608351E-08	7.596895E-08	1.091056E-07	4.537429E-10	3.626571E-09	3.336445E-09	4.032655E-05	1.451189E-09	0.000000E+00

Table 18

Alternative 2 - Scenario 2 - 2022

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0331	0.3481	0.2051	0.0007	0.0109	0.0100	62.6731	0.0030	0.0000
Propane Forklifts	0.0024	0.6396	0.1730	0.0000	0.0046	0.0046	51.8347	0.0198	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0406	1.0116	0.4124	0.0008	0.0167	0.0157	127.1767	0.0232	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0276	0.2901	0.1709	0.0006	0.0091	0.0084	52.2276	0.0025	0.0000
Propane Forklifts	0.0022	0.5904	0.1597	0.0000	0.0043	0.0042	47.8474	0.0182	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0349	0.9043	0.3649	0.0007	0.0145	0.0137	112.7439	0.0212	0.0000
Total	0.0754	1.9159	0.7772	0.0016	0.0311	0.0293	239.9206	0.0444	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Total	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000

Table 19

Alternative 3 - Reduced Project - 2022

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.4	3.9	2.3	0.0	0.1	0.1	701.4	0.0	0.0
Propane Forklifts	0.0	7.2	1.9	0.0	0.1	0.1	580.1	0.2	0.0
Diesel Fuel Trucks	0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.5	11.3	4.6	0.0	0.2	0.2	1,423.2	0.3	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.2	1.9	1.1	0.0	0.1	0.1	350.7	0.0	0.0
Propane Forklifts	0.0	3.3	0.9	0.0	0.0	0.0	267.7	0.1	0.0
Diesel Fuel Trucks	0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.3	5.5	2.4	0.0	0.1	0.1	760.2	0.1	0.0
Total	0.7	16.8	7.0	0.0	0.3	0.3	2,183.4	0.4	0.0

Table 19

Alternative 3 - Reduced Project - 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0	0.0	0.0
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0	0.0	0.0
0.1	0.3	0.4	0.0	0.0	0.0	141.8	0.0	0.0	0.0	0.0
0.1	0.5	0.8	0.0	0.0	0.0	283.6	0.0	0.0	0.0	0.0

Table 19

Alternative 3 - Reduced Project - 2022

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	73.1	767.4	452.1	1.6	24.1	22.1	138,169.1	6.6	0.0
Propane Forklifts	5.2	1,410.0	381.5	0.0	10.2	10.1	114,274.7	43.5	0.0
Diesel Fuel Trucks	11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0
Subtotal	89.4	2,230.1	909.1	1.9	36.7	34.6	280,373.8	51.1	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	36.5	383.7	226.0	0.8	12.0	11.1	69,084.5	3.3	0.0
Propane Forklifts	2.4	650.8	176.1	0.0	4.7	4.7	52,742.2	20.1	0.0
Diesel Fuel Trucks	11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0
Subtotal	50.1	1,087.1	477.7	1.1	19.2	18.1	149,756.7	24.4	0.0
Total	139.5	3,317.2	1,386.8	3.0	56.0	52.6	430,130.5	75.5	0.0

Table 19

Alternative 3 - Reduced Project - 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

Annual Emissions After Mitigation (Lbs/year)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0		
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0		
11.1	52.6	75.6	0.3	2.5	2.3	27,930.0	1.0	0.0		
22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0		

Table 19

Alternative 3 - Reduced Project - 2022

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.011685	0.122712	0.072284	0.000249	0.003846	0.003538	22.093025	0.001054	0.000000
Propane Forklifts	0.000831	0.225465	0.060997	0.000000	0.001625	0.001622	18.272346	0.006963	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.014297	0.356590	0.145363	0.000299	0.005872	0.005529	44.831337	0.008178	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.005843	0.061356	0.036142	0.000124	0.001923	0.001769	11.046513	0.000527	0.000000
Propane Forklifts	0.000383	0.104061	0.028152	0.000000	0.000750	0.000749	8.433391	0.003214	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.008007	0.173830	0.076377	0.000175	0.003074	0.002887	23.945868	0.003901	0.000000
Total	0.022304	0.530420	0.221740	0.000473	0.008947	0.008416	68.777205	0.012079	0.000000
Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Subtotal	0.001781	0.008413	0.012083	0.000050	0.000402	0.000369	4.465965	0.000161	0.000000
Total	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000

Table 19

Alternative 3 - Reduced Project - 2022

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	4.934713E-08	5.182126E-07	3.052544E-07	1.049773E-09	1.624017E-08	1.494095E-08	9.329896E-05	4.452512E-09	0.000000E+00
Propane Forklifts	3.507734E-09	9.521389E-07	2.575889E-07	0.000000E+00	6.862496E-09	6.848771E-09	7.716421E-05	2.940378E-08	0.000000E+00
Diesel Fuel Trucks	7.521883E-09	3.552892E-08	5.102614E-08	2.122050E-10	1.696063E-09	1.560378E-09	1.885979E-05	6.786875E-10	0.000000E+00
Subtotal	6.037675E-08	1.505880E-06	6.138694E-07	1.261978E-09	2.479872E-08	2.335010E-08	1.893230E-04	3.453498E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	2.808416E-08	2.949222E-07	1.737246E-07	5.974409E-10	9.242510E-09	8.503109E-09	5.309777E-05	2.533988E-09	0.000000E+00
Propane Forklifts	1.842740E-09	5.001931E-07	1.353208E-07	0.000000E+00	3.605118E-09	3.597907E-09	4.053716E-05	1.544687E-08	0.000000E+00
Diesel Fuel Trucks	8.561622E-09	4.044003E-08	5.807941E-08	2.415378E-10	1.930508E-09	1.776067E-09	2.146676E-05	7.725014E-10	0.000000E+00
Subtotal	3.848852E-08	8.355552E-07	3.671248E-07	8.389787E-10	1.477814E-08	1.387708E-08	1.151017E-04	1.875336E-08	0.000000E+00
Total	9.886527E-08	2.341436E-06	9.809942E-07	2.100957E-09	3.957686E-08	3.722719E-08	3.044246E-04	5.328834E-08	0.000000E+00
Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	7.521883E-09	3.552892E-08	5.102614E-08	2.122050E-10	1.696063E-09	1.560378E-09	1.885979E-05	6.786875E-10	0.000000E+00
Subtotal	7.521883E-09	3.552892E-08	5.102614E-08	2.122050E-10	1.696063E-09	1.560378E-09	1.885979E-05	6.786875E-10	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	8.561622E-09	4.044003E-08	5.807941E-08	2.415378E-10	1.930508E-09	1.776067E-09	2.146676E-05	7.725014E-10	0.000000E+00
Subtotal	8.561622E-09	4.044003E-08	5.807941E-08	2.415378E-10	1.930508E-09	1.776067E-09	2.146676E-05	7.725014E-10	0.000000E+00
Total	1.608351E-08	7.596895E-08	1.091056E-07	4.537429E-10	3.626571E-09	3.336445E-09	4.032655E-05	1.451189E-09	0.000000E+00

Table 19

Alternative 3 - Reduced Project - 2022

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0331	0.3481	0.2051	0.0007	0.0109	0.0100	62.6731	0.0030	0.0000
Propane Forklifts	0.0024	0.6396	0.1730	0.0000	0.0046	0.0046	51.8347	0.0198	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0406	1.0116	0.4124	0.0008	0.0167	0.0157	127.1767	0.0232	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0166	0.1741	0.1025	0.0004	0.0055	0.0050	31.3365	0.0015	0.0000
Propane Forklifts	0.0011	0.2952	0.0799	0.0000	0.0021	0.0021	23.9237	0.0091	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0227	0.4931	0.2167	0.0005	0.0087	0.0082	67.9292	0.0111	0.0000
Total	0.0633	1.5047	0.6290	0.0013	0.0254	0.0239	195.1059	0.0343	0.0000
Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Subtotal	0.0051	0.0239	0.0343	0.0001	0.0011	0.0010	12.6690	0.0005	0.0000
Total	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000

Table 20

Alternative 4 - Scenario 4 - 2022

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NO _x	SO _x	PM10	PM2.5	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.6	5.8	3.4	0.0	0.2	0.2	1,052.0	0.1	0.0
Propane Forklifts	0.0	10.5	2.8	0.0	0.1	0.1	847.8	0.3	0.0
Diesel Fuel Trucks	0.1	0.5	0.8	0.0	0.0	0.0	283.6	0.0	0.0
Subtotal	0.7	16.8	7.0	0.0	0.3	0.3	2,183.4	0.4	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.7	16.8	7.0	0.0	0.3	0.3	2,183.4	0.4	0.0

Table 20

Alternative 4 - Scenario 4 - 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.1	0.5	0.8	0.0	0.0	0.0	283.6	0.0	0.0		
<i>0.1</i>	<i>0.5</i>	<i>0.8</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>283.6</i>	<i>0.0</i>	<i>0.0</i>		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>		
0.1	0.5	0.8	0.0	0.0	0.0	283.6	0.0	0.0		

Table 20

Alternative 4 - Scenario 4 - 2022

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	109.6	1,151.2	678.1	2.3	36.1	33.2	207,253.6	9.9	0.0
Propane Forklifts	7.6	2,060.8	557.5	0.0	14.9	14.8	167,016.8	63.6	0.0
Diesel Fuel Trucks	22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0
Subtotal	139.5	3,317.2	1,386.8	3.0	56.0	52.6	430,130.5	75.5	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	139.5	3,317.2	1,386.8	3.0	56.0	52.6	430,130.5	75.5	0.0

Table 20

Alternative 4 - Scenario 4 - 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0		
22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0		

Table 20

Alternative 4 - Scenario 4 - 2022

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NO _x	SO _x	PM10	PM2.5	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.017528	0.184068	0.108426	0.000373	0.005768	0.005307	33.139538	0.001582	0.000000
Propane Forklifts	0.001214	0.329525	0.089149	0.000000	0.002375	0.002370	26.705737	0.010176	0.000000
Diesel Fuel Trucks	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000
Subtotal	0.022304	0.530420	0.221740	0.000473	0.008947	0.008416	68.777205	0.012079	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.022304	0.530420	0.221740	0.000473	0.008947	0.008416	68.777205	0.012079	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NO _x	SO _x	PM10	PM2.5	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000
Subtotal	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000

Table 20

Alternative 4 - Scenario 4 - 2022

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	7.402070E-08	7.773188E-07	4.578816E-07	1.574660E-09	2.436025E-08	2.241143E-08	1.399484E-04	6.678769E-09	0.000000E+00
Propane Forklifts	5.126689E-09	1.391588E-06	3.764760E-07	0.000000E+00	1.002980E-08	1.000974E-08	1.127785E-04	4.297475E-08	0.000000E+00
Diesel Fuel Trucks	1.504377E-08	7.105784E-08	1.020523E-07	4.244101E-10	3.392127E-09	3.120756E-09	3.771959E-05	1.357375E-09	0.000000E+00
Subtotal	9.419115E-08	2.239964E-06	9.364099E-07	1.999070E-09	3.778218E-08	3.554193E-08	2.904465E-04	5.101089E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	9.419115E-08	2.239964E-06	9.364099E-07	1.999070E-09	3.778218E-08	3.554193E-08	2.904465E-04	5.101089E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.504377E-08	7.105784E-08	1.020523E-07	4.244101E-10	3.392127E-09	3.120756E-09	3.771959E-05	1.357375E-09	0.000000E+00
Subtotal	1.504377E-08	7.105784E-08	1.020523E-07	4.244101E-10	3.392127E-09	3.120756E-09	3.771959E-05	1.357375E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	1.504377E-08	7.105784E-08	1.020523E-07	4.244101E-10	3.392127E-09	3.120756E-09	3.771959E-05	1.357375E-09	0.000000E+00

Table 20

Alternative 4 - Scenario 4 - 2022

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0497	0.5222	0.3076	0.0011	0.0164	0.0151	94.0096	0.0045	0.0000
Propane Forklifts	0.0034	0.9348	0.2529	0.0000	0.0067	0.0067	75.7583	0.0289	0.0000
Diesel Fuel Trucks	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000
Subtotal	0.0633	1.5047	0.6290	0.0013	0.0254	0.0239	195.1059	0.0343	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0633	1.5047	0.6290	0.0013	0.0254	0.0239	195.1059	0.0343	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000
Subtotal	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000

Table 21

Alternative 5 - NEPA Baseline 2022

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.6	5.8	3.4	0.0	0.2	0.2	1,052.0	0.1	0.0
Propane Forklifts	0.0	10.5	2.8	0.0	0.1	0.1	847.8	0.3	0.0
Diesel Fuel Trucks	0.1	0.5	0.8	0.0	0.0	0.0	283.6	0.0	0.0
Subtotal	0.7	16.8	7.0	0.0	0.3	0.3	2,183.4	0.4	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.7	16.8	7.0	0.0	0.3	0.3	2,183.4	0.4	0.0

Table 21

Alternative 5 - NEPA Baseline 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Note: emission factors of ROG, NOx, CO, SO2, PM10, CO2, CH4, and N2O were from Offroad2007. PM2.5 emission factors were obtained from the SCAQMD PM2.5 to PM10 Fraction (SCAQMD, October 2006) for diesel (0.92) and Gaseous Fuel (0.998) offroad vehicles.

Equipment Type		Daily Emissions After Mitigation (lb/day)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks		0.1	0.5	0.8	0.0	0.0	0.0	283.6	0.0	0.0
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal										
Total										

Table 21

Alternative 5 - NEPA Baseline 2022

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	109.6	1,151.2	678.1	2.3	36.1	33.2	207,253.6	9.9	0.0
Propane Forklifts	7.6	2,060.8	557.5	0.0	14.9	14.8	167,016.8	63.6	0.0
Diesel Fuel Trucks	22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0
Subtotal	139.5	3,317.2	1,386.8	3.0	56.0	52.6	430,130.5	75.5	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	139.5	3,317.2	1,386.8	3.0	56.0	52.6	430,130.5	75.5	0.0

Table 21

Alternative 5 - NEPA Baseline 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
<i>Subtotal</i>										
Total										

Equipment Type		Annual Emissions After Mitigation (Lbs/year)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks		22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0
<i>Subtotal</i>										
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Subtotal</i>										
<i>Subtotal</i>										
Total										

Table 21

Alternative 5 - NEPA Baseline 2022

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.017528	0.184068	0.108426	0.000373	0.005768	0.005307	33.139538	0.001582	0.000000
Propane Forklifts	0.001214	0.329525	0.089149	0.000000	0.002375	0.002370	26.705737	0.010176	0.000000
Diesel Fuel Trucks	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000
Subtotal	0.022304	0.530420	0.221740	0.000473	0.008947	0.008416	68.777205	0.012079	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.022304	0.530420	0.221740	0.000473	0.008947	0.008416	68.777205	0.012079	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000
Subtotal	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000

Table 21

Alternative 5 - NEPA Baseline 2022

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	7.402070E-08	7.773188E-07	4.578816E-07	1.574660E-09	2.436025E-08	2.241143E-08	1.399484E-04	6.678769E-09	0.000000E+00
Propane Forklifts	5.126689E-09	1.391588E-06	3.764760E-07	0.000000E+00	1.002980E-08	1.000974E-08	1.127785E-04	4.297475E-08	0.000000E+00
Diesel Fuel Trucks	1.504377E-08	7.105784E-08	1.020523E-07	4.244101E-10	3.392127E-09	3.120756E-09	3.771959E-05	1.357375E-09	0.000000E+00
Subtotal	9.419115E-08	2.239964E-06	9.364099E-07	1.999070E-09	3.778218E-08	3.554193E-08	2.904465E-04	5.101089E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	9.419115E-08	2.239964E-06	9.364099E-07	1.999070E-09	3.778218E-08	3.554193E-08	2.904465E-04	5.101089E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.504377E-08	7.105784E-08	1.020523E-07	4.244101E-10	3.392127E-09	3.120756E-09	3.771959E-05	1.357375E-09	0.000000E+00
Subtotal	1.504377E-08	7.105784E-08	1.020523E-07	4.244101E-10	3.392127E-09	3.120756E-09	3.771959E-05	1.357375E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	1.504377E-08	7.105784E-08	1.020523E-07	4.244101E-10	3.392127E-09	3.120756E-09	3.771959E-05	1.357375E-09	0.000000E+00

Table 21

Alternative 5 - NEPA Baseline 2022

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0497	0.5222	0.3076	0.0011	0.0164	0.0151	94.0096	0.0045	0.0000
Propane Forklifts	0.0034	0.9348	0.2529	0.0000	0.0067	0.0067	75.7583	0.0289	0.0000
Diesel Fuel Trucks	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000
Subtotal	0.0633	1.5047	0.6290	0.0013	0.0254	0.0239	195.1059	0.0343	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0633	1.5047	0.6290	0.0013	0.0254	0.0239	195.1059	0.0343	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000
Subtotal	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000

Table 22

Alternative 6 - No Project 2022

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.6	5.8	3.4	0.0	0.2	0.2	1,052.0	0.1	0.0
Propane Forklifts	0.0	10.5	2.8	0.0	0.1	0.1	847.8	0.3	0.0
Diesel Fuel Trucks	0.1	0.5	0.8	0.0	0.0	0.0	283.6	0.0	0.0
Subtotal	0.7	16.8	7.0	0.0	0.3	0.3	2,183.4	0.4	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.7	16.8	7.0	0.0	0.3	0.3	2,183.4	0.4	0.0

Table 22

Alternative 6 - No Project 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.5	0.8	0.0	0.0	0.0	283.6	0.0	0.0	0.0	0.0
0.1	0.5	0.8	0.0	0.0	0.0	283.6	0.0	0.0	0.0	0.0
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.5	0.8	0.0	0.0	0.0	283.6	0.0	0.0	0.0	0.0

Table 22

Alternative 6 - No Project 2022

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	109.6	1,151.2	678.1	2.3	36.1	33.2	207,253.6	9.9	0.0
Propane Forklifts	7.6	2,060.8	557.5	0.0	14.9	14.8	167,016.8	63.6	0.0
Diesel Fuel Trucks	22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0
Subtotal	139.5	3,317.2	1,386.8	3.0	56.0	52.6	430,130.5	75.5	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	139.5	3,317.2	1,386.8	3.0	56.0	52.6	430,130.5	75.5	0.0

Table 22

Alternative 6 - No Project 2022

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0		
22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.3	105.2	151.1	0.6	5.0	4.6	55,860.0	2.0	0.0		

Table 22

Alternative 6 - No Project 2022

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.017528	0.184068	0.108426	0.000373	0.005768	0.005307	33.139538	0.001582	0.000000
Propane Forklifts	0.001214	0.329525	0.089149	0.000000	0.002375	0.002370	26.705737	0.010176	0.000000
Diesel Fuel Trucks	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000
Subtotal	0.022304	0.530420	0.221740	0.000473	0.008947	0.008416	68.777205	0.012079	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.022304	0.530420	0.221740	0.000473	0.008947	0.008416	68.777205	0.012079	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000
Subtotal	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.003562	0.016826	0.024166	0.000100	0.000803	0.000739	8.931930	0.000321	0.000000

Table 22

Alternative 6 - No Project 2022

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	7.402070E-08	7.773188E-07	4.578816E-07	1.574660E-09	2.436025E-08	2.241143E-08	1.399484E-04	6.678769E-09	0.000000E+00
Propane Forklifts	5.126689E-09	1.391588E-06	3.764760E-07	0.000000E+00	1.002980E-08	1.000974E-08	1.127785E-04	4.297475E-08	0.000000E+00
Diesel Fuel Trucks	1.504377E-08	7.105784E-08	1.020523E-07	4.244101E-10	3.392127E-09	3.120756E-09	3.771959E-05	1.357375E-09	0.000000E+00
Subtotal	9.419115E-08	2.239964E-06	9.364099E-07	1.999070E-09	3.778218E-08	3.554193E-08	2.904465E-04	5.101089E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	9.419115E-08	2.239964E-06	9.364099E-07	1.999070E-09	3.778218E-08	3.554193E-08	2.904465E-04	5.101089E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	1.504377E-08	7.105784E-08	1.020523E-07	4.244101E-10	3.392127E-09	3.120756E-09	3.771959E-05	1.357375E-09	0.000000E+00
Subtotal	1.504377E-08	7.105784E-08	1.020523E-07	4.244101E-10	3.392127E-09	3.120756E-09	3.771959E-05	1.357375E-09	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	1.504377E-08	7.105784E-08	1.020523E-07	4.244101E-10	3.392127E-09	3.120756E-09	3.771959E-05	1.357375E-09	0.000000E+00

Table 22

Alternative 6 - No Project 2022

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0497	0.5222	0.3076	0.0011	0.0164	0.0151	94.0096	0.0045	0.0000
Propane Forklifts	0.0034	0.9348	0.2529	0.0000	0.0067	0.0067	75.7583	0.0289	0.0000
Diesel Fuel Trucks	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000
Subtotal	0.0633	1.5047	0.6290	0.0013	0.0254	0.0239	195.1059	0.0343	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0633	1.5047	0.6290	0.0013	0.0254	0.0239	195.1059	0.0343	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000
Subtotal	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0101	0.0477	0.0686	0.0003	0.0023	0.0021	25.3379	0.0009	0.0000

Table 23

Proposed Project 2037

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.2	3.9	0.4	0.0	0.0	0.0	701.4	0.0	0.0
Propane Forklifts	0.0	7.2	1.9	0.0	0.1	0.1	580.1	0.2	0.0
Diesel Fuel Trucks	0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.3	11.3	2.4	0.0	0.1	0.1	1,423.2	0.2	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.2	3.3	0.3	0.0	0.0	0.0	584.5	0.0	0.0
Propane Forklifts	0.0	6.6	1.8	0.0	0.0	0.0	535.5	0.2	0.0
Diesel Fuel Trucks	0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.2	10.1	2.2	0.0	0.1	0.1	1,261.7	0.2	0.0
Total	0.5	21.5	4.7	0.0	0.1	0.1	2,684.9	0.5	0.0

Table 23

Proposed Project 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0	0.0
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0	0.0

Table 23

Proposed Project 2037

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	38.0	768.3	82.0	1.6	3.3	3.0	138,169.1	3.4	0.0
Propane Forklifts	5.3	1,415.2	382.7	0.0	10.2	10.1	114,274.7	44.1	0.0
Diesel Fuel Trucks	7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0
Subtotal	50.3	2,235.4	479.9	1.9	14.0	13.7	280,373.8	48.2	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	31.7	640.3	68.4	1.3	2.7	2.5	115,140.9	2.9	0.0
Propane Forklifts	4.9	1,306.3	353.2	0.0	9.4	9.4	105,484.3	40.7	0.0
Diesel Fuel Trucks	7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0
Subtotal	43.5	1,998.5	436.8	1.6	12.7	12.4	248,555.2	44.2	0.0
Total	93.8	4,233.9	916.6	3.5	26.7	26.1	528,929.0	92.4	0.0

Table 23

Proposed Project 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0	
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0	
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0	
14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0	

Table 23

Proposed Project 2037

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.006082	0.122854	0.013116	0.000249	0.000526	0.000484	22.093025	0.000549	0.000000
Propane Forklifts	0.000842	0.226290	0.061188	0.000000	0.001625	0.001622	18.272349	0.007058	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.008040	0.357440	0.076729	0.000299	0.002239	0.002187	44.831339	0.007708	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.005068	0.102378	0.010930	0.000207	0.000438	0.000403	18.410854	0.000457	0.000000
Propane Forklifts	0.000777	0.208883	0.056481	0.000000	0.001500	0.001497	16.866784	0.006515	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.006962	0.319557	0.069837	0.000257	0.002027	0.001982	39.743603	0.007073	0.000000
Total	0.015002	0.676997	0.146566	0.000556	0.004266	0.004168	84.574941	0.014781	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Total	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000

Table 23

Proposed Project 2037

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	2.568359E-08	5.188127E-07	5.539072E-08	1.049774E-09	2.221129E-09	2.043438E-09	9.329896E-05	2.317389E-09	0.000000E+00
Propane Forklifts	3.555799E-09	9.556234E-07	2.583959E-07	0.000000E+00	6.862500E-09	6.848775E-09	7.716422E-05	2.980667E-08	0.000000E+00
Diesel Fuel Trucks	4.714227E-09	3.503446E-08	1.024172E-08	2.122050E-10	3.729167E-10	3.430833E-10	1.885979E-05	4.253571E-10	0.000000E+00
Subtotal	3.395362E-08	1.509471E-06	3.240283E-07	1.261979E-09	9.456545E-09	9.235296E-09	1.893230E-04	3.254941E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	2.436150E-08	4.921062E-07	5.253942E-08	9.957352E-10	2.106793E-09	1.938250E-09	8.849628E-05	2.198099E-09	0.000000E+00
Propane Forklifts	3.735980E-09	1.004047E-06	2.714894E-07	0.000000E+00	7.210240E-09	7.195819E-09	8.107433E-05	3.131705E-08	0.000000E+00
Diesel Fuel Trucks	5.365868E-09	3.987723E-08	1.165742E-08	2.415378E-10	4.244644E-10	3.905072E-10	2.146675E-05	4.841536E-10	0.000000E+00
Subtotal	3.346334E-08	1.536031E-06	3.356863E-07	1.237273E-09	9.741497E-09	9.524576E-09	1.910374E-04	3.399930E-08	0.000000E+00
Total	6.741696E-08	3.045501E-06	6.597146E-07	2.499252E-09	1.919804E-08	1.875987E-08	3.803603E-04	6.654871E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	4.714227E-09	3.503446E-08	1.024172E-08	2.122050E-10	3.729167E-10	3.430833E-10	1.885979E-05	4.253571E-10	0.000000E+00
Subtotal	4.714227E-09	3.503446E-08	1.024172E-08	2.122050E-10	3.729167E-10	3.430833E-10	1.885979E-05	4.253571E-10	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	5.365868E-09	3.987723E-08	1.165742E-08	2.415378E-10	4.244644E-10	3.905072E-10	2.146675E-05	4.841536E-10	0.000000E+00
Subtotal	5.365868E-09	3.987723E-08	1.165742E-08	2.415378E-10	4.244644E-10	3.905072E-10	2.146675E-05	4.841536E-10	0.000000E+00
Total	1.008010E-08	7.491169E-08	2.189914E-08	4.537427E-10	7.973810E-10	7.335905E-10	4.032654E-05	9.095108E-10	0.000000E+00

Table 23

Proposed Project 2037

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0173	0.3485	0.0372	0.0007	0.0015	0.0014	62.6731	0.0016	0.0000
Propane Forklifts	0.0024	0.6419	0.1736	0.0000	0.0046	0.0046	51.8347	0.0200	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0228	1.0140	0.2177	0.0008	0.0064	0.0062	127.1767	0.0219	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0144	0.2904	0.0310	0.0006	0.0012	0.0011	52.2276	0.0013	0.0000
Propane Forklifts	0.0022	0.5926	0.1602	0.0000	0.0043	0.0042	47.8474	0.0185	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0197	0.9065	0.1981	0.0007	0.0057	0.0056	112.7439	0.0201	0.0000
Total	0.0426	1.9205	0.4158	0.0016	0.0121	0.0118	239.9206	0.0419	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Total	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000

Table 24

Alternative 1 - Scenario 1 - 2037

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.2	3.9	0.4	0.0	0.0	0.0	701.4	0.0	0.0
Propane Forklifts	0.0	7.2	1.9	0.0	0.1	0.1	580.1	0.2	0.0
Diesel Fuel Trucks	0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.3	11.3	2.4	0.0	0.1	0.1	1,423.2	0.2	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.1	2.0	0.2	0.0	0.0	0.0	350.7	0.0	0.0
Propane Forklifts	0.0	3.3	0.9	0.0	0.0	0.0	267.7	0.1	0.0
Diesel Fuel Trucks	0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.1	5.5	1.2	0.0	0.0	0.0	760.2	0.1	0.0
Total	0.4	16.9	3.6	0.0	0.1	0.1	2,183.4	0.4	0.0

Table 24

Alternative 1 - Scenario 1 - 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0	0.0

Table 24

Alternative 1 - Scenario 1 - 2037

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	38.0	768.3	82.0	1.6	3.3	3.0	138,169.1	3.4	0.0
Propane Forklifts	5.3	1,415.2	382.7	0.0	10.2	10.1	114,274.7	44.1	0.0
Diesel Fuel Trucks	7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0
Subtotal	50.3	2,235.4	479.9	1.9	14.0	13.7	280,373.8	48.2	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	19.0	384.2	41.0	0.8	1.6	1.5	69,084.5	1.7	0.0
Propane Forklifts	2.4	653.2	176.6	0.0	4.7	4.7	52,742.2	20.4	0.0
Diesel Fuel Trucks	7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0
Subtotal	28.4	1,089.2	232.8	1.1	6.9	6.7	149,756.7	22.7	0.0
Total	78.7	3,324.6	712.7	3.0	20.9	20.4	430,130.5	70.9	0.0

Table 24

Alternative 1 - Scenario 1 - 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0	
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0	
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0	
14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0	

Table 24

Alternative 1 - Scenario 1 - 2037

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.006082	0.122854	0.013116	0.000249	0.000526	0.000484	22.093025	0.000549	0.000000
Propane Forklifts	0.000842	0.226290	0.061188	0.000000	0.001625	0.001622	18.272349	0.007058	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.008040	0.357440	0.076729	0.000299	0.002239	0.002187	44.831339	0.007708	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.003041	0.061427	0.006558	0.000124	0.000263	0.000242	11.046512	0.000274	0.000000
Propane Forklifts	0.000389	0.104441	0.028240	0.000000	0.000750	0.000749	8.433392	0.003258	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.004546	0.174165	0.037224	0.000175	0.001101	0.001072	23.945869	0.003633	0.000000
Total	0.012586	0.531604	0.113953	0.000473	0.003341	0.003259	68.777208	0.011340	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Total	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000

Table 24

Alternative 1 - Scenario 1 - 2037

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	2.568359E-08	5.188127E-07	5.539072E-08	1.049774E-09	2.221129E-09	2.043438E-09	9.329896E-05	2.317389E-09	0.000000E+00
Propane Forklifts	3.555799E-09	9.556234E-07	2.583959E-07	0.000000E+00	6.862500E-09	6.848775E-09	7.716422E-05	2.980667E-08	0.000000E+00
Diesel Fuel Trucks	4.714227E-09	3.503446E-08	1.024172E-08	2.122050E-10	3.729167E-10	3.430833E-10	1.885979E-05	4.253571E-10	0.000000E+00
Subtotal	3.395362E-08	1.509471E-06	3.240283E-07	1.261979E-09	9.456545E-09	9.235296E-09	1.893230E-04	3.254941E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	1.461690E-08	2.952637E-07	3.152365E-08	5.974411E-10	1.264076E-09	1.162950E-09	5.309777E-05	1.318859E-09	0.000000E+00
Propane Forklifts	1.867990E-09	5.020236E-07	1.357447E-07	0.000000E+00	3.605120E-09	3.597910E-09	4.053716E-05	1.565852E-08	0.000000E+00
Diesel Fuel Trucks	5.365868E-09	3.987723E-08	1.165742E-08	2.415378E-10	4.244644E-10	3.905072E-10	2.146675E-05	4.841536E-10	0.000000E+00
Subtotal	2.185076E-08	8.371645E-07	1.789258E-07	8.389789E-10	5.293660E-09	5.151367E-09	1.151017E-04	1.746154E-08	0.000000E+00
Total	5.580437E-08	2.346635E-06	5.029541E-07	2.100957E-09	1.475021E-08	1.438666E-08	3.044247E-04	5.001095E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	4.714227E-09	3.503446E-08	1.024172E-08	2.122050E-10	3.729167E-10	3.430833E-10	1.885979E-05	4.253571E-10	0.000000E+00
Subtotal	4.714227E-09	3.503446E-08	1.024172E-08	2.122050E-10	3.729167E-10	3.430833E-10	1.885979E-05	4.253571E-10	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	5.365868E-09	3.987723E-08	1.165742E-08	2.415378E-10	4.244644E-10	3.905072E-10	2.146675E-05	4.841536E-10	0.000000E+00
Subtotal	5.365868E-09	3.987723E-08	1.165742E-08	2.415378E-10	4.244644E-10	3.905072E-10	2.146675E-05	4.841536E-10	0.000000E+00
Total	1.008010E-08	7.491169E-08	2.189914E-08	4.537427E-10	7.973810E-10	7.335905E-10	4.032654E-05	9.095108E-10	0.000000E+00

Table 24

Alternative 1 - Scenario 1 - 2037

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0173	0.3485	0.0372	0.0007	0.0015	0.0014	62.6731	0.0016	0.0000
Propane Forklifts	0.0024	0.6419	0.1736	0.0000	0.0046	0.0046	51.8347	0.0200	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0228	1.0140	0.2177	0.0008	0.0064	0.0062	127.1767	0.0219	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0086	0.1743	0.0186	0.0004	0.0007	0.0007	31.3365	0.0008	0.0000
Propane Forklifts	0.0011	0.2963	0.0801	0.0000	0.0021	0.0021	23.9237	0.0092	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0129	0.4941	0.1056	0.0005	0.0031	0.0030	67.9292	0.0103	0.0000
Total	0.0357	1.5080	0.3233	0.0013	0.0095	0.0092	195.1059	0.0322	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Total	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000

Alternative 2 - Scenario 2 - 2037

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.2	3.9	0.4	0.0	0.0	0.0	701.4	0.0	0.0
Propane Forklifts	0.0	7.2	1.9	0.0	0.1	0.1	580.1	0.2	0.0
Diesel Fuel Trucks	0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.3	11.3	2.4	0.0	0.1	0.1	1,423.2	0.2	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.2	3.3	0.3	0.0	0.0	0.0	584.5	0.0	0.0
Propane Forklifts	0.0	6.6	1.8	0.0	0.0	0.0	535.5	0.2	0.0
Diesel Fuel Trucks	0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.2	10.1	2.2	0.0	0.1	0.1	1,261.7	0.2	0.0
Total	0.5	21.5	4.7	0.0	0.1	0.1	2,684.9	0.5	0.0

Alternative 2 - Scenario 2 - 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0	0.0
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0	0.0
0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0	0.0

Alternative 2 - Scenario 2 - 2037

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	38.0	768.3	82.0	1.6	3.3	3.0	138,169.1	3.4	0.0
Propane Forklifts	5.3	1,415.2	382.7	0.0	10.2	10.1	114,274.7	44.1	0.0
Diesel Fuel Trucks	7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0
Subtotal	50.3	2,235.4	479.9	1.9	14.0	13.7	280,373.8	48.2	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	31.7	640.3	68.4	1.3	2.7	2.5	115,140.9	2.9	0.0
Propane Forklifts	4.9	1,306.3	353.2	0.0	9.4	9.4	105,484.3	40.7	0.0
Diesel Fuel Trucks	7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0
Subtotal	43.5	1,998.5	436.8	1.6	12.7	12.4	248,555.2	44.2	0.0
Total	93.8	4,233.9	916.6	3.5	26.7	26.1	528,929.0	92.4	0.0

Alternative 2 - Scenario 2 - 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0	
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0	
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0	
14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0	

Alternative 2 - Scenario 2 - 2037

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.006082	0.122854	0.013116	0.000249	0.000526	0.000484	22.093025	0.000549	0.000000
Propane Forklifts	0.000842	0.226290	0.061188	0.000000	0.001625	0.001622	18.272349	0.007058	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.008040	0.357440	0.076729	0.000299	0.002239	0.002187	44.831339	0.007708	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.005068	0.102378	0.010930	0.000207	0.000438	0.000403	18.410854	0.000457	0.000000
Propane Forklifts	0.000777	0.208883	0.056481	0.000000	0.001500	0.001497	16.866784	0.006515	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.006962	0.319557	0.069837	0.000257	0.002027	0.001982	39.743603	0.007073	0.000000
Total	0.015002	0.676997	0.146566	0.000556	0.004266	0.004168	84.574941	0.014781	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Total	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000

Alternative 2 - Scenario 2 - 2037

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	2.568359E-08	5.188127E-07	5.539072E-08	1.049774E-09	2.221129E-09	2.043438E-09	9.329896E-05	2.317389E-09	0.000000E+00
Propane Forklifts	3.555799E-09	9.556234E-07	2.583959E-07	0.000000E+00	6.862500E-09	6.848775E-09	7.716422E-05	2.980667E-08	0.000000E+00
Diesel Fuel Trucks	4.714227E-09	3.503446E-08	1.024172E-08	2.122050E-10	3.729167E-10	3.430833E-10	1.885979E-05	4.253571E-10	0.000000E+00
Subtotal	3.395362E-08	1.509471E-06	3.240283E-07	1.261979E-09	9.456545E-09	9.235296E-09	1.893230E-04	3.254941E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	2.436150E-08	4.921062E-07	5.253942E-08	9.957352E-10	2.106793E-09	1.938250E-09	8.849628E-05	2.198099E-09	0.000000E+00
Propane Forklifts	3.735980E-09	1.004047E-06	2.714894E-07	0.000000E+00	7.210240E-09	7.195819E-09	8.107433E-05	3.131705E-08	0.000000E+00
Diesel Fuel Trucks	5.365868E-09	3.987723E-08	1.165742E-08	2.415378E-10	4.244644E-10	3.905072E-10	2.146675E-05	4.841536E-10	0.000000E+00
Subtotal	3.346334E-08	1.536031E-06	3.356863E-07	1.237273E-09	9.741497E-09	9.524576E-09	1.910374E-04	3.399930E-08	0.000000E+00
Total	6.741696E-08	3.045501E-06	6.597146E-07	2.499252E-09	1.919804E-08	1.875987E-08	3.803603E-04	6.654871E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	4.714227E-09	3.503446E-08	1.024172E-08	2.122050E-10	3.729167E-10	3.430833E-10	1.885979E-05	4.253571E-10	0.000000E+00
Subtotal	4.714227E-09	3.503446E-08	1.024172E-08	2.122050E-10	3.729167E-10	3.430833E-10	1.885979E-05	4.253571E-10	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	5.365868E-09	3.987723E-08	1.165742E-08	2.415378E-10	4.244644E-10	3.905072E-10	2.146675E-05	4.841536E-10	0.000000E+00
Subtotal	5.365868E-09	3.987723E-08	1.165742E-08	2.415378E-10	4.244644E-10	3.905072E-10	2.146675E-05	4.841536E-10	0.000000E+00
Total	1.008010E-08	7.491169E-08	2.189914E-08	4.537427E-10	7.973810E-10	7.335905E-10	4.032654E-05	9.095108E-10	0.000000E+00

Alternative 2 - Scenario 2 - 2037

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0173	0.3485	0.0372	0.0007	0.0015	0.0014	62.6731	0.0016	0.0000
Propane Forklifts	0.0024	0.6419	0.1736	0.0000	0.0046	0.0046	51.8347	0.0200	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0228	1.0140	0.2177	0.0008	0.0064	0.0062	127.1767	0.0219	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0144	0.2904	0.0310	0.0006	0.0012	0.0011	52.2276	0.0013	0.0000
Propane Forklifts	0.0022	0.5926	0.1602	0.0000	0.0043	0.0042	47.8474	0.0185	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0197	0.9065	0.1981	0.0007	0.0057	0.0056	112.7439	0.0201	0.0000
Total	0.0426	1.9205	0.4158	0.0016	0.0121	0.0118	239.9206	0.0419	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Total	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000

Table 26

Alternative 3 - Reduced Project - 2037

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.2	3.9	0.4	0.0	0.0	0.0	701.4	0.0	0.0
Propane Forklifts	0.0	7.2	1.9	0.0	0.1	0.1	580.1	0.2	0.0
Diesel Fuel Trucks	0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.3	11.3	2.4	0.0	0.1	0.1	1,423.2	0.2	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.1	2.0	0.2	0.0	0.0	0.0	350.7	0.0	0.0
Propane Forklifts	0.0	3.3	0.9	0.0	0.0	0.0	267.7	0.1	0.0
Diesel Fuel Trucks	0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0
Subtotal	0.1	5.5	1.2	0.0	0.0	0.0	760.2	0.1	0.0
Total	0.4	16.9	3.6	0.0	0.1	0.1	2,183.4	0.4	0.0

Table 26

Alternative 3 - Reduced Project - 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0		
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0		
0.0	0.3	0.1	0.0	0.0	0.0	141.8	0.0	0.0		
0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0		

Table 26

Alternative 3 - Reduced Project - 2037

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	38.0	768.3	82.0	1.6	3.3	3.0	138,169.1	3.4	0.0
Propane Forklifts	5.3	1,415.2	382.7	0.0	10.2	10.1	114,274.7	44.1	0.0
Diesel Fuel Trucks	7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0
Subtotal	50.3	2,235.4	479.9	1.9	14.0	13.7	280,373.8	48.2	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	19.0	384.2	41.0	0.8	1.6	1.5	69,084.5	1.7	0.0
Propane Forklifts	2.4	653.2	176.6	0.0	4.7	4.7	52,742.2	20.4	0.0
Diesel Fuel Trucks	7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0
Subtotal	28.4	1,089.2	232.8	1.1	6.9	6.7	149,756.7	22.7	0.0
Total	78.7	3,324.6	712.7	3.0	20.9	20.4	430,130.5	70.9	0.0

Table 26

Alternative 3 - Reduced Project - 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0		
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0		
7.0	51.9	15.2	0.3	0.6	0.5	27,930.0	0.6	0.0		
14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0		

Table 26

Alternative 3 - Reduced Project - 2037

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.006082	0.122854	0.013116	0.000249	0.000526	0.000484	22.093025	0.000549	0.000000
Propane Forklifts	0.000842	0.226290	0.061188	0.000000	0.001625	0.001622	18.272349	0.007058	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.008040	0.357440	0.076729	0.000299	0.002239	0.002187	44.831339	0.007708	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.003041	0.061427	0.006558	0.000124	0.000263	0.000242	11.046512	0.000274	0.000000
Propane Forklifts	0.000389	0.104441	0.028240	0.000000	0.000750	0.000749	8.433392	0.003258	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.004546	0.174165	0.037224	0.000175	0.001101	0.001072	23.945869	0.003633	0.000000
Total	0.012586	0.531604	0.113953	0.000473	0.003341	0.003259	68.777208	0.011340	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Subtotal	0.001116	0.008296	0.002425	0.000050	0.000088	0.000081	4.465965	0.000101	0.000000
Total	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000

Table 26

Alternative 3 - Reduced Project - 2037

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	2.568359E-08	5.188127E-07	5.539072E-08	1.049774E-09	2.221129E-09	2.043438E-09	9.329896E-05	2.317389E-09	0.000000E+00
Propane Forklifts	3.555799E-09	9.556234E-07	2.583959E-07	0.000000E+00	6.862500E-09	6.848775E-09	7.716422E-05	2.980667E-08	0.000000E+00
Diesel Fuel Trucks	4.714227E-09	3.503446E-08	1.024172E-08	2.122050E-10	3.729167E-10	3.430833E-10	1.885979E-05	4.253571E-10	0.000000E+00
Subtotal	3.395362E-08	1.509471E-06	3.240283E-07	1.261979E-09	9.456545E-09	9.235296E-09	1.893230E-04	3.254941E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	1.461690E-08	2.952637E-07	3.152365E-08	5.974411E-10	1.264076E-09	1.162950E-09	5.309777E-05	1.318859E-09	0.000000E+00
Propane Forklifts	1.867990E-09	5.020236E-07	1.357447E-07	0.000000E+00	3.605120E-09	3.597910E-09	4.053716E-05	1.565852E-08	0.000000E+00
Diesel Fuel Trucks	5.365868E-09	3.987723E-08	1.165742E-08	2.415378E-10	4.244644E-10	3.905072E-10	2.146675E-05	4.841536E-10	0.000000E+00
Subtotal	2.185076E-08	8.371645E-07	1.789258E-07	8.389789E-10	5.293660E-09	5.151367E-09	1.151017E-04	1.746154E-08	0.000000E+00
Total	5.580437E-08	2.346635E-06	5.029541E-07	2.100957E-09	1.475021E-08	1.438666E-08	3.044247E-04	5.001095E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	4.714227E-09	3.503446E-08	1.024172E-08	2.122050E-10	3.729167E-10	3.430833E-10	1.885979E-05	4.253571E-10	0.000000E+00
Subtotal	4.714227E-09	3.503446E-08	1.024172E-08	2.122050E-10	3.729167E-10	3.430833E-10	1.885979E-05	4.253571E-10	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	5.365868E-09	3.987723E-08	1.165742E-08	2.415378E-10	4.244644E-10	3.905072E-10	2.146675E-05	4.841536E-10	0.000000E+00
Subtotal	5.365868E-09	3.987723E-08	1.165742E-08	2.415378E-10	4.244644E-10	3.905072E-10	2.146675E-05	4.841536E-10	0.000000E+00
Total	1.008010E-08	7.491169E-08	2.189914E-08	4.537427E-10	7.973810E-10	7.335905E-10	4.032654E-05	9.095108E-10	0.000000E+00

Table 26

Alternative 3 - Reduced Project - 2037

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0173	0.3485	0.0372	0.0007	0.0015	0.0014	62.6731	0.0016	0.0000
Propane Forklifts	0.0024	0.6419	0.1736	0.0000	0.0046	0.0046	51.8347	0.0200	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0228	1.0140	0.2177	0.0008	0.0064	0.0062	127.1767	0.0219	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0086	0.1743	0.0186	0.0004	0.0007	0.0007	31.3365	0.0008	0.0000
Propane Forklifts	0.0011	0.2963	0.0801	0.0000	0.0021	0.0021	23.9237	0.0092	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0129	0.4941	0.1056	0.0005	0.0031	0.0030	67.9292	0.0103	0.0000
Total	0.0357	1.5080	0.3233	0.0013	0.0095	0.0092	195.1059	0.0322	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Subtotal	0.0032	0.0235	0.0069	0.0001	0.0003	0.0002	12.6690	0.0003	0.0000
Total	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000

Table 27

Alternative 4 - Scenario 4 - 2037

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.3	5.9	0.6	0.0	0.0	0.0	1,052.0	0.0	0.0
Propane Forklifts	0.0	10.5	2.8	0.0	0.1	0.1	847.8	0.3	0.0
Diesel Fuel Trucks	0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0
Subtotal	0.4	16.9	3.6	0.0	0.1	0.1	2,183.4	0.4	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.4	16.9	3.6	0.0	0.1	0.1	2,183.4	0.4	0.0

Table 27

Alternative 4 - Scenario 4 - 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0		
0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0		

Table 27

Alternative 4 - Scenario 4 - 2037

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	57.1	1,152.5	123.0	2.3	4.9	4.5	207,253.6	5.1	0.0
Propane Forklifts	7.7	2,068.4	559.3	0.0	14.9	14.8	167,016.9	64.5	0.0
Diesel Fuel Trucks	14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0
Subtotal	78.7	3,324.6	712.7	3.0	20.9	20.4	430,130.5	70.9	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	78.7	3,324.6	712.7	3.0	20.9	20.4	430,130.5	70.9	0.0

Table 27

Alternative 4 - Scenario 4 - 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Subtotal</i>										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
<i>Subtotal</i>
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0	
14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0	

Table 27

Alternative 4 - Scenario 4 - 2037

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.009123	0.184281	0.019675	0.000373	0.000789	0.000726	33.139537	0.000823	0.000000
Propane Forklifts	0.001231	0.330731	0.089428	0.000000	0.002375	0.002370	26.705741	0.010316	0.000000
Diesel Fuel Trucks	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000
Subtotal	0.012586	0.531604	0.113953	0.000473	0.003341	0.003259	68.777208	0.011340	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.012586	0.531604	0.113953	0.000473	0.003341	0.003259	68.777208	0.011340	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000
Subtotal	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000

Table 27

Alternative 4 - Scenario 4 - 2037

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	3.852538E-08	7.782191E-07	8.308608E-08	1.574660E-09	3.331693E-09	3.065158E-09	1.399484E-04	3.476084E-09	0.000000E+00
Propane Forklifts	5.196937E-09	1.396680E-06	3.776555E-07	0.000000E+00	1.002981E-08	1.000975E-08	1.127785E-04	4.356359E-08	0.000000E+00
Diesel Fuel Trucks	9.428455E-09	7.006893E-08	2.048344E-08	4.244099E-10	7.458333E-10	6.861666E-10	3.771958E-05	8.507143E-10	0.000000E+00
Subtotal	5.315078E-08	2.244968E-06	4.812250E-07	1.999070E-09	1.410733E-08	1.376107E-08	2.904465E-04	4.789039E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	5.315078E-08	2.244968E-06	4.812250E-07	1.999070E-09	1.410733E-08	1.376107E-08	2.904465E-04	4.789039E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	9.428455E-09	7.006893E-08	2.048344E-08	4.244099E-10	7.458333E-10	6.861666E-10	3.771958E-05	8.507143E-10	0.000000E+00
Subtotal	9.428455E-09	7.006893E-08	2.048344E-08	4.244099E-10	7.458333E-10	6.861666E-10	3.771958E-05	8.507143E-10	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	9.428455E-09	7.006893E-08	2.048344E-08	4.244099E-10	7.458333E-10	6.861666E-10	3.771958E-05	8.507143E-10	0.000000E+00

Table 27

Alternative 4 - Scenario 4 - 2037

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0259	0.5228	0.0558	0.0011	0.0022	0.0021	94.0096	0.0023	0.0000
Propane Forklifts	0.0035	0.9382	0.2537	0.0000	0.0067	0.0067	75.7583	0.0293	0.0000
Diesel Fuel Trucks	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000
Subtotal	0.0357	1.5080	0.3233	0.0013	0.0095	0.0092	195.1059	0.0322	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0357	1.5080	0.3233	0.0013	0.0095	0.0092	195.1059	0.0322	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000
Subtotal	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000

Table 28

Alternative 5 - NEPA Baseline 2037

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.3	5.9	0.6	0.0	0.0	0.0	1,052.0	0.0	0.0
Propane Forklifts	0.0	10.5	2.8	0.0	0.1	0.1	847.8	0.3	0.0
Diesel Fuel Trucks	0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0
Subtotal	0.4	16.9	3.6	0.0	0.1	0.1	2,183.4	0.4	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.4	16.9	3.6	0.0	0.1	0.1	2,183.4	0.4	0.0

Table 28

Alternative 5 - NEPA Baseline 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0		
0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0		

Table 28

Alternative 5 - NEPA Baseline 2037

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	57.1	1,152.5	123.0	2.3	4.9	4.5	207,253.6	5.1	0.0
Propane Forklifts	7.7	2,068.4	559.3	0.0	14.9	14.8	167,016.9	64.5	0.0
Diesel Fuel Trucks	14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0
Subtotal	78.7	3,324.6	712.7	3.0	20.9	20.4	430,130.5	70.9	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	78.7	3,324.6	712.7	3.0	20.9	20.4	430,130.5	70.9	0.0

Table 28

Alternative 5 - NEPA Baseline 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)										
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O		
Inner Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0		
14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0		
Outer Harbor Cruise Terminals										
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0		

Table 28

Alternative 5 - NEPA Baseline 2037

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.009123	0.184281	0.019675	0.000373	0.000789	0.000726	33.139537	0.000823	0.000000
Propane Forklifts	0.001231	0.330731	0.089428	0.000000	0.002375	0.002370	26.705741	0.010316	0.000000
Diesel Fuel Trucks	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000
Subtotal	0.012586	0.531604	0.113953	0.000473	0.003341	0.003259	68.777208	0.011340	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.012586	0.531604	0.113953	0.000473	0.003341	0.003259	68.777208	0.011340	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000
Subtotal	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000

Table 28

Alternative 5 - NEPA Baseline 2037

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	3.852538E-08	7.782191E-07	8.308608E-08	1.574660E-09	3.331693E-09	3.065158E-09	1.399484E-04	3.476084E-09	0.000000E+00
Propane Forklifts	5.196937E-09	1.396680E-06	3.776555E-07	0.000000E+00	1.002981E-08	1.000975E-08	1.127785E-04	4.356359E-08	0.000000E+00
Diesel Fuel Trucks	9.428455E-09	7.006893E-08	2.048344E-08	4.244099E-10	7.458333E-10	6.861666E-10	3.771958E-05	8.507143E-10	0.000000E+00
Subtotal	5.315078E-08	2.244968E-06	4.812250E-07	1.999070E-09	1.410733E-08	1.376107E-08	2.904465E-04	4.789039E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	5.315078E-08	2.244968E-06	4.812250E-07	1.999070E-09	1.410733E-08	1.376107E-08	2.904465E-04	4.789039E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	9.428455E-09	7.006893E-08	2.048344E-08	4.244099E-10	7.458333E-10	6.861666E-10	3.771958E-05	8.507143E-10	0.000000E+00
Subtotal	9.428455E-09	7.006893E-08	2.048344E-08	4.244099E-10	7.458333E-10	6.861666E-10	3.771958E-05	8.507143E-10	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	9.428455E-09	7.006893E-08	2.048344E-08	4.244099E-10	7.458333E-10	6.861666E-10	3.771958E-05	8.507143E-10	0.000000E+00

Table 28

Alternative 5 - NEPA Baseline 2037

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0259	0.5228	0.0558	0.0011	0.0022	0.0021	94.0096	0.0023	0.0000
Propane Forklifts	0.0035	0.9382	0.2537	0.0000	0.0067	0.0067	75.7583	0.0293	0.0000
Diesel Fuel Trucks	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000
Subtotal	0.0357	1.5080	0.3233	0.0013	0.0095	0.0092	195.1059	0.0322	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0357	1.5080	0.3233	0.0013	0.0095	0.0092	195.1059	0.0322	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000
Subtotal	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000

Table 29

Alternative 6 - No Project 2037

Equipment Type	Daily Emissions Before Mitigation (lb/day)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.3	5.9	0.6	0.0	0.0	0.0	1,052.0	0.0	0.0
Propane Forklifts	0.0	10.5	2.8	0.0	0.1	0.1	847.8	0.3	0.0
Diesel Fuel Trucks	0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0
Subtotal	0.4	16.9	3.6	0.0	0.1	0.1	2,183.4	0.4	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.4	16.9	3.6	0.0	0.1	0.1	2,183.4	0.4	0.0

Table 29

Alternative 6 - No Project 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Daily Emissions After Mitigation (lb/day)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0	
0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.1	0.5	0.2	0.0	0.0	0.0	283.6	0.0	0.0	

Table 29

Alternative 6 - No Project 2037

Equipment Type	Annual Emissions Before Mitigation (lbs/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	57.1	1,152.5	123.0	2.3	4.9	4.5	207,253.6	5.1	0.0
Propane Forklifts	7.7	2,068.4	559.3	0.0	14.9	14.8	167,016.9	64.5	0.0
Diesel Fuel Trucks	14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0
Subtotal	78.7	3,324.6	712.7	3.0	20.9	20.4	430,130.5	70.9	0.0
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propane Forklifts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diesel Fuel Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	78.7	3,324.6	712.7	3.0	20.9	20.4	430,130.5	70.9	0.0

Table 29

Alternative 6 - No Project 2037

Equipment Type	Mitigation Measure	Mitigation Effectiveness (% Reduction)								
		ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Outer Harbor Cruise Terminals										
Diesel Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Propane Forklifts	Electric	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Diesel Fuel Trucks		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal										
Total										

Equipment Type
Inner Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Outer Harbor Cruise Terminals
Diesel Forklifts
Propane Forklifts
Diesel Fuel Trucks
Subtotal
Total

Annual Emissions After Mitigation (Lbs/year)									
ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O	
Inner Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0	
14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0	
Outer Harbor Cruise Terminals									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.0	103.8	30.3	0.6	1.1	1.0	55,860.0	1.3	0.0	

Table 29

Alternative 6 - No Project 2037

Equipment Type	Emissions Before Mitigation (grams/second)								
	ROG	CO	NO _x	SO _x	PM10	PM2.5	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.009123	0.184281	0.019675	0.000373	0.000789	0.000726	33.139537	0.000823	0.000000
Propane Forklifts	0.001231	0.330731	0.089428	0.000000	0.002375	0.002370	26.705741	0.010316	0.000000
Diesel Fuel Trucks	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000
Subtotal	0.012586	0.531604	0.113953	0.000473	0.003341	0.003259	68.777208	0.011340	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.012586	0.531604	0.113953	0.000473	0.003341	0.003259	68.777208	0.011340	0.000000

Equipment Type	Emissions After Mitigation (grams/second)								
	ROG	CO	NO _x	SO _x	PM10	PM2.5	CO ₂	CH ₄	N ₂ O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000
Subtotal	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Propane Forklifts	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Diesel Fuel Trucks	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Subtotal	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.002233	0.016592	0.004850	0.000100	0.000177	0.000162	8.931929	0.000201	0.000000

Table 29

Alternative 6 - No Project 2037

Equipment Type	Emissions Before Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	3.852538E-08	7.782191E-07	8.308608E-08	1.574660E-09	3.331693E-09	3.065158E-09	1.399484E-04	3.476084E-09	0.000000E+00
Propane Forklifts	5.196937E-09	1.396680E-06	3.776555E-07	0.000000E+00	1.002981E-08	1.000975E-08	1.127785E-04	4.356359E-08	0.000000E+00
Diesel Fuel Trucks	9.428455E-09	7.006893E-08	2.048344E-08	4.244099E-10	7.458333E-10	6.861666E-10	3.771958E-05	8.507143E-10	0.000000E+00
Subtotal	5.315078E-08	2.244968E-06	4.812250E-07	1.999070E-09	1.410733E-08	1.376107E-08	2.904465E-04	4.789039E-08	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	5.315078E-08	2.244968E-06	4.812250E-07	1.999070E-09	1.410733E-08	1.376107E-08	2.904465E-04	4.789039E-08	0.000000E+00

Equipment Type	Emissions After Mitigation (grams/second/meter squared)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	9.428455E-09	7.006893E-08	2.048344E-08	4.244099E-10	7.458333E-10	6.861666E-10	3.771958E-05	8.507143E-10	0.000000E+00
Subtotal	9.428455E-09	7.006893E-08	2.048344E-08	4.244099E-10	7.458333E-10	6.861666E-10	3.771958E-05	8.507143E-10	0.000000E+00
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Propane Forklifts	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Diesel Fuel Trucks	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Subtotal	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
Total	9.428455E-09	7.006893E-08	2.048344E-08	4.244099E-10	7.458333E-10	6.861666E-10	3.771958E-05	8.507143E-10	0.000000E+00

Table 29

Alternative 6 - No Project 2037

Equipment Type	Annual Emissions Before Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0259	0.5228	0.0558	0.0011	0.0022	0.0021	94.0096	0.0023	0.0000
Propane Forklifts	0.0035	0.9382	0.2537	0.0000	0.0067	0.0067	75.7583	0.0293	0.0000
Diesel Fuel Trucks	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000
Subtotal	0.0357	1.5080	0.3233	0.0013	0.0095	0.0092	195.1059	0.0322	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0357	1.5080	0.3233	0.0013	0.0095	0.0092	195.1059	0.0322	0.0000

Equipment Type	Annual Emissions After Mitigation (Metric Tons/year)								
	ROG	CO	NOx	SOx	PM10	PM2.5	CO2	CH4	N2O
Inner Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000
Subtotal	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000
Outer Harbor Cruise Terminals									
Diesel Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Propane Forklifts	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Diesel Fuel Trucks	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Subtotal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0063	0.0471	0.0138	0.0003	0.0005	0.0005	25.3379	0.0006	0.0000

2006								
CY	Season	AvgDays	Code	Equipment	Fuel	MaxHP	Class	C/R
2006	Annual	Mon-Sun	2.266E+09	Cargo Tractor	C4	175	Airport Ground Support Equipment	U
2006	Annual	Mon-Sun	2.266E+09	Cargo Loader	C4	120	Airport Ground Support Equipment	U
2006	Annual	Mon-Sun	2.266E+09	Forklift	C4	50	Airport Ground Support Equipment	U
2006	Annual	Mon-Sun	2.266E+09	Fuel Truck	C4	175	Airport Ground Support Equipment	U
2006	Annual	Mon-Sun	2.266E+09	Service Truck	C4	250	Airport Ground Support Equipment	U
2006	Annual	Mon-Sun	2.266E+09	Catering Truck	C4	250	Airport Ground Support Equipment	U
2006	Annual	Mon-Sun	2.27E+09	Cargo Loader	D	120	Airport Ground Support Equipment	U
2006	Annual	Mon-Sun	2.27E+09	Forklift	D	175	Airport Ground Support Equipment	U
2006	Annual	Mon-Sun	2.27E+09	Fuel Truck	D	250	Airport Ground Support Equipment	U
2006	Annual	Mon-Sun	2.27E+09	Service Truck	D	175	Airport Ground Support Equipment	U
2006	Annual	Mon-Sun	2.27E+09	Catering Truck	D	250	Airport Ground Support Equipment	U

Pre	Hand	Port	County	Air Basin	Air Dist.	total hours/day		
						Population	Activity	Consumption
N	NHH	NP	Los Angeles	SC	SC	4.16E+01	1.78E+01	1.65E+02
N	NHH	NP	Los Angeles	SC	SC	1.06E+01	2.99E+01	1.20E+02
N	NHH	NP	Los Angeles	SC	SC	1.37E+02	2.73E+02	4.42E+02
N	NHH	NP	Los Angeles	SC	SC	4.77E+00	7.39E+00	2.88E+01
N	NHH	NP	Los Angeles	SC	SC	1.94E+01	6.93E+01	2.79E+02
N	NHH	NP	Los Angeles	SC	SC	7.44E+00	9.22E+00	1.09E+02
N	NHH	NP	Los Angeles	SC	SC	1.35E+02	3.36E+02	9.76E+02
P	NHH	NP	Los Angeles	SC	SC	1.87E+01	3.81E+01	1.02E+02
N	NHH	NP	Los Angeles	SC	SC	1.01E+01	1.73E+01	4.64E+01
N	NHH	NP	Los Angeles	SC	SC	1.58E+01	2.19E+01	4.36E+01
N	NHH	NP	Los Angeles	SC	SC	3.83E+00	3.89E+00	2.76E+01

tons/day							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
1.63E-04	2.91E-02	1.33E-02	1.11E+00	0.00E+00	9.88E-05	0.00E+00	1.37E-03
2.82E-04	3.70E-02	1.01E-02	7.78E-01	0.00E+00	6.92E-05	0.00E+00	2.36E-03
4.04E-04	3.76E-02	2.69E-02	3.04E+00	0.00E+00	2.71E-04	0.00E+00	3.39E-03
3.19E-05	5.93E-03	2.42E-03	1.92E-01	0.00E+00	1.71E-05	0.00E+00	2.67E-04
3.08E-04	6.50E-02	2.12E-02	1.86E+00	0.00E+00	1.65E-04	0.00E+00	2.58E-03
1.17E-04	2.16E-02	9.07E-03	7.31E-01	0.00E+00	6.50E-05	0.00E+00	9.85E-04
2.83E-02	7.94E-02	1.62E-01	1.06E+01	1.08E-03	1.47E-02	0.00E+00	2.55E-03
1.81E-03	6.37E-03	1.48E-02	1.11E+00	1.09E-04	7.85E-04	0.00E+00	1.63E-04
5.80E-04	1.67E-03	6.31E-03	5.10E-01	4.97E-05	2.29E-04	0.00E+00	5.24E-05
7.17E-04	2.62E-03	6.09E-03	4.77E-01	4.65E-05	3.04E-04	0.00E+00	6.46E-05
2.37E-04	7.07E-04	3.21E-03	3.04E-01	2.97E-05	8.97E-05	0.00E+00	2.14E-05

lbs/hr							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
0.01838234	3.272742199	1.498104243	124.9747954	0	0.011114474	0	0.154090905
0.018854885	2.473997148	0.673903554	52.0579669	0	0.004629706	0	0.158052035
0.002961784	0.275715757	0.19722443	22.31055214	0	0.001984159	0	0.02482731
0.008638863	1.605945857	0.654615781	52.05796467	0	0.004629704	0	0.07241572
0.008884408	1.873381212	0.612256353	53.54532607	0	0.004761983	0	0.074473998
0.02548696	4.687423412	1.968086024	158.5536436	0	0.014100759	0	0.213645866
0.168183068	0.47235222	0.966456551	63.08286162	0.006413278	0.087739267	0	0.015174884
0.094961507	0.334357948	0.776368181	58.44714398	0.005699466	0.041183596	0	0.008568224
0.067229531	0.193315845	0.73066684	59.07360588	0.005760553	0.026544361	0	0.006066012
0.065384755	0.238698271	0.555303013	43.50023658	0.00424192	0.027728174	0	0.005899561
0.121935607	0.363458842	1.65108968	156.3602389	0.01524745	0.046101073	0	0.011002051

g/hp-hr							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
0.047647024	8.48294778	3.883086197	323.9346697	0	0.028808716	0	0.399403626
0.071271465	9.35170922	2.547355433	196.7791149	0	0.017500289	0	0.597436692
0.026869306	2.501293348	1.789220027	202.401329	0	0.018000294	0	0.225233357
0.022391932	4.162611661	1.696764104	134.9342444	0	0.012000194	0	0.187701546
0.016119869	3.399062871	1.110877926	97.15263961	0	0.008640141	0	0.135125623
0.04624354	8.504861039	3.570895282	287.679731	0	0.025584416	0	0.387639059
0.635731998	1.785491391	3.653205764	238.4532169	0.024242192	0.331654428	0	0.057361061
0.246140227	0.866655802	2.012346326	151.4949972	0.014773017	0.10674788	0	0.022208837
0.121981261	0.350752269	1.325721914	107.1831505	0.010451948	0.048162089	0	0.011006172
0.169477284	0.618705917	1.439345411	112.7526132	0.010995056	0.071871428	0	0.015291663
0.221239966	0.659459723	2.995737116	283.7000175	0.027664972	0.083645787	0	0.019962122

2011								
CY	Season	AvgDays	Code	Equipment	Fuel	MaxHP	Class	C/R
2011	Annual	Mon-Sun	2.266E+09	Cargo Tractor	C4	175	Airport Ground Support Equipment	U
2011	Annual	Mon-Sun	2.266E+09	Cargo Loader	C4	120	Airport Ground Support Equipment	U
2011	Annual	Mon-Sun	2.266E+09	Forklift	C4	50	Airport Ground Support Equipment	U
2011	Annual	Mon-Sun	2.266E+09	Fuel Truck	C4	175	Airport Ground Support Equipment	U
2011	Annual	Mon-Sun	2.266E+09	Service Truck	C4	250	Airport Ground Support Equipment	U
2011	Annual	Mon-Sun	2.266E+09	Catering Truck	C4	250	Airport Ground Support Equipment	U
2011	Annual	Mon-Sun	2.27E+09	Forklift	D	175	Airport Ground Support Equipment	U
2011	Annual	Mon-Sun	2.27E+09	Fuel Truck	D	250	Airport Ground Support Equipment	U
2011	Annual	Mon-Sun	2.27E+09	Service Truck	D	175	Airport Ground Support Equipment	U
2011	Annual	Mon-Sun	2.27E+09	Catering Truck	D	250	Airport Ground Support Equipment	U

Pre	Hand	Port	County	Air Basin	Air Dist.	total hours/day		
						Population	Activity	Consumption
N	NHH	NP	Los Angeles	SC	SC	4.68E+01	2.00E+01	1.85E+02
N	NHH	NP	Los Angeles	SC	SC	1.19E+01	3.36E+01	1.35E+02
N	NHH	NP	Los Angeles	SC	SC	1.54E+02	3.07E+02	4.96E+02
N	NHH	NP	Los Angeles	SC	SC	5.37E+00	8.31E+00	3.23E+01
N	NHH	NP	Los Angeles	SC	SC	2.19E+01	7.80E+01	3.14E+02
N	NHH	NP	Los Angeles	SC	SC	8.37E+00	1.04E+01	1.23E+02
P	NHH	NP	Los Angeles	SC	SC	2.10E+01	4.29E+01	1.14E+02
N	NHH	NP	Los Angeles	SC	SC	1.13E+01	1.94E+01	5.20E+01
N	NHH	NP	Los Angeles	SC	SC	1.78E+01	2.47E+01	4.89E+01
N	NHH	NP	Los Angeles	SC	SC	4.31E+00	4.38E+00	3.10E+01

tons/day							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
1.20E-04	3.27E-02	9.89E-03	1.25E+00	0.00E+00	1.11E-04	0.00E+00	1.01E-03
2.45E-04	4.14E-02	8.37E-03	8.75E-01	0.00E+00	7.79E-05	0.00E+00	2.06E-03
1.96E-04	4.23E-02	1.35E-02	3.43E+00	0.00E+00	3.05E-04	0.00E+00	1.65E-03
2.55E-05	6.65E-03	1.84E-03	2.16E-01	0.00E+00	1.92E-05	0.00E+00	2.14E-04
2.42E-04	7.32E-02	1.38E-02	2.09E+00	0.00E+00	1.86E-04	0.00E+00	2.03E-03
9.20E-05	2.42E-02	6.86E-03	8.22E-01	0.00E+00	7.31E-05	0.00E+00	7.71E-04
1.48E-03	6.99E-03	1.22E-02	1.25E+00	1.41E-05	6.81E-04	0.00E+00	1.33E-04
4.28E-04	1.32E-03	5.09E-03	5.74E-01	6.45E-06	1.62E-04	0.00E+00	3.86E-05
5.72E-04	2.87E-03	5.02E-03	5.36E-01	6.03E-06	2.62E-04	0.00E+00	5.16E-05
1.70E-04	6.38E-04	2.46E-03	3.42E-01	3.85E-06	6.76E-05	0.00E+00	1.53E-05

lbs/hr							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
0.012029388	3.269757315	0.988215836	124.9748338	0	0.011114479	0	0.100837006
0.01459725	2.461180825	0.497969139	52.05795476	0	0.004629704	0	0.122362245
0.001279868	0.275592097	0.087851595	22.31055011	0	0.00198416	0	0.010728566
0.006139132	1.601436861	0.443501314	52.05798173	0	0.004629706	0	0.051461612
0.006201913	1.87718776	0.354496585	53.54534787	0	0.004761984	0	0.051987864
0.017750399	4.676430141	1.324017336	158.5535901	0	0.014100757	0	0.148793684
0.06888247	0.326317985	0.569938192	58.44715116	0.000657631	0.031785835	0	0.006215155
0.044064817	0.136165234	0.524465337	59.07360535	0.000664679	0.016669449	0	0.003975899
0.046377873	0.233028414	0.407383937	43.500232	0.000489452	0.021274514	0	0.004184601
0.077478092	0.291596417	1.12315909	156.360202	0.001759321	0.030878136	0	0.006990722

g/hp-hr							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
0.031180173	8.475210961	2.561455448	323.9347693	0	0.028808729	0	0.26136952
0.055177606	9.303263519	1.882323346	196.779069	0	0.017500282	0	0.462529286
0.011610967	2.5001715	0.796989667	202.4013106	0	0.018000297	0	0.097329547
0.01591263	4.150924343	1.149555405	134.9342886	0	0.012000199	0	0.133388499
0.011252752	3.405969472	0.643198604	97.15267917	0	0.008640144	0	0.09432678
0.032206324	8.484914847	2.402297054	287.6796339	0	0.025584414	0	0.269971261
0.178543361	0.845816216	1.477279792	151.4950158	0.001704579	0.082388885	0	0.016109683
0.079951204	0.2470582	0.951589907	107.1831495	0.001205994	0.030245049	0	0.007213871
0.120211447	0.604009648	1.055939166	112.7526013	0.00126866	0.055143539	0	0.010846485
0.14057625	0.52907254	2.037859852	283.6999505	0.003192111	0.05602529	0	0.012683967

2015								
CY	Season	AvgDays	Code	Equipment	Fuel	MaxHP	Class	C/R
2015	Annual	Mon-Sun	2.266E+09	Cargo Tractor	C4	175	Airport Ground Support Equipment	U
2015	Annual	Mon-Sun	2.266E+09	Cargo Loader	C4	120	Airport Ground Support Equipment	U
2015	Annual	Mon-Sun	2.266E+09	Forklift	C4	50	Airport Ground Support Equipment	U
2015	Annual	Mon-Sun	2.266E+09	Fuel Truck	C4	175	Airport Ground Support Equipment	U
2015	Annual	Mon-Sun	2.266E+09	Service Truck	C4	250	Airport Ground Support Equipment	U
2015	Annual	Mon-Sun	2.266E+09	Catering Truck	C4	250	Airport Ground Support Equipment	U
2015	Annual	Mon-Sun	2.27E+09	Cargo Loader	D	120	Airport Ground Support Equipment	U
2015	Annual	Mon-Sun	2.27E+09	Forklift	D	175	Airport Ground Support Equipment	U
2015	Annual	Mon-Sun	2.27E+09	Fuel Truck	D	250	Airport Ground Support Equipment	U
2015	Annual	Mon-Sun	2.27E+09	Service Truck	D	175	Airport Ground Support Equipment	U
2015	Annual	Mon-Sun	2.27E+09	Catering Truck	D	250	Airport Ground Support Equipment	U

Pre	Hand	Port	County	Air Basin	Air Dist.	total hours/day		
						Population	Activity	Consumption
N	NHH	NP	Los Angeles	SC	SC	4.82E+01	2.06E+01	1.91E+02
N	NHH	NP	Los Angeles	SC	SC	1.22E+01	3.46E+01	1.39E+02
N	NHH	NP	Los Angeles	SC	SC	1.59E+02	3.16E+02	5.11E+02
N	NHH	NP	Los Angeles	SC	SC	5.52E+00	8.56E+00	3.32E+01
N	NHH	NP	Los Angeles	SC	SC	2.25E+01	8.03E+01	3.23E+02
N	NHH	NP	Los Angeles	SC	SC	8.61E+00	1.07E+01	1.26E+02
N	NHH	NP	Los Angeles	SC	SC	1.56E+02	3.89E+02	1.12E+03
P	NHH	NP	Los Angeles	SC	SC	2.16E+01	4.41E+01	1.18E+02
N	NHH	NP	Los Angeles	SC	SC	1.17E+01	2.00E+01	5.35E+01
N	NHH	NP	Los Angeles	SC	SC	1.83E+01	2.54E+01	5.03E+01
N	NHH	NP	Los Angeles	SC	SC	4.44E+00	4.51E+00	3.19E+01

tons/day							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
8.54E-05	3.38E-02	7.04E-03	1.29E+00	0.00E+00	1.14E-04	0.00E+00	7.16E-04
2.04E-04	4.33E-02	7.06E-03	9.01E-01	0.00E+00	8.02E-05	0.00E+00	1.71E-03
1.66E-04	4.38E-02	1.20E-02	3.53E+00	0.00E+00	3.14E-04	0.00E+00	1.39E-03
2.02E-05	6.91E-03	1.36E-03	2.23E-01	0.00E+00	1.98E-05	0.00E+00	1.69E-04
1.97E-04	7.63E-02	9.86E-03	2.15E+00	0.00E+00	1.91E-04	0.00E+00	1.66E-03
7.11E-05	2.52E-02	5.01E-03	8.46E-01	0.00E+00	7.53E-05	0.00E+00	5.96E-04
1.92E-02	8.48E-02	1.18E-01	1.23E+01	1.44E-04	1.04E-02	0.00E+00	1.73E-03
1.18E-03	7.19E-03	9.64E-03	1.29E+00	1.45E-05	5.18E-04	0.00E+00	1.07E-04
3.54E-04	1.22E-03	3.84E-03	5.91E-01	6.64E-06	1.19E-04	0.00E+00	3.19E-05
4.47E-04	2.95E-03	3.97E-03	5.52E-01	6.21E-06	1.98E-04	0.00E+00	4.03E-05
1.27E-04	6.22E-04	1.63E-03	3.52E-01	3.97E-06	4.47E-05	0.00E+00	1.15E-05

lbs/hr							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
0.008291541	3.27959911	0.68381094	124.9747914	0	0.011114473	0	0.069504262
0.01175541	2.503441181	0.407645054	52.0579678	0	0.004629706	0	0.09854035
0.001052605	0.276853004	0.075760165	22.31055862	0	0.00198416	0	0.008823516
0.004722087	1.61630566	0.31709211	52.05796519	0	0.004629707	0	0.039583131
0.004916776	1.899006571	0.245454277	53.54532126	0	0.004761984	0	0.04121515
0.013316953	4.71267109	0.938683582	158.5535855	0	0.014100755	0	0.111630066
0.098419904	0.435832197	0.607552249	63.08281654	0.000739994	0.053233914	0	0.008880273
0.053603562	0.325942972	0.436741753	58.44716043	0.000657631	0.023451079	0	0.004836565
0.035415195	0.122169023	0.383805755	59.07360129	0.000664679	0.011867193	0	0.003195457
0.035231038	0.232447926	0.31311817	43.50022731	0.000489452	0.015602111	0	0.003178841
0.056430073	0.275786865	0.722071932	156.3602304	0.001759321	0.019849335	0	0.005091596

g/hp-hr							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
0.021491675	8.500720893	1.772437958	323.9346594	0	0.028808713	0	0.180155047
0.044435448	9.463007664	1.540898303	196.7791183	0	0.01750029	0	0.372482523
0.009549233	2.511610456	0.687296217	202.4013878	0	0.0180003	0	0.080046939
0.01223965	4.189464271	0.821902749	134.9342458	0	0.012000201	0	0.102599476
0.008920998	3.445557523	0.445352241	97.15263089	0	0.008640143	0	0.074780767
0.02416228	8.550670427	1.703147492	287.6796256	0	0.025584409	0	0.202541592
0.372027237	1.647445705	2.296547501	238.4530465	0.002797177	0.201224195	0	0.033567431
0.138940434	0.844844183	1.132034625	151.4950398	0.00170458	0.060785196	0	0.012536378
0.06425733	0.221663476	0.696377161	107.1831422	0.001205994	0.021531835	0	0.005797837
0.091318849	0.602505025	0.811602298	112.7525892	0.00126866	0.040440672	0	0.008239555
0.102386725	0.500387689	1.310127313	283.7000021	0.003192112	0.036014634	0	0.009238191

2022								
CY	Season	AvgDays	Code	Equipment	Fuel	MaxHP	Class	C/R
2022	Annual	Mon-Sun	2.266E+09	Cargo Tractor	C4	175	Airport Ground Support Equipment	U
2022	Annual	Mon-Sun	2.266E+09	Cargo Loader	C4	120	Airport Ground Support Equipment	U
2022	Annual	Mon-Sun	2.266E+09	Forklift	C4	50	Airport Ground Support Equipment	U
2022	Annual	Mon-Sun	2.266E+09	Fuel Truck	C4	175	Airport Ground Support Equipment	U
2022	Annual	Mon-Sun	2.266E+09	Service Truck	C4	250	Airport Ground Support Equipment	U
2022	Annual	Mon-Sun	2.266E+09	Catering Truck	C4	250	Airport Ground Support Equipment	U
2022	Annual	Mon-Sun	2.27E+09	Cargo Loader	D	120	Airport Ground Support Equipment	U
2022	Annual	Mon-Sun	2.27E+09	Forklift	D	175	Airport Ground Support Equipment	U
2022	Annual	Mon-Sun	2.27E+09	Fuel Truck	D	250	Airport Ground Support Equipment	U
2022	Annual	Mon-Sun	2.27E+09	Service Truck	D	175	Airport Ground Support Equipment	U
2022	Annual	Mon-Sun	2.27E+09	Catering Truck	D	250	Airport Ground Support Equipment	U

Pre	Hand	Port	County	Air Basin	Air Dist.	total hours/day		
						Population	Activity	Consumption
N	NHH	NP	Los Angeles	SC	SC	5.34E+01	2.28E+01	2.11E+02
N	NHH	NP	Los Angeles	SC	SC	1.35E+01	3.83E+01	1.53E+02
N	NHH	NP	Los Angeles	SC	SC	1.76E+02	3.50E+02	5.65E+02
N	NHH	NP	Los Angeles	SC	SC	6.11E+00	9.47E+00	3.67E+01
N	NHH	NP	Los Angeles	SC	SC	2.49E+01	8.89E+01	3.57E+02
N	NHH	NP	Los Angeles	SC	SC	9.53E+00	1.18E+01	1.39E+02
N	NHH	NP	Los Angeles	SC	SC	1.73E+02	4.31E+02	1.24E+03
P	NHH	NP	Los Angeles	SC	SC	2.39E+01	4.88E+01	1.30E+02
N	NHH	NP	Los Angeles	SC	SC	1.29E+01	2.21E+01	5.91E+01
N	NHH	NP	Los Angeles	SC	SC	2.03E+01	2.81E+01	5.56E+01
N	NHH	NP	Los Angeles	SC	SC	4.91E+00	4.99E+00	3.53E+01

tons/day							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
5.03E-05	3.74E-02	4.48E-03	1.42E+00	0.00E+00	1.27E-04	0.00E+00	4.22E-04
1.42E-04	4.78E-02	5.64E-03	9.97E-01	0.00E+00	8.87E-05	0.00E+00	1.19E-03
1.77E-04	4.81E-02	1.30E-02	3.90E+00	0.00E+00	3.47E-04	0.00E+00	1.49E-03
1.39E-05	7.64E-03	8.81E-04	2.46E-01	0.00E+00	2.19E-05	0.00E+00	1.17E-04
1.52E-04	8.33E-02	7.52E-03	2.38E+00	0.00E+00	2.12E-04	0.00E+00	1.27E-03
4.75E-05	2.78E-02	3.24E-03	9.36E-01	0.00E+00	8.33E-05	0.00E+00	3.98E-04
1.15E-02	8.95E-02	7.63E-02	1.36E+01	1.59E-04	4.91E-03	0.00E+00	1.03E-03
7.55E-04	7.93E-03	4.67E-03	1.43E+00	1.61E-05	2.48E-04	0.00E+00	6.81E-05
2.61E-04	1.23E-03	1.77E-03	6.53E-01	7.35E-06	5.88E-05	0.00E+00	2.35E-05
2.74E-04	3.25E-03	1.95E-03	6.11E-01	6.87E-06	9.66E-05	0.00E+00	2.47E-05
8.67E-05	6.74E-04	5.63E-04	3.90E-01	4.39E-06	1.51E-05	0.00E+00	7.82E-06

lbs/hr							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
0.004415681	3.278065984	0.393101899	124.97486	0	0.01111447	0	0.037014675
0.007418237	2.496862039	0.294305732	52.05795722	0	0.004629707	0	0.06218376
0.001014194	0.275292765	0.074476894	22.31055692	0	0.001984159	0	0.00850154
0.002945061	1.613990485	0.186087951	52.05795425	0	0.004629707	0	0.024687128
0.003419145	1.874739529	0.16928924	53.54531679	0	0.004761985	0	0.028661157
0.008041164	4.707032348	0.548006407	158.5536755	0	0.014100762	0	0.067405467
0.053190098	0.41568793	0.354456803	63.08282331	0.000739994	0.022822265	0	0.004799254
0.030913524	0.32463439	0.191226704	58.44715668	0.000657631	0.010173656	0	0.002789278
0.023560429	0.1112855	0.159826704	59.07361382	0.00066468	0.005312496	0	0.00212582
0.019492349	0.231687766	0.138496571	43.50022554	0.000489452	0.006876768	0	0.001758763
0.034751	0.27031607	0.225615028	156.3602208	0.001759321	0.006062981	0	0.003135527

g/hp-hr							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
0.011445444	8.496747029	1.018920122	323.9348371	0	0.028808706	0	0.095942038
0.028040938	9.438138506	1.112475667	196.7790783	0	0.017500292	0	0.235054613
0.009200772	2.497455963	0.675654384	202.4013724	0	0.018000295	0	0.077125972
0.007633599	4.183463337	0.482339969	134.9342174	0	0.0120002	0	0.063989035
0.006203697	3.401527402	0.307158397	97.15262279	0	0.008640146	0	0.052002804
0.014589887	8.540439492	0.994302824	287.6797888	0	0.025584422	0	0.12230048
0.201058572	1.571300376	1.339846714	238.4530721	0.002797178	0.086268162	0	0.018141181
0.080127853	0.841452338	0.495659617	151.4950301	0.001704579	0.026370117	0	0.007229808
0.042748042	0.201916412	0.289989571	107.1831649	0.001205994	0.009638994	0	0.003857087
0.050524168	0.60053469	0.358983112	112.7525846	0.00126866	0.017824582	0	0.004558715
0.063052215	0.490461477	0.409355906	283.6999847	0.003192111	0.011000672	0	0.0056891

2037								
CY	Season	AvgDays	Code	Equipment	Fuel	MaxHP	Class	C/R
2037	Annual	Mon-Sun	2.266E+09	Cargo Tractor	C4	175	Airport Ground Support Equipment	U
2037	Annual	Mon-Sun	2.266E+09	Cargo Loader	C4	120	Airport Ground Support Equipment	U
2037	Annual	Mon-Sun	2.266E+09	Forklift	C4	50	Airport Ground Support Equipment	U
2037	Annual	Mon-Sun	2.266E+09	Fuel Truck	C4	175	Airport Ground Support Equipment	U
2037	Annual	Mon-Sun	2.266E+09	Service Truck	C4	250	Airport Ground Support Equipment	U
2037	Annual	Mon-Sun	2.266E+09	Catering Truck	C4	250	Airport Ground Support Equipment	U
2037	Annual	Mon-Sun	2.27E+09	Cargo Loader	D	120	Airport Ground Support Equipment	U
2037	Annual	Mon-Sun	2.27E+09	Forklift	D	175	Airport Ground Support Equipment	U
2037	Annual	Mon-Sun	2.27E+09	Fuel Truck	D	250	Airport Ground Support Equipment	U
2037	Annual	Mon-Sun	2.27E+09	Service Truck	D	175	Airport Ground Support Equipment	U
2037	Annual	Mon-Sun	2.27E+09	Catering Truck	D	250	Airport Ground Support Equipment	U

Pre	Hand	Port	County	Air Basin	Air Dist.	total hours/day		
						Population	Activity	Consumption
N	NHH	NP	Los Angeles	SC	SC	6.44E+01	2.75E+01	2.54E+02
N	NHH	NP	Los Angeles	SC	SC	1.63E+01	4.62E+01	1.84E+02
N	NHH	NP	Los Angeles	SC	SC	2.12E+02	4.22E+02	6.82E+02
N	NHH	NP	Los Angeles	SC	SC	7.38E+00	1.14E+01	4.43E+01
N	NHH	NP	Los Angeles	SC	SC	3.01E+01	1.07E+02	4.31E+02
N	NHH	NP	Los Angeles	SC	SC	1.15E+01	1.43E+01	1.68E+02
N	NHH	NP	Los Angeles	SC	SC	2.09E+02	5.20E+02	1.49E+03
P	NHH	NP	Los Angeles	SC	SC	2.89E+01	5.90E+01	1.57E+02
N	NHH	NP	Los Angeles	SC	SC	1.56E+01	2.67E+01	7.13E+01
N	NHH	NP	Los Angeles	SC	SC	2.45E+01	3.39E+01	6.70E+01
N	NHH	NP	Los Angeles	SC	SC	5.93E+00	6.02E+00	4.25E+01

tons/day							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
4.42E-05	4.51E-02	4.21E-03	1.72E+00	0.00E+00	1.53E-04	0.00E+00	3.70E-04
1.32E-04	5.79E-02	5.93E-03	1.20E+00	0.00E+00	1.07E-04	0.00E+00	1.10E-03
2.17E-04	5.83E-02	1.58E-02	4.71E+00	0.00E+00	4.19E-04	0.00E+00	1.82E-03
1.30E-05	9.23E-03	8.14E-04	2.97E-01	0.00E+00	2.65E-05	0.00E+00	1.09E-04
1.72E-04	1.01E-01	8.58E-03	2.87E+00	0.00E+00	2.55E-04	0.00E+00	1.44E-03
4.39E-05	3.36E-02	3.01E-03	1.13E+00	0.00E+00	1.01E-04	0.00E+00	3.68E-04
7.46E-03	1.06E-01	4.52E-02	1.64E+01	1.92E-04	7.13E-04	0.00E+00	6.73E-04
4.74E-04	9.58E-03	1.02E-03	1.72E+00	1.94E-05	4.10E-05	0.00E+00	4.28E-05
1.97E-04	1.47E-03	4.28E-04	7.89E-01	8.87E-06	1.56E-05	0.00E+00	1.78E-05
1.69E-04	3.93E-03	4.29E-04	7.37E-01	8.30E-06	1.65E-05	0.00E+00	1.53E-05
8.02E-05	8.15E-04	2.20E-04	4.71E-01	5.30E-06	7.75E-06	0.00E+00	7.24E-06

lbs/hr							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
0.003211583	3.279277773	0.306316215	124.9747389	0	0.011114468	0	0.026921267
0.005688264	2.502067236	0.256640161	52.05797039	0	0.004629708	0	0.04768219
0.001028091	0.276300232	0.074710233	22.3105608	0	0.001984161	0	0.008618028
0.002283607	1.615822582	0.142513871	52.05796112	0	0.004629706	0	0.019142448
0.003203508	1.888655631	0.160005034	53.54530421	0	0.004761982	0	0.026853567
0.006160845	4.711495453	0.421526878	158.5536166	0	0.014100758	0	0.051643609
0.028687974	0.409500819	0.173815033	63.0828259	0.000739994	0.002743123	0	0.002588469
0.016089492	0.325010364	0.034699533	58.447156	0.000657631	0.001391427	0	0.001451729
0.014766145	0.109736746	0.032079637	59.07360465	0.000664679	0.001168069	0	0.001332325
0.009992774	0.231837578	0.025324946	43.5002159	0.000489452	0.00097559	0	0.000901632
0.026640941	0.270556611	0.072974076	156.3602664	0.001759321	0.002573347	0	0.00240377

g/hp-hr							
ROG Exhaust	CO Exhaust	NOX Exhaust	CO2 Exhaust	SO2 Exhaust	PM Exhaust	N2O Exhaust	CH4 Exhaust
0.008324424	8.499887988	0.793971629	323.9345233	0	0.028808701	0	0.069779924
0.021501637	9.457814151	0.970099808	196.7791281	0	0.017500298	0	0.180238678
0.009326844	2.506595707	0.67777123	202.4014076	0	0.018000305	0	0.078182754
0.005919109	4.188212131	0.369395954	134.9342352	0	0.012000198	0	0.049617226
0.005812444	3.426776776	0.290313134	97.15259995	0	0.00864014	0	0.048723113
0.011178238	8.54853735	0.764818368	287.679682	0	0.025584416	0	0.093702165
0.108440541	1.547913096	0.657020826	238.4530819	0.002797176	0.010369003	0	0.009784414
0.041703963	0.842426863	0.08994119	151.4950284	0.001704579	0.003606578	0	0.003762882
0.026791693	0.199106351	0.058205294	107.1831483	0.001205994	0.002119344	0	0.002417371
0.02590127	0.600923002	0.065642261	112.7525596	0.00126866	0.00252873	0	0.00233703
0.048337323	0.490897915	0.132404163	283.7000673	0.003192112	0.004669082	0	0.0043614

Baseline Criteria Pollutant Emissions

Average Emissions (lb/2006 yr)

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	971	1,324	441	11,961	1,324	1,059	10,151	465
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total Sea / Fairway - North-Bound</i>		<i>971</i>	<i>1,324</i>	<i>441</i>	<i>11,961</i>	<i>1,324</i>	<i>1,059</i>	<i>10,151</i>	<i>465</i>
Sea / Fairway - South-Bound	Diesel Engines	41,005	55,916	18,639	505,105	55,916	44,733	428,687	19,626
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total Sea / Fairway - South-Bound</i>		<i>41,005</i>	<i>55,916</i>	<i>18,639</i>	<i>505,105</i>	<i>55,916</i>	<i>44,733</i>	<i>428,687</i>	<i>19,626</i>
Fairway - North-Bound	Diesel Engines	871	1,188	396	10,730	1,188	950	9,107	417
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total Fairway - North-Bound</i>		<i>871</i>	<i>1,188</i>	<i>396</i>	<i>10,730</i>	<i>1,188</i>	<i>950</i>	<i>9,107</i>	<i>417</i>
Fairway - South-Bound	Diesel Engines	14,688	20,029	6,676	180,931	20,029	16,023	153,557	7,030
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total Fairway - South-Bound</i>		<i>14,688</i>	<i>20,029</i>	<i>6,676</i>	<i>180,931</i>	<i>20,029</i>	<i>16,023</i>	<i>153,557</i>	<i>7,030</i>
Precautionary Zone - North-Bound	Diesel Engines	252	343	114	3,102	343	275	2,633	121
Precautionary Zone - North-Bound	Boiler	4	-	2	43	17	13	341	2
<i>Total Precautionary Zone - North-Bound</i>		<i>256</i>	<i>343</i>	<i>117</i>	<i>3,145</i>	<i>360</i>	<i>288</i>	<i>2,973</i>	<i>123</i>
Precautionary Zone - South-Bound	Diesel Engines	9,537	13,005	4,335	117,475	13,005	10,404	99,702	4,565
Precautionary Zone - South-Bound	Boiler	156	-	78	1,643	626	501	12,909	82
<i>Total Precautionary Zone - South-Bound</i>		<i>9,693</i>	<i>13,005</i>	<i>4,413</i>	<i>119,118</i>	<i>13,631</i>	<i>10,904</i>	<i>112,612</i>	<i>4,647</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,237	4,414	1,471	39,877	4,414	3,532	33,844	1,549
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	63	-	31	657	250	200	5,162	33
<i>Total Outer Harbor Zone2</i>		<i>3,300</i>	<i>4,414</i>	<i>1,503</i>	<i>40,534</i>	<i>4,665</i>	<i>3,732</i>	<i>39,006</i>	<i>1,582</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	3,767	5,137	1,712	46,403	5,137	4,109	39,382	1,803
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	73	-	36	764	291	233	6,006	38
<i>Total Inner Harbor Zone</i>		<i>3,840</i>	<i>5,137</i>	<i>1,749</i>	<i>47,167</i>	<i>5,428</i>	<i>4,342</i>	<i>45,388</i>	<i>1,841</i>
Hoteling	Diesel Engines	50,858	69,352	23,117	626,476	69,352	55,481	531,695	24,342
Hoteling	Boiler	1,365	-	683	14,334	5,460	4,368	112,621	719
<i>Total Hoteling</i>		<i>52,223</i>	<i>69,352</i>	<i>23,800</i>	<i>640,809</i>	<i>74,812</i>	<i>59,850</i>	<i>644,316</i>	<i>25,061</i>
Annual Total (lb/yr)		126,847	170,708	57,733	1,559,502	177,352	141,882	1,445,799	60,793
Annual Total (ton/yr)		63	85	29	780	89	71	723	30
<i>Analysis</i>									
Starcrest 2006 Reported Emissions for Cruise Vessels (tpy)		63	82	25	785	85	68	750	27
<i>Difference between Starcrest reported and Calculated Baseline Emissions</i>		<i>1.0%</i>	<i>4.3%</i>	<i>12.4%</i>	<i>-0.7%</i>	<i>3.9%</i>	<i>4.0%</i>	<i>-3.8%</i>	<i>12.4%</i>

$Emissions = Engine\ Power * Load\ Factor * Emission\ Factor * Time$

Total Vessels in 2006: 258
 Percent of North-Bound Vessels: 2.9%
 Percent of South-Bound Vessels: 97.1%

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths
 (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams
 0.45 In 2006 45% of cruise vessels were IMO-compliant for NOx standards. [Data provided by Starcrest, February 2008]

VSRRP (12 knots): 59% compliance to 20 nm
 Average hourly emissions are based on residual fuel with 2.7% sulfur content

Baseline Criteria Pollutant Emissions

Peak Hourly (lb/hr) for Single Vessel

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	64.8	117.2	29.4	824.3	117.2	93.8	1,128.5	31.0	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>64.8</i>	<i>117.2</i>	<i>29.4</i>	<i>824.3</i>	<i>117.2</i>	<i>93.8</i>	<i>1,128.5</i>	<i>31.0</i>	
Sea / Fairway - South-Bound	Diesel Engines	76.5	138.5	34.8	973.7	138.5	110.8	1,333.1	36.6	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>76.5</i>	<i>138.5</i>	<i>34.8</i>	<i>973.7</i>	<i>138.5</i>	<i>110.8</i>	<i>1,333.1</i>	<i>36.6</i>	
Fairway - North-Bound	Diesel Engines	37.0	67.1	16.8	471.5	67.1	53.7	645.5	17.7	1.57
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>37.0</i>	<i>67.1</i>	<i>16.8</i>	<i>471.5</i>	<i>67.1</i>	<i>53.7</i>	<i>645.5</i>	<i>17.7</i>	
Fairway - South-Bound	Diesel Engines	29.3	53.1	13.3	373.1	53.1	42.5	510.8	14.0	0.79
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>29.3</i>	<i>53.1</i>	<i>13.3</i>	<i>373.1</i>	<i>53.1</i>	<i>42.5</i>	<i>510.8</i>	<i>14.0</i>	
Precautionary Zone - North-Bound	Diesel Engines	16.8	30.4	7.6	213.8	30.4	24.3	292.7	8.0	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>17.1</i>	<i>30.4</i>	<i>7.8</i>	<i>216.7</i>	<i>32.2</i>	<i>25.7</i>	<i>330.5</i>	<i>8.2</i>	
Precautionary Zone - South-Bound	Diesel Engines	19.0	34.5	8.7	242.3	34.5	27.6	331.7	9.1	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>19.3</i>	<i>34.5</i>	<i>8.8</i>	<i>245.5</i>	<i>36.5</i>	<i>29.2</i>	<i>374.6</i>	<i>9.3</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.3	11.4	2.9	79.8	11.4	9.1	109.3	3.0	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.1	
<i>Total Outer Harbor Zone2</i>		<i>6.4</i>	<i>11.4</i>	<i>2.9</i>	<i>81.1</i>	<i>12.1</i>	<i>9.7</i>	<i>126.0</i>	<i>3.1</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	7.3	13.2	3.3	92.9	13.2	10.6	127.2	3.5	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.1	
<i>Total Inner Harbor Zone</i>		<i>7.4</i>	<i>13.2</i>	<i>3.4</i>	<i>94.4</i>	<i>14.1</i>	<i>11.3</i>	<i>146.6</i>	<i>3.6</i>	
Hoteling	Diesel Engines	16.4	29.7	7.5	209.1	29.7	23.8	286.2	7.9	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.2	
<i>Total Hoteling</i>		<i>16.9</i>	<i>29.7</i>	<i>7.7</i>	<i>213.7</i>	<i>32.6</i>	<i>26.1</i>	<i>346.9</i>	<i>8.1</i>	

First Peak Hour Scenario	100	177	45	1,263	188	151	1,942	48
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptor:								
Second Peak Hour Scenario	51	89	23	641	98	78	1,041	24
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity								

Emissions = Engine Power * Load Factor * Emission Factor

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor

$$\text{VOC/HC} = 1.053$$

$$1 \text{ lb} = 453.59$$

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth
4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, single vessel peak hour emissions are multiplied by

Baseline Criteria Pollutant Emissions
Peak Day (lb/day) for Single Vessel, Round-Trip

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	129.5	234.5	58.9	1,648.5	234.5	187.6	2,256.9	62.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>129.5</i>	<i>234.5</i>	<i>58.9</i>	<i>1,648.5</i>	<i>234.5</i>	<i>187.6</i>	<i>2,256.9</i>	<i>62.0</i>
Sea / Fairway - South-Bound	Diesel Engines	163.7	296.3	74.4	2,083.3	296.3	237.1	2,852.2	78.3
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>163.7</i>	<i>296.3</i>	<i>74.4</i>	<i>2,083.3</i>	<i>296.3</i>	<i>237.1</i>	<i>2,852.2</i>	<i>78.3</i>
Fairway - North-Bound	Diesel Engines	116.2	210.4	52.8	1,478.9	210.4	168.3	2,024.7	55.6
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>116.2</i>	<i>210.4</i>	<i>52.8</i>	<i>1,478.9</i>	<i>210.4</i>	<i>168.3</i>	<i>2,024.7</i>	<i>55.6</i>
Fairway - South-Bound	Diesel Engines	58.6	106.1	26.7	746.3	106.1	84.9	1,021.7	28.1
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>58.6</i>	<i>106.1</i>	<i>26.7</i>	<i>746.3</i>	<i>106.1</i>	<i>84.9</i>	<i>1,021.7</i>	<i>28.1</i>
Precautionary Zone - North-Bound	Diesel Engines	33.6	60.8	15.3	427.5	60.8	48.7	585.3	16.1
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	3.6	2.8	75.8	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>34.1</i>	<i>60.8</i>	<i>15.5</i>	<i>433.3</i>	<i>64.4</i>	<i>51.5</i>	<i>661.1</i>	<i>16.4</i>
Precautionary Zone - South-Bound	Diesel Engines	38.1	68.9	17.3	484.5	68.9	55.1	663.3	18.2
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	4.0	3.2	85.9	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>38.7</i>	<i>68.9</i>	<i>17.6</i>	<i>491.1</i>	<i>73.0</i>	<i>58.4</i>	<i>749.2</i>	<i>18.6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	12.5	22.7	5.7	159.7	22.7	18.2	218.6	6.0
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.5	1.6	1.3	33.3	0.1
<i>Total Outer Harbor Zone2</i>		<i>12.8</i>	<i>22.7</i>	<i>5.8</i>	<i>162.2</i>	<i>24.3</i>	<i>19.4</i>	<i>252.0</i>	<i>6.1</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	14.6	26.4	6.6	185.8	26.4	21.1	254.4	7.0
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.3	-	0.1	3.0	1.8	1.5	38.8	0.1
<i>Total Inner Harbor Zone</i>		<i>14.9</i>	<i>26.4</i>	<i>6.8</i>	<i>188.8</i>	<i>28.3</i>	<i>22.6</i>	<i>293.2</i>	<i>7.1</i>
Hoteling	Diesel Engines	197.1	356.9	89.6	2,508.8	356.9	285.5	3,434.7	94.4
Hoteling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hoteling</i>		<i>202.4</i>	<i>356.9</i>	<i>92.2</i>	<i>2,564.4</i>	<i>391.0</i>	<i>312.8</i>	<i>4,162.2</i>	<i>97.1</i>
Inner Harbor Berths per Vessel - Peak Day (lb/day)		549	982	250	6,969	1,023	819	10,334	263
2006 Total Inner Harbor Berths Peak Day (lb/day)		1,646	2,945	749	20,906	3,070	2,456	31,001	789

Emissions = Engine Power * Load Factor * Emission Factor * Time per one-way Trip * 2 one-way Trips per Day

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.} \\ 1 \text{ lb} &= 453.59 \text{ grams} \end{aligned}$$

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content
- 4. Maximum of 2 one-way trips per vessel. Hoteling occurs once per day
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions
- 6. 59% VSRP compliance was assumed within 20 nm.

For air dispersion modeling, multiply peak day for single vessel by

Baseline Criteria Pollutant Emissions
Average Day (lb/day) for Single Vessel, Round-Trip

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Inner Harbor Berths per Vessel - Average Day (lb/day)		348	468	158	4,273	486	389	3,961	167

Assumptions

1. Maximum of 1 ship per day per berth.
2. Average scenario assumes annual emissions divided by 365 days/year
3. Average day emissions are based on residual fuel with 2.7% sulfur content
4. Maximum of 2 one-way trips per vessel. Hoteling occurs once per day
5. 59% VSRP compliance was assumed within 20 nm.

Baseline Criteria Pollutant Emissions

Peak 8-Hour (lb/8-hr) for Single Vessel

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	8.1	14.7	3.7	103.0	14.7	11.7	141.1	3.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>8.1</i>	<i>14.7</i>	<i>3.7</i>	<i>103.0</i>	<i>14.7</i>	<i>11.7</i>	<i>141.1</i>	<i>3.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	10.2	18.5	4.7	130.2	18.5	14.8	178.3	4.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>10.2</i>	<i>18.5</i>	<i>4.7</i>	<i>130.2</i>	<i>18.5</i>	<i>14.8</i>	<i>178.3</i>	<i>4.9</i>	
Fairway - North-Bound	Diesel Engines	10.1	18.3	4.6	129.0	18.3	14.7	176.5	4.8	1.57
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>10.1</i>	<i>18.3</i>	<i>4.6</i>	<i>129.0</i>	<i>18.3</i>	<i>14.7</i>	<i>176.5</i>	<i>4.8</i>	
Fairway - South-Bound	Diesel Engines	5.1	9.3	2.3	65.1	9.3	7.4	89.1	2.4	0.79
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>5.1</i>	<i>9.3</i>	<i>2.3</i>	<i>65.1</i>	<i>9.3</i>	<i>7.4</i>	<i>89.1</i>	<i>2.4</i>	
Precautionary Zone - North-Bound	Diesel Engines	2.1	3.8	1.0	26.7	3.8	3.0	36.6	1.0	0.63
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.02	
<i>Total Precautionary Zone - North-Bound</i>		<i>2.1</i>	<i>3.8</i>	<i>1.0</i>	<i>27.1</i>	<i>4.0</i>	<i>3.2</i>	<i>41.3</i>	<i>1.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	2.4	4.3	1.1	30.3	4.3	3.4	41.5	1.1	0.71
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.4	0.3	0.2	5.4	0.02	
<i>Total Precautionary Zone - South-Bound</i>		<i>2.4</i>	<i>4.3</i>	<i>1.1</i>	<i>30.7</i>	<i>4.6</i>	<i>3.6</i>	<i>46.8</i>	<i>1.2</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.8	1.4	0.4	10.0	1.4	1.1	13.7	0.4	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
<i>Total Outer Harbor Zone2</i>		<i>0.8</i>	<i>1.4</i>	<i>0.4</i>	<i>10.2</i>	<i>1.5</i>	<i>1.2</i>	<i>15.7</i>	<i>0.4</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.9	1.7	0.4	11.6	1.7	1.3	15.9	0.4	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
<i>Total Inner Harbor Zone</i>		<i>0.9</i>	<i>1.7</i>	<i>0.4</i>	<i>11.8</i>	<i>1.8</i>	<i>1.4</i>	<i>18.3</i>	<i>0.4</i>	
Hoteling	Diesel Engines	16.4	29.7	7.5	209.1	29.7	23.8	286.2	7.9	12.00
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.2	
<i>Total Hoteling</i>		<i>16.9</i>	<i>29.7</i>	<i>7.7</i>	<i>213.7</i>	<i>32.6</i>	<i>26.1</i>	<i>346.9</i>	<i>8.1</i>	

First Peak 8-Hour Scenario

12 22 6 158 24 19 243 6

First Peak 8-Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptor:

Second Peak 8-Hour Scenario

51 89 23 641 98 78 1,041 24

Second Peak 8-Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity

Emissions = Engine Power * Load Factor * Emission Factor

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor

$$\text{VOC/HC} = 1.053$$

$$1 \text{ lb} = 453.59$$

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth
4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply single vessel peak 8-hour emissions by

Baseline Toxic Pollutant Emissions

Year: 2006

Peak Hourly (lb/hr) for Single Type 1 Vessel

Spacial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2.61114	0.70571	5.29285	0.35286	0.02999	0.05646	0.91743	0.52929	0.398639	0.000586
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2.61114</i>	<i>0.70571</i>	<i>5.29285</i>	<i>0.35286</i>	<i>0.02999</i>	<i>0.05646</i>	<i>0.91743</i>	<i>0.52929</i>	<i>0.398639</i>	<i>0.000586</i>
Sea / Fairway - South-Bound	Diesel Engines	3.08459	0.83367	6.25255	0.41684	0.03543	0.06669	1.08378	0.62525	0.470919	0.000693
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>3.08459</i>	<i>0.83367</i>	<i>6.25255</i>	<i>0.41684</i>	<i>0.03543</i>	<i>0.06669</i>	<i>1.08378</i>	<i>0.62525</i>	<i>0.470919</i>	<i>0.000693</i>
Fairway - North-Bound	Diesel Engines	1.49358	0.40367	3.02752	0.20183	0.01716	0.03229	0.52477	0.30275	0.228022	0.000335
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1.49358</i>	<i>0.40367</i>	<i>3.02752</i>	<i>0.20183</i>	<i>0.01716</i>	<i>0.03229</i>	<i>0.52477</i>	<i>0.30275</i>	<i>0.228022</i>	<i>0.000335</i>
Fairway - South-Bound	Diesel Engines	1.18200	0.31946	2.39595	0.15973	0.01358	0.02556	0.41530	0.23959	0.180454	0.000265
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.18200</i>	<i>0.31946</i>	<i>2.39595</i>	<i>0.15973</i>	<i>0.01358</i>	<i>0.02556</i>	<i>0.41530</i>	<i>0.23959</i>	<i>0.180454</i>	<i>0.000265</i>
Precautionary Zone - North-Bound	Diesel Engines	0.67717	0.18302	1.37263	0.09151	0.00778	0.01464	0.23792	0.13726	0.103382	0.000152
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.006050	0.000009
<i>Total Precautionary Zone - North-Bound</i>		<i>0.68939</i>	<i>0.18632</i>	<i>1.39741</i>	<i>0.09316</i>	<i>0.00792</i>	<i>0.01491</i>	<i>0.24222</i>	<i>0.13974</i>	<i>0.109432</i>	<i>0.000161</i>
Precautionary Zone - South-Bound	Diesel Engines	0.76745	0.20742	1.55565	0.10371	0.00882	0.01659	0.26965	0.15556	0.117166	0.000172
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.006857	0.000010
<i>Total Precautionary Zone - South-Bound</i>		<i>0.78131</i>	<i>0.21116</i>	<i>1.58373</i>	<i>0.10558</i>	<i>0.00897</i>	<i>0.01689</i>	<i>0.27451</i>	<i>0.15837</i>	<i>0.124023</i>	<i>0.000182</i>
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	0.25295	0.06836	0.51273	0.03418	0.00291	0.00547	0.08887	0.05127	0.038617	0.000057
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.002662	0.000004
<i>Total Outer Harbor Zone2</i>		<i>0.25832</i>	<i>0.06982</i>	<i>0.52363</i>	<i>0.03491</i>	<i>0.00297</i>	<i>0.00559</i>	<i>0.09076</i>	<i>0.05236</i>	<i>0.041279</i>	<i>0.000061</i>
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	0.29434	0.07955	0.59663	0.03978	0.00338	0.00636	0.10342	0.05966	0.044936	0.000066
Inner Harbor Zone (maneuvering through main channel)	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.003098	0.000005
<i>Total Inner Harbor Zone</i>		<i>0.30059</i>	<i>0.08124</i>	<i>0.60931</i>	<i>0.04062</i>	<i>0.00345</i>	<i>0.00650</i>	<i>0.10561</i>	<i>0.06093</i>	<i>0.048033</i>	<i>0.000071</i>
Hoteling	Diesel Engines	0.66230	0.17900	1.34249	0.08950	0.00761	0.01432	0.23270	0.13425	0.101112	0.000149
Hoteling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.009680	0.000014
<i>Total Hoteling</i>		<i>0.68185</i>	<i>0.18428</i>	<i>1.38213</i>	<i>0.09214</i>	<i>0.00783</i>	<i>0.01474</i>	<i>0.23957</i>	<i>0.13821</i>	<i>0.110792</i>	<i>0.000163</i>

First Peak Hour Scenario (per vessel) 2.022 0.547 4.099 0.273 0.023 0.044 0.710 0.410 0.324126 0.000477

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel) 0.682 0.184 1.382 0.092 0.008 0.015 0.240 0.138 0.111 0.000

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.002110	0.004690	0.002931	0.004924	0.004690	0.003517	0.002228	2.040093	0.003400	0.004221	-	0.000070	0.014890	0.051354
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.002110	0.004690	0.002931	0.004924	0.004690	0.003517	0.002228	2.040093	0.003400	0.004221	-	0.000070	0.014890	0.051354
0.002493	0.005540	0.003463	0.005817	0.005540	0.004155	0.002632	2.409999	0.004017	0.004986	-	0.000083	0.017590	0.060666
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.002493	0.005540	0.003463	0.005817	0.005540	0.004155	0.002632	2.409999	0.004017	0.004986	-	0.000083	0.017590	0.060666
0.001207	0.002683	0.001677	0.002817	0.002683	0.002012	0.001274	1.166936	0.001945	0.002414	-	0.000040	0.008517	0.029375
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.001207	0.002683	0.001677	0.002817	0.002683	0.002012	0.001274	1.166936	0.001945	0.002414	-	0.000040	0.008517	0.029375
0.000955	0.002123	0.001327	0.002229	0.002123	0.001592	0.001008	0.923500	0.001539	0.001911	-	0.000032	0.006740	0.023247
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.000955	0.002123	0.001327	0.002229	0.002123	0.001592	0.001008	0.923500	0.001539	0.001911	-	0.000032	0.006740	0.023247
0.000547	0.001216	0.000760	0.001277	0.001216	0.000912	0.000578	0.529071	0.000882	0.001095	-	0.000018	0.003862	0.013318
0.000032	0.000071	0.000044	0.000075	0.000071	0.000053	0.000034	0.030962	0.000052	0.000064	-	0.000001	0.000226	0.000779
0.000579	0.001287	0.000805	0.001352	0.001287	0.000966	0.000612	0.560033	0.000933	0.001159	-	0.000019	0.004088	0.014097
0.000620	0.001378	0.000862	0.001447	0.001378	0.001034	0.000655	0.599614	0.000999	0.001241	-	0.000021	0.004376	0.015094
0.000036	0.000081	0.000050	0.000085	0.000081	0.000060	0.000038	0.035090	0.000058	0.000073	-	0.000001	0.000256	0.000883
0.000657	0.001459	0.000912	0.001532	0.001459	0.001094	0.000693	0.634704	0.001058	0.001313	-	0.000022	0.004633	0.015977
0.000204	0.000454	0.000284	0.000477	0.000454	0.000341	0.000216	0.197627	0.000329	0.000409	-	0.000007	0.001442	0.004975
0.000014	0.000031	0.000020	0.000033	0.000031	0.000023	0.000015	0.013623	0.000023	0.000028	-	0.000000	0.000099	0.000343
0.000219	0.000486	0.000304	0.000510	0.000486	0.000364	0.000231	0.211250	0.000352	0.000437	-	0.000007	0.001542	0.005318
0.000238	0.000529	0.000330	0.000555	0.000529	0.000396	0.000251	0.229966	0.000383	0.000476	-	0.000008	0.001678	0.005789
0.000016	0.000036	0.000023	0.000038	0.000036	0.000027	0.000017	0.015852	0.000026	0.000033	-	0.000001	0.000116	0.000399
0.000254	0.000565	0.000353	0.000593	0.000565	0.000424	0.000268	0.245818	0.000410	0.000509	-	0.000008	0.001794	0.006188
0.000535	0.001190	0.000743	0.001249	0.001190	0.000892	0.000565	0.517454	0.000862	0.001071	-	0.000018	0.003777	0.013026
0.000051	0.000114	0.000071	0.000120	0.000114	0.000085	0.000054	0.049539	0.000083	0.000102	-	0.000002	0.000362	0.001247
0.000587	0.001303	0.000815	0.001369	0.001303	0.000978	0.000619	0.566993	0.000945	0.001173	-	0.000020	0.004138	0.014273
0.001716	0.003813	0.002383	0.004004	0.003813	0.002860	0.001811	1.658764	0.002765	0.003432	-	0.000057	0.012107	0.041755
0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.567	0.001	0.001	-	0.000	0.004	0.014

Baseline Toxic Pollutant Emissions

Year: 2006

Max Year (lb/yr) & 70-Year Average

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia
Sea / Fairway - North-Bound	Diesel Engines	1,324									
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,324</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	55,916									
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>55,916</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,188									
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,188</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	20,029									
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>20,029</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	343									
Precautionary Zone - North-Bound	Boiler		-	0.0	0.0	0.0	0.0	0.0	0.1	0.0	-
<i>Total Precautionary Zone - North-Bound</i>		<i>343</i>	<i>-</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>-</i>
Precautionary Zone - South-Bound	Diesel Engines	13,005									
Precautionary Zone - South-Bound	Boiler		-	1.9	0.1	1.0	0.1	1.4	3.9	1.9	-
<i>Total Precautionary Zone - South-Bound</i>		<i>13,005</i>	<i>-</i>	<i>1.9</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>3.9</i>	<i>1.9</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	4,414									
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.7	0.0	0.4	0.0	0.6	1.6	0.7	-
<i>Total Outer Harbor Zone2</i>		<i>4,414</i>	<i>-</i>	<i>0.7</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.7</i>	<i>-</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,137									
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.4	0.0	0.6	1.8	0.9	-
<i>Total Inner Harbor Zone</i>		<i>5,137</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.8</i>	<i>0.9</i>	<i>-</i>
Hoteling	Diesel Engines	69,352									
Hoteling	Boiler		-	16.4	0.8	8.4	0.5	12.1	34.4	16.4	-
<i>Total Hoteling</i>		<i>69,352</i>	<i>-</i>	<i>16.4</i>	<i>0.8</i>	<i>8.4</i>	<i>0.5</i>	<i>12.1</i>	<i>34.4</i>	<i>16.4</i>	<i>-</i>

Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.1	-	0.0	-	0.1	-	-	0.0	4.1	-	-	-	0.0	-	0.1
0.1	-	0.0	-	0.1	-	-	0.0	4.1	-	-	-	0.0	-	0.1
3.4	-	0.3	-	3.4	-	-	0.3	156.5	-	-	-	0.2	-	3.4
3.4	-	0.3	-	3.4	-	-	0.3	156.5	-	-	-	0.2	-	3.4
1.4	-	0.1	-	1.4	-	-	0.1	62.6	-	-	-	0.1	-	1.4
1.4	-	0.1	-	1.4	-	-	0.1	62.6	-	-	-	0.1	-	1.4
1.6	-	0.1	-	1.6	-	-	0.1	72.8	-	-	-	0.1	-	1.6
1.6	-	0.1	-	1.6	-	-	0.1	72.8	-	-	-	0.1	-	1.6
29.5	-	2.7	-	30.0	-	-	2.7	1,365.1	-	-	-	1.5	-	30.0
29.5	-	2.7	-	30.0	-	-	2.7	1,365.1	-	-	-	1.5	-	30.0

Baseline Criteria Pollutant Emissions Berth 87 General Cargo

Average Emissions (lb/2006 yr)

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway	Main Engine	41	44	18	533	44	35	309	19
Sea / Fairway	Auxiliary Engine	2.0	2.7	0.7	26.5	2.7	2.2	22.2	0.8
Sea / Fairway	Boiler	-	-	-	-	-	-	-	-
<i>Total Sea / Fairway</i>		<i>43</i>	<i>47</i>	<i>18</i>	<i>559</i>	<i>47</i>	<i>37</i>	<i>331</i>	<i>19</i>
Fairway	Main Engine	33	35	14	424	35	28	246	15
Fairway	Auxiliary Engine	1.6	2.2	0.6	21.1	2.2	1.7	17.7	0.6
Fairway	Boiler	-	-	-	-	-	-	-	-
<i>Fairway</i>		<i>34</i>	<i>37</i>	<i>15</i>	<i>445</i>	<i>37</i>	<i>30</i>	<i>264</i>	<i>15</i>
Precautionary Zone	Main Engine	14	15	6	184	15	12	107	6
Precautionary Zone	Auxiliary Engine	1.0	1.3	0.4	13.0	1.3	1.1	10.9	0.4
Precautionary Zone	Boiler	0	-	0	1	0	0	5	0
<i>Total Precautionary Zone</i>		<i>15</i>	<i>17</i>	<i>6</i>	<i>198</i>	<i>17</i>	<i>13</i>	<i>123</i>	<i>7</i>
Harbor Zone (vessels bound to Berth 87):	Main Engine	0.3	0.4	0.1	4.4	0.4	0.3	2.5	0.2
Harbor Zone (vessels bound to Berth 87):	Auxiliary Engine	0.9	1.2	0.3	11.4	1.2	0.9	9.5	0.3
Harbor Zone (vessels bound to Berth 87):	Boiler	0.02	-	0.01	0.22	0.08	0.07	1.70	0.01
<i>Harbor Zone (vessels bound to Berth 87):</i>		<i>1</i>	<i>2</i>	<i>0</i>	<i>16</i>	<i>2</i>	<i>1</i>	<i>14</i>	<i>0</i>
Hoteling	Main Engine	-	-	-	-	-	-	-	-
Hoteling	Auxiliary Engine	47	64	17	623	64	51	521	18
Hoteling	Boiler	2.3	-	1.1	24.1	9.2	7.4	189.7	1.2
<i>Total Hoteling</i>		<i>49</i>	<i>64</i>	<i>18</i>	<i>647</i>	<i>73</i>	<i>58</i>	<i>711</i>	<i>19</i>
Annual Total (lb/yr)		143	166	58	1,865	175	140	1,442	61
Annual Total (ton/yr)		0.07	0.1	0.03	0.9	0.1	0.07	0.7	0.03

*Emissions = Engine Power * Load Factor * Emission Factor * Time*

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

VSRP (12 knots): 59% compliance to 20 nm

Average hourly emissions are based on residual fuel with 2.7% sulfur content

Baseline Criteria Pollutant
Emissions

Berth 87 Bulk Carrier Ship

Average Emissions (lb/2006 yr)

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway	Main Engine	175	188	75	2,269	188	150	1,316	79
Sea / Fairway	Auxiliary Engine	13.4	18.2	4.9	178.5	18.2	14.6	149.3	5.1
Sea / Fairway	Boiler	-	-	-	-	-	-	-	-
<i>Total Sea / Fairway</i>		<i>189</i>	<i>206</i>	<i>80</i>	<i>2,447</i>	<i>206</i>	<i>165</i>	<i>1,465</i>	<i>84</i>
Fairway	Main Engine	140	150	60	1,806	150	120	1,048	63
Fairway	Auxiliary Engine	10.6	14.5	3.9	142.1	14.5	11.6	118.9	4.1
Fairway	Boiler	-	-	-	-	-	-	-	-
<i>Fairway</i>		<i>150</i>	<i>164</i>	<i>64</i>	<i>1,948</i>	<i>164</i>	<i>131</i>	<i>1,167</i>	<i>67</i>
Precautionary Zone	Main Engine	63	67	27	811	67	54	470	28
Precautionary Zone	Auxiliary Engine	6.3	8.5	2.3	83.7	8.5	6.8	70.1	2.4
Precautionary Zone	Boiler	0	-	0	3	1	1	21	0
<i>Total Precautionary Zone</i>		<i>69</i>	<i>76</i>	<i>29</i>	<i>897</i>	<i>77</i>	<i>61</i>	<i>561</i>	<i>31</i>
Harbor Zone (vessels bound to Berth 87):	Main Engine	1	2	1	19	2	1	11	0.7
Harbor Zone (vessels bound to Berth 87):	Auxiliary Engine	5.5	7.5	2.0	73.2	7.5	6.0	61.2	2.1
Harbor Zone (vessels bound to Berth 87):	Boiler	0	-	0	1	0	0	7	0.04
<i>Harbor Zone (vessels bound to Berth 87):</i>		<i>7</i>	<i>9</i>	<i>3</i>	<i>93</i>	<i>9</i>	<i>8</i>	<i>79</i>	<i>3</i>
Hoteling	Main Engine	-	-	-	-	-	-	-	-
Hoteling	Auxiliary Engine	197.1	268.8	71.7	2,634.2	268.8	215.0	2,204.1	75
Hoteling	Boiler	14	-	7	144	55	44	1,131	7.2
<i>Total Hoteling</i>		<i>211</i>	<i>269</i>	<i>79</i>	<i>2,778</i>	<i>324</i>	<i>259</i>	<i>3,335</i>	<i>83</i>
Annual Total (lb/yr)		626	724	254	8,164	780	624	6,608	268
Annual Total (ton/yr)		0.31	0.4	0.13	4.1	0.4	0.31	3.3	0.13

*Emissions = Engine Power * Load Factor * Emission Factor * Time*

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

VSRP (12 knots): 59% compliance to 20 nm

Average hourly emissions are based on residual fuel with 2.7% sulfur content.

Baseline Criteria Pollutant Emissions										Transit Time (hr)
Berth 87 General Cargo Ship										
Peak Hourly (lb/hr) for Single Cargo Vessel										
Spacial Allocation	Power Type	CO	DPM	HC	NOx	PM10	PM2.5	SOx	VOC	
Sea / Fairway	Main Engine	10.7	15.2	4.6	138.1	15.2	12.2	92.8		4.8
Sea / Fairway	Auxiliary Engines	0.7	1.3	0.3	9.8	1.3	1.1	9.3		0.3
Sea / Fairway	Boiler	-	-	-	-	-	-	-		-
<i>Total in Sea / Fairway</i>		<i>11.4</i>	<i>16.5</i>	<i>4.8</i>	<i>147.8</i>	<i>16.5</i>	<i>13.2</i>	<i>102.1</i>		<i>5.1</i>
Fairway	Main Engine	10.7	15.2	4.6	138.1	15.2	12.2	92.8		4.8
Fairway	Auxiliary Engines	0.7	1.3	0.3	9.8	1.3	1.1	9.3		0.3
Fairway	Boiler	-	-	-	-	-	-	-		-
<i>Total in Fairway</i>		<i>11.4</i>	<i>16.5</i>	<i>4.8</i>	<i>147.8</i>	<i>16.5</i>	<i>13.2</i>	<i>102.1</i>		<i>5.1</i>
Precautionary Zone	Main Engine	0.5	0.7	0.2	6.7	0.7	0.6	4.5		0.2
Precautionary Zone	Auxiliary Engines	0.5	0.9	0.2	6.5	0.9	0.7	6.2		0.2
Precautionary Zone	Boiler	0.0	0.2	0.0	0.3	0.2	0.2	2.8		0.0
<i>Total Precautionary Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.4</i>	<i>13.5</i>	<i>1.8</i>	<i>1.5</i>	<i>13.5</i>		<i>0.4</i>
Harbor Zone (vessels bound to Berth 87):	Main Engine	0.2	0.2	0.1	2.2	0.2	0.2	1.5		0.1
Harbor Zone (vessels bound to Berth 87):	Auxiliary Engines	0.4	0.8	0.2	5.7	0.8	0.6	5.4		0.2
Harbor Zone (vessels bound to Berth 87):	Boiler	0.01	0.07	0.01	0.10	0.07	0.05	0.93		0.01
<i>Harbor Zone (vessels bound to Berth 87):</i>		<i>0.6</i>	<i>1.1</i>	<i>0.2</i>	<i>8.0</i>	<i>1.1</i>	<i>0.9</i>	<i>7.8</i>		<i>0.2</i>
Hoteling	Main Engine	-	-	-	-	-	-	-		-
Hoteling	Auxiliary Engines	0.9	1.7	0.3	12.7	1.7	1.4	12.0		0.4
Hoteling	Boiler	0.05	0.30	0.02	0.44	0.30	0.24	4.25		0.02
<i>Total Hoteling</i>		<i>1.0</i>	<i>2.0</i>	<i>0.4</i>	<i>13.1</i>	<i>2.0</i>	<i>1.6</i>	<i>16.3</i>		<i>0.4</i>
First Peak Hour Scenario		0.6	1.1	0.2	8.0	1.1	0.9	7.8		0.2
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors										
Second Peak Hour Scenario		1.0	2.0	0.4	13.1	2.0	1.6	16.3		0.4
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity										
<i>Emissions = Engine Power * Load Factor * Emission Factor</i>										
VOC/HC =		1.053								
1 lb =		453.59								
<u>Assumptions</u>										
1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth										
4. Peak hourly emissions assume no VSRP.										
For air dispersion modeling, single vessel peak hour emissions are multiplied by: 1 cargo vessel										

Baseline Criteria Pollutant Emissions										Berth 87 Bulk Carrier
Peak Hourly (lb/hr) for Single Vessel										Peak hour is represented by the bulk carrier vessel because bulk carrier (lb/day) emissions are greater than cargo vessels (lb/day) emissions.
Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway	Main Engine	11.8	16.7	5.0	152.0	16.7	13.4	102.2	5.3	
Sea / Fairway	Auxiliary Engines	1.2	2.1	0.4	15.7	2.1	1.7	14.9	0.4	
Sea / Fairway	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway</i>		<i>12.9</i>	<i>18.8</i>	<i>5.5</i>	<i>167.7</i>	<i>18.8</i>	<i>15.1</i>	<i>117.1</i>	<i>5.8</i>	1.42
Fairway	Main Engine	11.8	16.7	5.0	152.0	16.7	13.4	102.2	5.3	
Fairway	Auxiliary Engines	1.2	2.1	0.4	15.7	2.1	1.7	14.9	0.4	
Fairway	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway</i>		<i>12.9</i>	<i>18.8</i>	<i>5.5</i>	<i>167.7</i>	<i>18.8</i>	<i>15.1</i>	<i>117.1</i>	<i>5.8</i>	1.13
Precautionary Zone	Main Engine	0.6	0.8	0.2	7.3	0.8	0.6	4.9	0.3	
Precautionary Zone	Auxiliary Engines	0.8	1.4	0.3	10.5	1.4	1.1	9.9	0.3	
Precautionary Zone	Boiler	0.0	0.2	0.0	0.3	0.2	0.2	2.9	0.0	
<i>Total Precautionary Zone</i>		<i>1.4</i>	<i>2.4</i>	<i>0.5</i>	<i>18.1</i>	<i>2.4</i>	<i>1.9</i>	<i>17.8</i>	<i>0.6</i>	0.67
Harbor Zone (vessels bound to Berth 87):	Main Engine	0.2	0.3	0.1	2.4	0.3	0.2	1.6	0.1	
Harbor Zone (vessels bound to Berth 87):	Auxiliary Engines	0.7	1.2	0.2	9.1	1.2	1.0	8.7	0.3	
Harbor Zone (vessels bound to Berth 87):	Boiler	0.0	0.1	0.0	0.1	0.1	0.1	1.0	0.01	
<i>Harbor Zone (vessels bound to Berth 87):</i>		<i>0.9</i>	<i>1.6</i>	<i>0.3</i>	<i>11.7</i>	<i>1.6</i>	<i>1.3</i>	<i>11.3</i>	<i>0.4</i>	0.22
Hoteling	Main Engine	-	-	-	-	-	-	-	-	
Hoteling	Auxiliary Engines	0.7	1.3	0.3	9.2	1.3	1.0	8.8	0.3	
Hoteling	Boiler	0.0	0.3	0.0	0.5	0.3	0.2	4.4	0.03	
<i>Total Hoteling</i>		<i>0.7</i>	<i>1.6</i>	<i>0.3</i>	<i>9.7</i>	<i>1.6</i>	<i>1.2</i>	<i>13.1</i>	<i>0.3</i>	0.71
First Peak Hour Scenario		0.9	1.6	0.3	11.7	1.6	1.3	11.3	0.4	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors										
Second Peak Hour Scenario		0.7	1.6	0.3	9.7	1.6	1.2	13.1	0.3	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity										
Emissions = Engine Power * Load Factor * Emission Factor										
VOC/HC =		1.053								
1 lb =		453.59								
<u>Assumptions</u>										
1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.										
2. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth										
3. Peak hourly emissions assume no VSRP.										
For air dispersion modeling, single vessel peak hour emissions are multiplied by: 4 bulk carrier										

Baseline Criteria Pollutant Emissions

Berth 87 General Cargo Ship

Peak day is represented by the bulk carrier vessel because bulk carrier (lb/day) emissions are greater than cargo vessels (lb/day) emissions.

Peak Day (lb/day) for Single Vessel, Round-Trip

Spacial Allocation	Power Type	CO	DPM	HC	NOx	PM10	PM2.5	SOx	VOC	Transit Time (hr/day)
Sea / Fairway	Main Engine	14.5	20.6	6.2	187.1	20.6	16.5	125.8	6.5	1.36
Sea / Fairway	Auxiliary Engines	1.0	1.8	0.4	13.3	1.8	1.4	12.6	0.4	
Sea / Fairway	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway</i>		<i>15.5</i>	<i>22.4</i>	<i>6.6</i>	<i>200.4</i>	<i>22.4</i>	<i>17.9</i>	<i>138.4</i>	<i>6.9</i>	
Fairway	Main Engine	11.5	16.4	4.9	149.0	16.4	13.1	100.1	5.2	1.08
Fairway	Auxiliary Engines	0.8	1.4	0.3	10.6	1.4	1.1	10.0	0.3	
Fairway	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway</i>		<i>12.3</i>	<i>17.8</i>	<i>5.2</i>	<i>159.5</i>	<i>17.8</i>	<i>14.3</i>	<i>110.2</i>	<i>5.5</i>	
Precautionary Zone	Main Engine	0.5	0.7	0.2	6.7	0.7	0.6	4.5	0.2	0.67
Precautionary Zone	Auxiliary Engines	0.5	0.9	0.2	6.5	0.9	0.7	6.2	0.2	
Precautionary Zone	Boiler	0.0	0.2	0.0	0.3	0.2	0.2	2.8	0.0	
<i>Total Precautionary Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.4</i>	<i>13.5</i>	<i>1.8</i>	<i>1.5</i>	<i>13.5</i>	<i>0.4</i>	
Harbor Zone (vessels bound to Berth 87):	Main Engine	0.2	0.2	0.1	2.2	0.2	0.2	1.5	0.1	0.22
Harbor Zone (vessels bound to Berth 87):	Auxiliary Engines	0.4	0.8	0.2	5.7	0.8	0.6	5.4	0.2	
Harbor Zone (vessels bound to Berth 87):	Boiler	0.01	0.07	0.01	0.10	0.07	0.05	0.93	0.01	
<i>Harbor Zone (vessels bound to Berth 87):</i>		<i>0.6</i>	<i>1.1</i>	<i>0.2</i>	<i>8.0</i>	<i>1.1</i>	<i>0.9</i>	<i>7.8</i>	<i>0.2</i>	
Hoteling	Main Engine	-	-	-	-	-	-	-	-	24
Hoteling	Auxiliary Engines	22.7	41.2	8.3	303.9	41.2	32.9	288.7	8.7	
Hoteling	Boiler	1.12	7.24	0.56	10.60	7.24	5.79	101.89	0.59	
<i>Total Hoteling</i>		<i>23.9</i>	<i>48.4</i>	<i>8.8</i>	<i>314.5</i>	<i>48.4</i>	<i>38.7</i>	<i>390.6</i>	<i>9.3</i>	
<i>Initial Peak Day for Single Vessel (lb/day)</i>		<i>53.3</i>	<i>91.5</i>	<i>21.3</i>	<i>695.8</i>	<i>91.5</i>	<i>73.2</i>	<i>660.5</i>	<i>22.4</i>	

$Emissions = Engine\ Power * Load\ Factor * Emission\ Factor$

VOC/HC = 1.053
 1 lb = 453.59

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
3. Peak hourly emissions assume no VSRP.
4. Only one vessel at berth in any peak day.

Baseline Criteria Pollutant Emissions

Berth 87 Bulk Carrier

Peak day is represented by the bulk carrier vessel because bulk carrier (lb/day) emissions are greater than cargo vessels (lb/day) emissions.

Peak Day (lb/day) for Single Vessel, Round-Trip

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway	Main Engine	16.7	23.8	7.2	215.9	23.8	19.0	145.1	7.5	
Sea / Fairway	Auxiliary Engines	5.3	9.6	1.9	70.7	9.6	7.7	67.1	2.0	
Sea / Fairway	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway</i>		<i>22.0</i>	<i>33.3</i>	<i>9.1</i>	<i>286.6</i>	<i>33.3</i>	<i>26.7</i>	<i>212.3</i>	<i>9.6</i>	1.42
Fairway	Main Engine	13.3	18.9	5.7	171.9	18.9	15.1	115.5	6.0	
Fairway	Auxiliary Engines	4.2	7.6	1.5	56.3	7.6	6.1	53.4	1.6	
Fairway	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway</i>		<i>17.5</i>	<i>26.5</i>	<i>7.2</i>	<i>228.2</i>	<i>26.5</i>	<i>21.2</i>	<i>169.0</i>	<i>7.6</i>	1.13
Precautionary Zone	Main Engine	0.6	0.8	0.2	7.3	0.8	0.6	4.9	0.3	
Precautionary Zone	Auxiliary Engines	2.5	4.5	0.9	33.2	4.5	3.6	31.5	1.0	
Precautionary Zone	Boiler	2.7	17.1	1.3	25.1	17.1	13.7	241.1	1.4	
<i>Total Precautionary Zone</i>		<i>5.7</i>	<i>22.4</i>	<i>2.5</i>	<i>65.6</i>	<i>22.4</i>	<i>17.9</i>	<i>277.5</i>	<i>2.6</i>	0.67
Harbor Zone (vessels bound to Berth 87):	Main Engine	0.2	0.3	0.1	2.4	0.3	0.2	1.6	0.1	
Harbor Zone (vessels bound to Berth 87):	Auxiliary Engines	2.2	3.9	0.8	29.0	3.9	3.1	27.5	0.8	
Harbor Zone (vessels bound to Berth 87):	Boiler	0.9	5.7	0.4	8.3	5.7	4.5	79.5	0.46	
<i>Harbor Zone (vessels bound to Berth 87):</i>		<i>3.2</i>	<i>9.8</i>	<i>1.3</i>	<i>39.7</i>	<i>9.8</i>	<i>7.9</i>	<i>108.7</i>	<i>1.4</i>	0.22
Hoteling	Main Engine	-	-	-	-	-	-	-	-	
Hoteling	Auxiliary Engines	16.6	30.0	6.0	221.7	30.0	24.0	210.6	6.4	
Hoteling	Boiler	1.2	7.4	0.6	10.9	7.4	6.0	104.8	0.61	
<i>Total Hoteling</i>		<i>17.7</i>	<i>37.5</i>	<i>6.6</i>	<i>232.6</i>	<i>37.5</i>	<i>30.0</i>	<i>315.4</i>	<i>7.0</i>	24
Total Peak Day for Single Vessel (lb/day)		66.2	129.6	26.7	852.5	129.6	103.7	1,082.8	28.1	

Emissions = Engine Power * Load Factor * Emission Factor

VOC/HC = 1.053
 1 lb = 453.59

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
3. Peak hourly emissions assume no VSRP.
4. Only one vessel at berth in any peak day.

Baseline Criteria Pollutant Emissio Berth 87 General Cargo Ship

Average Day (lb/day) for Single Vessel, Round-Trip

Spacial Allocation	Power Type	CO	DPM	HC	NOx	PM10	PM2.5	SOx	VOC
Average Day (lb/day)		0.4	0.5	0.2	5.1	0.5	0.4	4.0	0.2

Assumptions

1. Maximum of 1 ship per day per berth.
2. Average scenario assumes annual emissions divided by 365 days/year.
3. Average day emissions are based on residual fuel with 2.7% sulfur content.
4. Maximum of 2 one-way trips per vessel. Hoteling occurs once per day.
5. 59% VSRP compliance was assumed within 20 nm.

Baseline Criteria Pollutant Emissio Berth 87 Bulk Carrier

Average Day (lb/day) for Single Vessel, Round-Trip

Spacial Allocation	Power Type	CO	DPM	HC	NOx	PM10	PM2.5	SOx	VOC
Average Day (lb/day)		1.7	2.0	0.7	22.4	2.1	1.7	18.1	0.7

Assumptions

1. Maximum of 1 ship per day per berth.
2. Average scenario assumes annual emissions divided by 365 days/year.
3. Average day emissions are based on residual fuel with 2.7% sulfur content.
4. Maximum of 2 one-way trips per vessel. Hoteling occurs once per day.
5. 59% VSRP compliance was assumed within 20 nm.

Baseline Criteria Pollutant Emissions										Berth 87 General Cargo Ship
Peak 8-Hour (lb/8-hr) for Single Vessel										
Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway	Main Engine	1.8	2.6	0.8	23.4	2.6	2.1	15.7		0.8
Sea / Fairway	Auxiliary Engines	0.1	0.2	0.0	1.7	0.2	0.2	1.6		0.0
Sea / Fairway	Boiler	-	-	-	-	-	-	-		-
<i>Total in Sea / Fairway</i>		<i>1.9</i>	<i>2.8</i>	<i>0.8</i>	<i>25.0</i>	<i>2.8</i>	<i>2.2</i>	<i>17.3</i>		<i>0.9</i>
Fairway	Main Engine	1.4	2.0	0.6	18.6	2.0	1.6	12.5		0.6
Fairway	Auxiliary Engines	0.1	0.2	0.0	1.3	0.2	0.1	1.3		0.0
Fairway	Boiler	-	-	-	-	-	-	-		-
<i>Total in Fairway</i>		<i>1.5</i>	<i>2.2</i>	<i>0.7</i>	<i>19.9</i>	<i>2.2</i>	<i>1.8</i>	<i>13.8</i>		<i>0.7</i>
Precautionary Zone	Main Engine	0.1	0.1	0.0	0.8	0.1	0.1	0.6		0.0
Precautionary Zone	Auxiliary Engines	0.1	0.1	0.0	0.8	0.1	0.1	0.8		0.0
Precautionary Zone	Boiler	0.0	0.0	0.0	0.0	0.0	0.0	0.4		0.0
<i>Total Precautionary Zone</i>		<i>0.1</i>	<i>0.2</i>	<i>0.1</i>	<i>1.7</i>	<i>0.2</i>	<i>0.2</i>	<i>1.7</i>		<i>0.1</i>
Harbor Zone (vessels bound to Berth 87):	Main Engine	0.0	0.0	0.0	0.3	0.0	0.0	0.2		0.0
Harbor Zone (vessels bound to Berth 87):	Auxiliary Engines	0.1	0.1	0.0	0.7	0.1	0.1	0.7		0.0
Harbor Zone (vessels bound to Berth 87):	Boiler	0.00	0.01	0.00	0.01	0.01	0.01	0.12		0.00
<i>Harbor Zone (vessels bound to Berth 87):</i>		<i>0.1</i>	<i>0.1</i>	<i>0.0</i>	<i>1.0</i>	<i>0.1</i>	<i>0.1</i>	<i>1.0</i>		<i>0.0</i>
Hoteling	Main Engine	-	-	-	-	-	-	-		-
Hoteling	Auxiliary Engines	0.9	1.7	0.3	12.7	1.7	1.4	12.0		0.4
Hoteling	Boiler	0.05	0.30	0.02	0.44	0.30	0.24	4.25		0.02
<i>Total Hoteling</i>		<i>1.0</i>	<i>2.0</i>	<i>0.4</i>	<i>13.1</i>	<i>2.0</i>	<i>1.6</i>	<i>16.3</i>		<i>0.4</i>
First Peak 8-Hour Scenario		0.2	0.4	0.1	2.7	0.4	0.3	2.7		0.1
First Peak 8-Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors										
Second Peak 8-Hour Scenario		1.0	2.0	0.4	13.1	2.0	1.6	16.3		0.4
Second Peak 8-Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity										
<i>Emissions = Engine Power * Load Factor * Emission Factor</i>										
VOC/HC =		1.053								
1 lb =		453.59								
<u>Assumptions</u>										
1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth										
4. Peak hourly emissions assume no VSRP.										
For air dispersion modeling, single vessel peak hour emissions are multiplied by: 1 cargo vessel										

Baseline Criteria Pollutant Emissions										Berth 87 Bulk Carrier
Peak 8-Hour (lb/8-hr) for Single Vessel										
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway	Main Engine	2.1	3.0	0.9	27.0	3.0	2.4	18.1	0.9	
Sea / Fairway	Auxiliary Engines	0.2	0.4	0.1	2.8	0.4	0.3	2.6	0.1	
Sea / Fairway	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway</i>		<i>2.3</i>	<i>3.3</i>	<i>1.0</i>	<i>29.8</i>	<i>3.3</i>	<i>2.7</i>	<i>20.8</i>	<i>1.0</i>	1.42
Fairway	Main Engine	1.7	2.4	0.7	21.5	2.4	1.9	14.4	0.8	
Fairway	Auxiliary Engines	0.2	0.3	0.1	2.2	0.3	0.2	2.1	0.1	
Fairway	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway</i>		<i>1.8</i>	<i>2.7</i>	<i>0.8</i>	<i>23.7</i>	<i>2.7</i>	<i>2.1</i>	<i>16.6</i>	<i>0.8</i>	1.13
Precautionary Zone	Main Engine	0.1	0.1	0.0	0.9	0.1	0.1	0.6	0.0	
Precautionary Zone	Auxiliary Engines	0.1	0.2	0.0	1.3	0.2	0.1	1.2	0.0	
Precautionary Zone	Boiler	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	
<i>Total Precautionary Zone</i>		<i>0.2</i>	<i>0.3</i>	<i>0.1</i>	<i>2.3</i>	<i>0.3</i>	<i>0.2</i>	<i>2.2</i>	<i>0.1</i>	0.67
Harbor Zone (vessels bound to Berth 87):	Main Engine	0.02	0.03	0.01	0.30	0.03	0.03	0.2	0.0	
Harbor Zone (vessels bound to Berth 87):	Auxiliary Engines	0.1	0.2	0.0	1.1	0.2	0.1	1.1	0.0	
Harbor Zone (vessels bound to Berth 87):	Boiler	0.001	0.009	0.001	0.012	0.009	0.007	0.1	0.00	
<i>Harbor Zone (vessels bound to Berth 87):</i>		<i>0.1</i>	<i>0.2</i>	<i>0.0</i>	<i>1.5</i>	<i>0.2</i>	<i>0.2</i>	<i>1.4</i>	<i>0.0</i>	0.22
Hoteling	Main Engine	-	-	-	-	-	-	-	-	
Hoteling	Auxiliary Engines	0.7	1.3	0.3	9.2	1.3	1.0	8.8	0.3	
Hoteling	Boiler	0.05	0.3	0.02	0.5	0.3	0.2	4.4	0.03	
<i>Total Hoteling</i>		<i>0.7</i>	<i>1.6</i>	<i>0.3</i>	<i>9.7</i>	<i>1.6</i>	<i>1.2</i>	<i>13.1</i>	<i>0.3</i>	24.00
First Peak 8-Hour Scenario		0.3	0.5	0.1	3.7	0.5	0.4	3.6	0.1	
First Peak 8-Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors										
Second Peak 8-Hour Scenario		0.7	1.6	0.3	9.7	1.6	1.2	13.1	0.3	
Second Peak 8-Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity										
Emissions = Engine Power * Load Factor * Emission Factor										
VOC/HC =		1.053								
1 lb =		453.59								
<u>Assumptions</u>										
1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.										
2. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth										
3. Peak hourly emissions assume no VSRP.										
For air dispersion modeling, single vessel peak hour emissions are multiplied by: 4 bulk carrier										

Baseline Toxic Pollutant Emissions

Year: 2006

Peak Hourly (lb/hr) for Single General Cargo Vessel

Spacial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway	Main Engines	0.40593	0.10971	0.82284	0.05486	0.00466	0.00878	0.14263	0.08228	0.051644	0.000076
Sea / Fairway	Auxiliary Engines	0.02362	0.00638	0.04787	0.00319	0.00027	0.00051	0.00830	0.00479	0.004507	0.000007
Sea / Fairway	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Sea / Fairway</i>		<i>0.42955</i>	<i>0.11609</i>	<i>0.87071</i>	<i>0.05805</i>	<i>0.00493</i>	<i>0.00925</i>	<i>0.15092</i>	<i>0.08707</i>	<i>0.056151</i>	<i>0.000083</i>
Fairway	Main Engines	0.40593	0.10971	0.82284	0.05486	0.00466	0.00878	0.14263	0.08228	0.051644	0.000076
Fairway	Auxiliary Engines	0.02362	0.00638	0.04787	0.00319	0.00027	0.00051	0.00830	0.00479	0.004507	0.000007
Fairway	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Fairway</i>		<i>0.42955</i>	<i>0.11609</i>	<i>0.87071</i>	<i>0.05805</i>	<i>0.00493</i>	<i>0.00925</i>	<i>0.15092</i>	<i>0.08707</i>	<i>0.056151</i>	<i>0.000083</i>
Precautionary Zone	Main Engines	0.01958	0.00529	0.03968	0.00265	0.00022	0.00042	0.00688	0.00397	0.002491	0.000004
Precautionary Zone	Auxiliary Engines	0.01574	0.00426	0.03191	0.00213	0.00018	0.00034	0.00553	0.00319	0.003005	0.000004
Precautionary Zone	Boiler	0.00138	0.00037	0.00280	0.00019	0.00002	0.00003	0.00049	0.00028	0.000684	0.000001
<i>Precautionary Zone</i>		<i>0.03670</i>	<i>0.00992</i>	<i>0.07446</i>	<i>0.00496</i>	<i>0.00042</i>	<i>0.00075</i>	<i>0.01290</i>	<i>0.00744</i>	<i>0.006175</i>	<i>0.000005</i>
Harbor Zone (vessels bound to Berth 87):	Main Engines	0.00646	0.00175	0.01309	0.00087	0.00007	0.00014	0.00227	0.00131	0.000822	0.000001
Harbor Zone (vessels bound to Berth 87):	Auxiliary Engines	0.01375	0.00372	0.02788	0.00186	0.00016	0.00030	0.00483	0.00279	0.002625	0.000004
Harbor Zone (vessels bound to Berth 87):	Boiler	0.00046	0.00012	0.00092	0.00006	0.00001	0.00001	0.00016	0.00009	0.000226	0.000000
<i>Harbor Zone (vessels bound to Berth 87):</i>		<i>0.02067</i>	<i>0.00559</i>	<i>0.04190</i>	<i>0.00279</i>	<i>0.00024</i>	<i>0.00045</i>	<i>0.00726</i>	<i>0.00419</i>	<i>0.003672</i>	<i>0.000005</i>
Hoteling	Main Engines	-	-	-	-	-	-	-	-	-	-
Hoteling	Auxiliary Engines	0.03056	0.00826	0.06195	0.00413	0.00035	0.00066	0.01074	0.00619	0.005832	0.000009
Hoteling	Boiler	0.00207	0.00056	0.00420	0.00028	0.00002	0.00004	0.00073	0.00042	0.001026	0.000002
<i>Total Hoteling</i>		<i>0.03263</i>	<i>0.00882</i>	<i>0.06615</i>	<i>0.00441</i>	<i>0.00037</i>	<i>0.00071</i>	<i>0.01147</i>	<i>0.00662</i>	<i>0.006856</i>	<i>0.000010</i>
First Peak Hour Scenario (per vessel)		0.057	0.016	0.116	0.008	0.001	0.001	0.020	0.012	0.010	0.000
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptor:											
Second Peak Hour Scenario (per vessel)		0.033	0.009	0.066	0.004	0.000	0.001	0.011	0.007	0.007	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity											

For air dispersion modeling, multiply peak hour emissions by maximum number of General Cargo vessels

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorus	Zinc
0.000273	0.000608	0.000380	0.000638	0.000608	0.000456	0.000289	0.264297	0.000440	0.000547	-	0.000009	0.001929	0.006653
0.000024	0.000053	0.000033	0.000056	0.000053	0.000040	0.000025	0.023064	0.000038	0.000048	-	0.000001	0.000168	0.000581
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.000297	0.000661	0.000413	0.000694	0.000661	0.000495	0.000314	0.287361	0.000475	0.000595	-	0.000016	0.002097	0.007234
0.000273	0.000608	0.000380	0.000638	0.000608	0.000456	0.000289	0.264297	0.000440	0.000547	-	0.000009	0.001929	0.006653
0.000024	0.000053	0.000033	0.000056	0.000053	0.000040	0.000025	0.023064	0.000038	0.000048	-	0.000001	0.000168	0.000581
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.000297	0.000661	0.000413	0.000694	0.000661	0.000495	0.000314	0.287361	0.000475	0.000595	-	0.000016	0.002097	0.007234
0.000013	0.000029	0.000018	0.000031	0.000029	0.000022	0.000014	0.012746	0.000021	0.000026	-	0.000000	0.000093	0.000321
0.000016	0.000035	0.000022	0.000037	0.000035	0.000027	0.000017	0.015376	0.000026	0.000032	-	0.000001	0.000112	0.000387
0.000004	0.000008	0.000005	0.000008	0.000008	0.000006	0.000004	0.003501	0.000006	0.000007	-	0.000000	0.000026	0.000088
0.000033	0.000073	0.000045	0.000076	0.000073	0.000055	0.000035	0.031623	0.000053	0.000065	-	0.000001	0.000231	0.000796
0.000004	0.000010	0.000006	0.000010	0.000010	0.000007	0.000005	0.004206	0.000007	0.000009	-	0.000000	0.000031	0.000106
0.000014	0.000031	0.000019	0.000032	0.000031	0.000023	0.000015	0.013431	0.000022	0.000028	-	0.000000	0.000098	0.000338
0.000001	0.000003	0.000002	0.000003	0.000003	0.000002	0.000001	0.001155	0.000002	0.000002	-	0.000000	0.000008	0.000029
0.000019	0.000043	0.000027	0.000045	0.000043	0.000032	0.000021	0.018793	0.000031	0.000039	-	0.000001	0.000137	0.000473
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.000031	0.000069	0.000043	0.000072	0.000069	0.000051	0.000033	0.029847	0.000050	0.000062	-	0.000001	0.000218	0.000751
0.000005	0.000012	0.000008	0.000013	0.000012	0.000009	0.000006	0.005251	0.000009	0.000011	-	0.000000	0.000038	0.000132
0.000036	0.000081	0.000056	0.000085	0.000081	0.000061	0.000036	0.035095	0.000055	0.000073	-	0.000001	0.000256	0.000884
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.000	0.000	-	0.000	0.000	0.001
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.035	0.000	0.000	-	0.000	0.000	0.001

Baseline Toxic Pollutant Emissions

Year: 2006

Peak Hourly (lb/hr) for Single Bulk Carrier

Spacial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	Copper	Lead	Manganese
Sea / Fairway	Main Engines	0.44687	0.12078	0.90581	0.06039	0.00513	0.00966	0.15701	0.09058	0.056852	0.000084	0.000301	0.000669	0.000418	0.000702	0.000669
Sea / Fairway	Auxiliary Engines	0.03790	0.01024	0.07682	0.00512	0.00044	0.00082	0.01332	0.00768	0.007232	0.000011	0.000038	0.000085	0.000053	0.000089	0.000085
Sea / Fairway	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sea / Fairway</i>		<i>0.48477</i>	<i>0.13102</i>	<i>0.98263</i>	<i>0.06551</i>	<i>0.00557</i>	<i>0.01048</i>	<i>0.17032</i>	<i>0.09826</i>	<i>0.064084</i>	<i>0.000094</i>	<i>0.000335</i>	<i>0.000754</i>	<i>0.000471</i>	<i>0.000792</i>	<i>0.000754</i>
Fairway	Main Engines	0.44687	0.12078	0.90581	0.06039	0.00513	0.00966	0.15701	0.09058	0.056852	0.000084	0.000301	0.000669	0.000418	0.000702	0.000669
Fairway	Auxiliary Engines	0.03790	0.01024	0.07682	0.00512	0.00044	0.00082	0.01332	0.00768	0.007232	0.000011	0.000038	0.000085	0.000053	0.000089	0.000085
Fairway	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fairway</i>		<i>0.48477</i>	<i>0.13102</i>	<i>0.98263</i>	<i>0.06551</i>	<i>0.00557</i>	<i>0.01048</i>	<i>0.17032</i>	<i>0.09826</i>	<i>0.064084</i>	<i>0.000094</i>	<i>0.000335</i>	<i>0.000754</i>	<i>0.000471</i>	<i>0.000792</i>	<i>0.000754</i>
Precautionary Zone	Main Engines	0.02155	0.00582	0.04368	0.00291	0.00025	0.00047	0.00757	0.00437	0.002742	0.000004	0.000015	0.000032	0.000020	0.000034	0.000032
Precautionary Zone	Auxiliary Engines	0.02526	0.00683	0.05121	0.00341	0.00029	0.00055	0.00888	0.00512	0.004821	0.000007	0.000026	0.000057	0.000035	0.000060	0.000057
Precautionary Zone	Boiler	0.00142	0.00038	0.00288	0.00019	0.00002	0.00003	0.00050	0.00029	0.000703	0.000001	0.000004	0.000008	0.000005	0.000009	0.000008
<i>Precautionary Zone</i>		<i>0.04824</i>	<i>0.01304</i>	<i>0.09776</i>	<i>0.00652</i>	<i>0.00055</i>	<i>0.00104</i>	<i>0.01695</i>	<i>0.00978</i>	<i>0.008267</i>	<i>0.000012</i>	<i>0.000044</i>	<i>0.000097</i>	<i>0.000061</i>	<i>0.000102</i>	<i>0.000097</i>
Harbor Zone (vessels bound to Berth 87):	Main Engines	0.00711	0.00192	0.01442	0.00096	0.00008	0.00015	0.00250	0.00144	0.000905	0.000001	0.000005	0.000011	0.000007	0.000011	0.000011
Harbor Zone (vessels bound to Berth 87):	Auxiliary Engines	0.02207	0.00596	0.04474	0.00298	0.00025	0.00048	0.00775	0.00447	0.004212	0.000006	0.000022	0.000050	0.000031	0.000052	0.000050
Harbor Zone (vessels bound to Berth 87):	Boiler	0.00047	0.00013	0.00095	0.00006	0.00001	0.00001	0.00016	0.00010	0.000232	0.000000	0.000001	0.000003	0.000002	0.000003	0.000003
<i>Harbor Zone (vessels bound to Berth 87):</i>		<i>0.02965</i>	<i>0.00801</i>	<i>0.06010</i>	<i>0.00401</i>	<i>0.00034</i>	<i>0.00064</i>	<i>0.01042</i>	<i>0.00601</i>	<i>0.005349</i>	<i>0.000008</i>	<i>0.000028</i>	<i>0.000063</i>	<i>0.000039</i>	<i>0.000066</i>	<i>0.000063</i>
Hoteling	Main Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoteling	Auxiliary Engines	0.02229	0.00602	0.04519	0.00301	0.00026	0.00048	0.00783	0.00452	0.004254	0.000006	0.000023	0.000050	0.000031	0.000053	0.000050
Hoteling	Boiler	0.00213	0.00058	0.00432	0.00029	0.00002	0.00005	0.00075	0.00043	0.001055	0.000002	0.000006	0.000012	0.000008	0.000013	0.000012
<i>Total Hoteling</i>		<i>0.02442</i>	<i>0.00660</i>	<i>0.04951</i>	<i>0.00330</i>	<i>0.00026</i>	<i>0.00053</i>	<i>0.00856</i>	<i>0.00495</i>	<i>0.005305</i>	<i>0.000006</i>	<i>0.000026</i>	<i>0.000062</i>	<i>0.000039</i>	<i>0.000066</i>	<i>0.000062</i>
First Peak Hour Scenario (per vessel)		0.078	0.021	0.158	0.011	0.001	0.002	0.027	0.016	0.014	0.000	0.000	0.000	0.000	0.000	0.000
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptor:																
Second Peak Hour Scenario (per vessel)		0.024	0.007	0.050	0.003	0.000	0.001	0.009	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity																

For air dispersion modeling, multiply peak hour emissions by maximum number of Bulk Carrier vessels

Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.000502	0.000318	0.290949	0.000485	0.000602	-	0.000010	0.002124	0.007324
0.000064	0.000040	0.037011	0.000062	0.000077	-	0.000001	0.000270	0.000932
-	-	-	-	-	-	-	-	-
<i>0.000565</i>	<i>0.000358</i>	<i>0.327961</i>	<i>0.000547</i>	<i>0.000679</i>	-	<i>0.000011</i>	<i>0.002394</i>	<i>0.008256</i>
0.000502	0.000318	0.290949	0.000485	0.000602	-	0.000010	0.002124	0.007324
0.000064	0.000040	0.037011	0.000062	0.000077	-	0.000001	0.000270	0.000932
-	-	-	-	-	-	-	-	-
<i>0.000565</i>	<i>0.000358</i>	<i>0.327961</i>	<i>0.000547</i>	<i>0.000679</i>	-	<i>0.000011</i>	<i>0.002394</i>	<i>0.008256</i>
0.000024	0.000015	0.014031	0.000023	0.000029	-	0.000000	0.000102	0.000353
0.000043	0.000027	0.024674	0.000041	0.000051	-	0.000001	0.000180	0.000621
0.000006	0.000004	0.003600	0.000006	0.000007	-	0.000000	0.000026	0.000091
<i>0.000075</i>	<i>0.000046</i>	<i>0.042305</i>	<i>0.000071</i>	<i>0.000086</i>	-	<i>0.000001</i>	<i>0.000309</i>	<i>0.001065</i>
0.000008	0.000005	0.004630	0.000008	0.000010	-	0.000000	0.000034	0.000117
0.000037	0.000024	0.021554	0.000036	0.000045	-	0.000001	0.000157	0.000543
0.000002	0.000001	0.001188	0.000002	0.000002	-	0.000000	0.000009	0.000030
<i>0.000047</i>	<i>0.000030</i>	<i>0.027372</i>	<i>0.000046</i>	<i>0.000057</i>	-	<i>0.000001</i>	<i>0.000200</i>	<i>0.000689</i>
-	-	-	-	-	-	-	-	-
0.000038	0.000024	0.021771	0.000036	0.000045	-	0.000001	0.000159	0.000548
0.000009	0.000006	0.005400	0.000009	0.000011	-	0.000000	0.000039	0.000136
<i>0.000047</i>	<i>0.000030</i>	<i>0.027171</i>	<i>0.000045</i>	<i>0.000056</i>	-	<i>0.000001</i>	<i>0.000196</i>	<i>0.000684</i>
0.000	0.000	0.070	0.000	0.000	-	0.000	0.001	0.002
0.000	0.000	0.027	0.000	0.000	-	0.000	0.000	0.001

Baseline Toxic Pollutant Emissions General Cargo Vessels

Year: 2006

Max Year (lb/yr) & 70-Year Average

Spacial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia
Sea / Fairway	Main Engines	44									
Sea / Fairway	Auxiliary Engines	3									
Sea / Fairway	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Sea / Fairway</i>		<i>47</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway	Main Engines	35									
Fairway	Auxiliary Engines	2									
Fairway	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Fairway</i>		<i>37</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone	Main Engines	15									
Precautionary Zone	Auxiliary Engines	1									
Precautionary Zone	Boiler	-	-	0.00075	0.00003	0.00038	0.00002	0.00055	0.00157	0.00075	-
<i>Precautionary Zone</i>		<i>17</i>	<i>-</i>	<i>0.00075</i>	<i>0.00003</i>	<i>0.00038</i>	<i>0.00002</i>	<i>0.00055</i>	<i>0.00157</i>	<i>0.00075</i>	<i>-</i>
Harbor Zone (vessels bound to Berth 87):	Main Engines	0									
Harbor Zone (vessels bound to Berth 87):	Auxiliary Engines	1									
Harbor Zone (vessels bound to Berth 87):	Boiler	-	-	0.00025	0.00001	0.00013	0.00001	0.00018	0.00052	0.00025	-
<i>Harbor Zone (vessels bound to Berth 87):</i>		<i>2</i>	<i>-</i>	<i>0.00025</i>	<i>0.00001</i>	<i>0.00013</i>	<i>0.00001</i>	<i>0.00018</i>	<i>0.00052</i>	<i>0.00025</i>	<i>-</i>
Hoteling	Main Engines	-									
Hoteling	Auxiliary Engines	64									
Hoteling	Boiler	-	-	0.028	0.001	0.014	0.001	0.020	0.058	0.028	-
<i>Total Hoteling</i>		<i>64</i>	<i>-</i>	<i>0.028</i>	<i>0.001</i>	<i>0.014</i>	<i>0.001</i>	<i>0.020</i>	<i>0.058</i>	<i>0.028</i>	<i>-</i>

Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.0	-	0.0	-	0.0	-	-	0.0	0.1	-	-	-	0.0	-	0.0
0.0	-	0.0	-	0.0	-	-	0.0	0.1	-	-	-	0.0	-	0.0
0.0	-	0.0	-	0.0	-	-	0.0	0.0	-	-	-	0.0	-	0.0
0.0	-	0.0	-	0.0	-	-	0.0	0.0	-	-	-	0.0	-	0.0
0.0	-	0.0	-	0.1	-	-	0.0	2.3	-	-	-	0.0	-	0.1
0.050	-	0.005	-	0.051	-	-	0.005	2.300	-	-	-	0.002	-	0.051

Baseline Toxic Pollutan Bulk Carriers

Year: 2006

Max Year (lb/yr) & 70-Year Average

Spacial Allocation	Power Type	DPM	Acetaldehyd e	Benzene	Formaldehy de	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	Copper	Lead	Manganese
Sea / Fairway	Main Engines	188															
Sea / Fairway	Auxiliary Eng	18															
Sea / Fairway	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sea / Fairway</i>		<i>206</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway	Main Engines	150															
Fairway	Auxiliary Eng	14															
Fairway	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Fairway</i>		<i>164</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone	Main Engines	67															
Precautionary Zone	Auxiliary Eng	9															
Precautionary Zone	Boiler	-	-	0.0031	0.0001	0.0016	0.0001	0.0023	0.0065	0.0031	-	0.0055	-	0.0005	-	0.0056	-
<i>Precautionary Zone</i>		<i>76</i>	<i>-</i>	<i>0.00307</i>	<i>0.00014</i>	<i>0.00157</i>	<i>0.00010</i>	<i>0.00226</i>	<i>0.00647</i>	<i>0.00307</i>	<i>-</i>	<i>0.0055</i>	<i>-</i>	<i>0.0005</i>	<i>-</i>	<i>0.0056</i>	<i>-</i>
Harbor Zone (vessels bound to Berth 87):	Main Engines	2															
Harbor Zone (vessels bound to Berth 87):	Auxiliary Eng	7															
Harbor Zone (vessels bound to Berth 87):	Boiler	-	-	0.00101	0.00005	0.00052	0.00003	0.00075	0.00213	0.00101	-	0.0018	-	0.0002	-	0.0019	-
<i>Harbor Zone (vessels bound to Berth 87):</i>		<i>9</i>	<i>-</i>	<i>0.00101</i>	<i>0.00005</i>	<i>0.00052</i>	<i>0.00003</i>	<i>0.00075</i>	<i>0.00213</i>	<i>0.00101</i>	<i>-</i>	<i>0.0018</i>	<i>-</i>	<i>0.0002</i>	<i>-</i>	<i>0.0019</i>	<i>-</i>
Hoteling	Main Engines	-															
Hoteling	Auxiliary Eng	269															
Hoteling	Boiler	-	-	0.16427	0.00761	0.08386	0.00536	0.12104	0.34583	0.16427	-	0.296	-	0.027	-	0.302	-
<i>Total Hoteling</i>		<i>269</i>	<i>-</i>	<i>0.164</i>	<i>0.008</i>	<i>0.084</i>	<i>0.005</i>	<i>0.121</i>	<i>0.346</i>	<i>0.164</i>	<i>-</i>	<i>0.296</i>	<i>-</i>	<i>0.027</i>	<i>-</i>	<i>0.302</i>	<i>-</i>

Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	0.0005	0.2563	-	-	-	0.0003	-	0.0056
-	<i>0.0005</i>	<i>0.2563</i>	-	-	-	<i>0.0003</i>	-	<i>0.0056</i>
-	0.0002	0.0846	-	-	-	0.0001	-	0.0019
-	<i>0.0002</i>	<i>0.0846</i>	-	-	-	<i>0.0001</i>	-	<i>0.0019</i>
-	0.027	13.707	-	-	-	0.015	-	0.302
-	<i>0.027</i>	<i>13.707</i>	-	-	-	<i>0.015</i>	-	<i>0.302</i>

General Cargo Ships at Berth 87 - 2006
Baseline

General Cargo Ship Calls	1
Bulk Carriers	4

Source: Data provided by Starcrest (3/2008)

Vessel Characteristics

	Main Engine (kW)	Auxiliary Engine (kW)	Average Boiler (kW)	Average Model Year	Type
General Cargo Ship	8201	1776	106	1992	Diesel Slow Speed
Bulk Carrier	9028	2850	109	1999	Diesel Slow Speed

Baseline: 59% VSRP Compliance to 20 nm
- General Cargo Vessels - Berth 87

	Speed (knots)	VSRP Speed (knots)	Distance (nm)	Travel Time (hrs per one-way trip)	Propulsion Load	Auxiliary Load	Boiler Load
Maximum Rated Speed	16						
Sea / Fairway Zone - 20 nm from Point Fermin to SCAB Boundary	15.2	12	20.6	1.36	60%	17%	0%
Fairway Zone - 20 nm	15.2	12	16.4	1.08	60%	17%	0%
Precautionary Zone	12	12	8	0.67	42%	17%	100%
Harbor Zone (vessels bound to Berth 87):	5	5	1.1	0.22	3%	45%	100%
Hotelling	0	0	0	49	0%	22%	100%

Source: Transit speed, hotelling time, engine loads - 2005 Port Inventory (Starcrest 2007)
Distance - averaged from charts

Baseline: 59% VSRP Compliance to 20 nm
- Bulk Carriers - Berth 87

	Speed (knots)	VSRP Speed (knots)	Distance (nm)	Travel Time (hrs per one-way trip)	Propulsion Load	Auxiliary Load	Boiler Load
Maximum Rated Speed	16						
Sea / Fairway Zone - 20 nm from Point Fermin to SCAB Boundary	14.5	12	20.6	1.42	55%	17%	0%
Fairway Zone - 20 nm	14.5	12	16.4	1.13	55%	17%	0%
Precautionary Zone	12	12	8	0.67	42%	17%	100%
Harbor Zone (vessels bound to Berth 87):	5	5	1.1	0.22	3%	45%	100%
Hotelling	0	0	0	71	0%	10%	100%

Source: Transit speed, hotelling time, engine loads - 2005 Port Inventory (Starcrest 2007)
Distance - averaged from charts

Baseline: no VSRP Compliance to 20 nm -
General Cargo Vessels - Berth 87

	Speed (knots)	VSRP Speed (knots)	Distance (nm)	Travel Time (hrs per one-way trip)	Propulsion Load	Auxiliary Load	Boiler Load
Maximum Rated Speed	16						
Sea / Fairway Zone - 20 nm from Point Fermin to SCAB Boundary	15.2	12	16.4	1.08	42%	17%	0%
Fairway Zone - 20 nm	15.2	12	8	0.53	42%	17%	0%
Precautionary Zone	12	5	1.1	0.09	3%	17%	100%
Harbor Zone (vessels bound to Berth 87):	5	5	2.2	0.44	3%	45%	100%
Hotelling	0	0	0	49	0%	22%	100%

Source: Transit speed, hotelling time, engine loads - 2005 Port Inventory (Starcrest 2007)
Distance - averaged from charts

Baseline: no VSRP Compliance to 20 nm
- Bulk Carriers - Berth 87

	Speed (knots)	VSRP Speed (knots)	Distance (nm)	Travel Time (hrs per one-way trip)	Propulsion Load	Auxiliary Load	Boiler Load
Maximum Rated Speed	16						
Sea / Fairway Zone - 20 nm from Point Fermin to SCAB Boundary	14.5	12	16.4	1.13	42%	17%	0%
Fairway Zone - 20 nm	14.5	12	8	0.55	42%	17%	0%
Precautionary Zone	12	5	1.1	0.09	3%	17%	100%
Harbor Zone (vessels bound to Berth 87):	5	5	2.2	0.44	3%	45%	100%
Hotelling	0	0	0	71	0%	10%	100%

Source: Transit speed, hotelling time, engine loads - 2005 Port Inventory (Starcrest 2007)
Distance - averaged from charts

Emission Factors

(g/KW-hr)	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x
Propulsion (RO 2.7% S)	1.4	1.5	0.6	18.1	1.5	1.2	10.5
Auxiliary (RO 2.7% S)	1.1	1.5	0.4	14.7	1.5	1.2	12.3
Boiler (RO 2.7% S)	0.20	0.00	0.10	2.10	0.80	0.64	16.50
Propulsion (RO 4.5% S)	1.4	1.99	0.6	18.1	1.99	1.59	12.17
Auxiliary (RO 4.5% S)	1.1	1.99	0.4	14.7	1.99	1.59	13.97
Boiler (RO 4.5% S)	0.20	1.29	0.10	1.89	1.29	1.03	18.17

Low Load Adjustment Factors for Propulsion Engines

Load	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x
1%	19.32	19.17	59.28	11.47	19.17	19.17	1
2%	9.68	7.29	21.18	4.63	7.29	7.29	1
3%	6.46	4.33	11.68	2.92	4.33	4.33	1
4%	4.86	3.09	7.71	2.21	3.09	3.09	1
5%	3.89	2.44	5.61	1.83	2.44	2.44	1
6%	3.25	2.04	4.35	1.6	2.04	2.04	1
7%	2.79	1.79	3.52	1.45	1.79	1.79	1
8%	2.45	1.61	2.95	1.35	1.61	1.61	1
9%	2.18	1.48	2.52	1.27	1.48	1.48	1
10%	1.96	1.38	2.2	1.22	1.38	1.38	1
11%	1.79	1.3	1.96	1.17	1.3	1.3	1
12%	1.64	1.24	1.76	1.14	1.24	1.24	1
13%	1.52	1.19	1.6	1.11	1.19	1.19	1
14%	1.41	1.15	1.47	1.08	1.15	1.15	1
15%	1.32	1.11	1.36	1.06	1.11	1.11	1
16%	1.24	1.08	1.26	1.05	1.08	1.08	1
17%	1.17	1.06	1.18	1.03	1.06	1.06	1
18%	1.11	1.04	1.11	1.02	1.04	1.04	1
19%	1.05	1.02	1.05	1.01	1.02	1.02	1
20%	1	1	1	1	1	1	1

San Pedro Waterfront

Criteria Pollutants - Harbor Craft Baseline

Harbor Craft Summary Baseline 2006	Harbor Craft Criteria Pollutant Emissions Annual (lb/yr)									Harbor Craft Criteria Pollutant Emissions Daily (lb/day)									Harbor Craft Criteria Pollutant Emissions Hourly (lb/hr)								
	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC		CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC		
Assist Tugs	38,634	6,189	5,047	186,297	6,189	5,694	96	4,793		106	17	14		510	17	16	0.26	13	53	8	7	255	8	8	0.13	7	
Assist Tugs Hotelling	1,425	380.0	256.5	9,499.1	380.0	349.6	5.7	243.6		3.9	1.0	0.7		26.0	1.0	1.0	0.02	0.7	0.11	0.03	0.02	0.8	0.0325	0.0299	0.0005	0.0209	
Commercial Craft	28,935	3,736	3,272	110,717	3,736	3,437	73	3,107		79	10	9		303	10	9	0.20	9	13	2	2	58	2	2	0.04	2	
Crewboats	1,431	216	191	8,109	216	199	4	181		4	1	1		22	1	1	0.01	0.5	5	1	1	27	1	1	0.01	1	
Excursion Vessels	41,866	8,025	6,819	247,242	8,025	7,383	152	6,476		115	22	19		677	22	20	0.42	18	19	4	3	112	4	3	0.07	3	
Ferry Vessels	110,724	8,235	7,363	225,406	8,235	7,576	164	6,992		303	23	20		618	23	21	0.45	19	99	7	7	198	7	7	0.14	6	
Government Vessels	6,778	1,152	1,018	37,446	1,152	1,060	23	967		19	3	3		103	3	3	0.06	3	18	3	3	103	3	3	0.06	3	
Total	229,793	27,933	23,966	824,715	27,933	25,698	517	22,760		630	77	66		2,259	77	70	1.4	62									

Toxics - Harbor Craft Baseline

Peak Hourly (lb/hr) - full speciation

	VOC									PM															
	Acetaldehyde	Benzene	Formaldehyde	Xylenes		Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
Assist Tugs	0.55	0.15	1.12			0.07	0.01	0.01	0.19	0.11	-	-	-	-	-	-	-	-	1.27	0.05	-	-	-	-	-
Assist Tugs Hotelling	0.002	0.0005	0.004			0.0002	0.0002	0.0004	0.0006	0.0004	-	-	-	-	-	-	-	-	0.005	0.0002	-	-	-	-	-
Commercial Craft	0.13	0.04	0.27			0.02	0.002	0.003	0.05	0.03	-	-	-	-	-	-	-	-	0.29	0.01	-	-	-	-	-
Crewboats	0.05	0.01	0.10			0.01	0.001	0.001	0.02	0.01	-	-	-	-	-	-	-	-	0.11	0.004	-	-	-	-	-
Excursion Vessels	0.25	0.07	0.50			0.03	0.003	0.01	0.09	0.05	-	-	-	-	-	-	-	-	0.55	0.02	-	-	-	-	-
Ferry Vessels	0.52	0.14	1.05			0.07	0.01	0.01	0.18	0.11	-	-	-	-	-	-	-	-	1.09	0.04	-	-	-	-	-
Government Vessels	0.22	0.06	0.45			0.03	0.003	0.005	0.08	0.05	-	-	-	-	-	-	-	-	0.48	0.02	-	-	-	-	-

Maximum Year (lb/yr) - DPM only

	DPM
Assist Tugs	6,189.45
Assist Tugs Hotelling	379.96
Commercial Craft	3,735.72
Crewboats	215.98
Excursion Vessels	8,024.62
Ferry Vessels	8,234.74
Government Vessels	1,152.17

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70-Year Average Calculations		Harbor Craft: Baseline and Alternative 6																					
	lb/yr 70-year aver	Project Start Year	Evaluation Year				Evaluation Year				Evaluation Year				Evaluation Year								
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
DPM																							
Assist Tugs Transit	3,109	6,189	3,096	3,096	3,096	3,096	3,090	3,090	3,090	3,090	3,090	3,090	3,090	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058
Assist Tugs Hotelling	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380
Ferry Vessels	6,070	3,736	6,127	6,127	6,127	6,127	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124
Commercial Fishing	2,441	216	2,585	2,585	2,585	2,585	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514
Crew Boats	608	8,025	727	727	727	727	661	661	661	661	661	661	661	661	661	661	661	661	661	661	661	661	661
Excursion	5,319	8,235	5,839	5,839	5,839	5,839	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598
Government Boats	694	1152.174344	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688

San Pedro Waterfront

																								Evaluation Year																									
2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056																								
3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058																								
380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380																								
6,124	6,124	6,124	6,124	6,124	6,124	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091																								
2,514	2,514	2,514	2,514	2,514	2,514	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442																								
661	661	661	661	661	661	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393																								
5,598	5,598	5,598	5,598	5,598	5,598	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054																									
688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688																								

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2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058
380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380
6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091
2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442
393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393
5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054
688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688

San Pedro Waterfront

Harbor Craft Inventory and Emission Calculations
Baseline 2006

Berth	Vessel ID	Vessel Name	Type	Owner Name	Operator Name	Engine ID	Engine User	Engine Type	Engine Year	Fuel	Horsepower	Kilowatts	Emission Certification Category	Repower Program	Repower Date	Engine Hours For Year (per Engine)	Baseline and Alt.6 Year Engine Hours - Assist Tugs (hr/yr) (from base to gate) ⁽¹⁾	Project, Alt. 1, 2, 3, 4, and 5 Engine Hours - Assist Tugs (hr/yr) (from base to gate)	Assist Tug Hotelling Time (hr/yr)	Port	Load
	1063760	Leader	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	3	auxiliary	1998	ULSD		115	85.8	Tier 0-Cat 1			2880	730	365	2920	LA	0.43
	1063760	Leader	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	4	auxiliary	1998	ULSD		115	85.8	Tier 0-Cat 1			2880	730	365		LA	0.43
	503695	Scout	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	3	auxiliary	0	ULSD		115	85.8	Tier 0-Cat 1			2880	730	365	2920	LA	0.43
	503695	Scout	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	4	auxiliary	0	ULSD		115	85.8	Tier 0-Cat 1			2880	730	365		LA	0.43
	1063748	Admiral	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	3	auxiliary	2003	ULSD		115	85.8	Tier 1-Cat 1	Carl Moyer	2003	2880	730	365	2920	LA	0.43
	1063748	Admiral	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	4	auxiliary	2003	ULSD		115	85.8	Tier 1-Cat 1	Carl Moyer	2003	2880	730	365		LA	0.43
	8034851	Master	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	3	auxiliary	2003	ULSD		115	85.8	Tier 1-Cat 1	Carl Moyer	2003	2880	730	365	2920	LA	0.43
	8034851	Master	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	4	auxiliary	2003	ULSD		115	85.8	Tier 1-Cat 1	Carl Moyer	2003	2880	730	365		LA	0.43
	1092296	Millennium 1	Assist Tug	Millennium Maritime	Millennium Maritime	3	auxiliary	2000	ULSD		125	93.3	Tier 1-Cat 1			150	730	365		LA	0.43
	1092296	Millennium 1	Assist Tug	Millennium Maritime	Millennium Maritime	4	auxiliary	2000	ULSD		125	93.3	Tier 1-Cat 1			150	730	365		LA	0.43
	1099591	Millennium 1	Assist Tug	Millennium Maritime	Millennium Maritime	3	auxiliary	2000	ULSD		125	93.3	Tier 1-Cat 1			750	730	365		LA	0.43
	1099591	Millennium 1	Assist Tug	Millennium Maritime	Millennium Maritime	4	auxiliary	2000	ULSD		125	93.3	Tier 1-Cat 1			750	730	365		LA	0.43
	1150866	Tim Quigg	Assist Tug	Millennium Maritime	Millennium Maritime	3	auxiliary	2004	ULSD		148	110.4	Tier 2-Cat 1			2254	730	365		LA	0.43
	1150866	Tim Quigg	Assist Tug	Millennium Maritime	Millennium Maritime	4	auxiliary	2004	ULSD		148	110.4	Tier 2-Cat 1			2254	730	365		LA	0.43
	1043481	Millennium 1	Assist Tug	Millennium Maritime	Millennium Maritime	3	auxiliary	1996	ULSD		180	134.3	Tier 0-Cat 1			1400	730	365		LA	0.43
	1043481	Millennium 1	Assist Tug	Millennium Maritime	Millennium Maritime	4	auxiliary	1996	ULSD		180	134.3	Tier 0-Cat 1			1400	730	365		LA	0.43
	1000319	Z.Three	Assist Tug	Millennium Maritime	Millennium Maritime	3	auxiliary	0	ULSD		200	149.2	Tier 0-Cat 1			1492	730	365		LA	0.43
Assist Tug Hotelling Emissions																					
	1150866	Tim Quigg	Assist Tug	Millennium Maritime	Millennium Maritime	1	propulsion	2004	ULSD		1850	1380	Tier 2-Cat 1			2254	730	365		LA	0.31
	1150866	Tim Quigg	Assist Tug	Millennium Maritime	Millennium Maritime	2	propulsion	2004	ULSD		1850	1380	Tier 2-Cat 1			2254	730	365		LA	0.31
	1000319	Z.Three	Assist Tug	Millennium Maritime	Millennium Maritime	1	propulsion	1999	ULSD		2000	1492	Tier 0-Cat 2			1492	730	365		LA	0.31
	1000319	Z.Three	Assist Tug	Millennium Maritime	Millennium Maritime	2	propulsion	1999	ULSD		2000	1492	Tier 0-Cat 2			1492	730	365		LA	0.31
	1043481	Millennium 1	Assist Tug	Millennium Maritime	Millennium Maritime	1	propulsion	1996	ULSD		2150	1604	Tier 0-Cat 2			1400	730	365		LA	0.31
	1043481	Millennium 1	Assist Tug	Millennium Maritime	Millennium Maritime	2	propulsion	1996	ULSD		2150	1604	Tier 0-Cat 2			1400	730	365		LA	0.31
	1092296	Millennium 1	Assist Tug	Millennium Maritime	Millennium Maritime	1	propulsion	2000	ULSD		2200	1641	Tier 1-Cat 1			150	730	365		LA	0.31
	1092296	Millennium 1	Assist Tug	Millennium Maritime	Millennium Maritime	2	propulsion	2000	ULSD		2200	1641	Tier 1-Cat 1			150	730	365		LA	0.31
	1099591	Millennium 1	Assist Tug	Millennium Maritime	Millennium Maritime	1	propulsion	2000	ULSD		2200	1641	Tier 1-Cat 1			750	730	365		LA	0.31
	1099591	Millennium 1	Assist Tug	Millennium Maritime	Millennium Maritime	2	propulsion	2000	ULSD		2200	1641	Tier 1-Cat 1			750	730	365		LA	0.31
	1063748	Admiral	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	1	propulsion	1998	ULSD		2400	1790	Tier 0-Cat 1			2500	730	365		LA	0.31
	1063748	Admiral	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	2	propulsion	1998	ULSD		2400	1790	Tier 0-Cat 1			2500	730	365		LA	0.31
	1063760	Leader	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	1	propulsion	1998	ULSD		2400	1790	Tier 0-Cat 1			2500	730	365		LA	0.31
	1063760	Leader	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	2	propulsion	1998	ULSD		2400	1790	Tier 0-Cat 1			2500	730	365		LA	0.31
	8034851	Master	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	1	propulsion	1998	ULSD		2400	1790	Tier 0-Cat 1			2500	730	365		LA	0.31
	8034851	Master	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	2	propulsion	1998	ULSD		2400	1790	Tier 0-Cat 1			2500	730	365		LA	0.31
	503695	Scout	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	1	propulsion	0	ULSD		2400	1790	Tier 0-Cat 1			2500	730	365		LA	0.31
	503695	Scout	Assist Tug	Crowley Marine Serv	Crowley Marine Serv	2	propulsion	0	ULSD		2400	1790	Tier 0-Cat 1			2500	730	365		LA	0.31
73	CF2776KR2	La Rachel	Commercial Fishing	Jose Cesena	Jose Cesena	1	propulsion	0	ULSD		50	37	Tier 0-Cat 1			500				LA	0.27
73	1060787	Donz Rig	Commercial Fishing			1	propulsion	0	ULSD		230	172	Tier 0-Cat 1			1600				LA	0.27
73	602455	Ferrigno Boy	Commercial Fishing			1	propulsion	0	ULSD		230	172	Tier 0-Cat 1			1600				LA	0.27
73	262507	Frog	Commercial Fishing			1	propulsion	0	ULSD		230	172	Tier 0-Cat 1			1600				LA	0.27
73	246518	G. Nazzaren	Commercial Fishing			1	propulsion	0	ULSD		230	172	Tier 0-Cat 1			1600				LA	0.27
73	528758	Lisa Marie I.	Commercial Fishing			1	propulsion	0	ULSD		230	172	Tier 0-Cat 1			1600				LA	0.27
73	608155	Melissa Mari	Commercial Fishing			1	propulsion	0	ULSD		230	172	Tier 0-Cat 1			1600				LA	0.27
73	578511	Misty Moon	Commercial Fishing			1	propulsion	0	ULSD		230	172	Tier 0-Cat 1			1600				LA	0.27
73	558005	Olinka	Commercial Fishing			1	propulsion	0	ULSD		230	172	Tier 0-Cat 1			1600				LA	0.27
73	549243	Papa George	Commercial Fishing			1	propulsion	0	ULSD		230	172	Tier 0-Cat 1			1600				LA	0.27
73	CF09521HZ	Papi I	Commercial Fishing			1	propulsion	0	ULSD		230	172	Tier 0-Cat 1			1600				LA	0.27
73	564009	Pioneer	Commercial Fishing			1	propulsion	0	ULSD		230	172	Tier 0-Cat 1			1600				LA	0.27
73	1036317	Squid-a-lot	Commercial Fishing			1	propulsion	0	ULSD		230	172	Tier 0-Cat 1			1600				LA	0.27
73	FVTG	Tom & Geri	Commercial Fishing			1	propulsion	0	ULSD		230	172	Tier 0-Cat 1			1600				LA	0.27

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Berth	FVA	Anna	Commercial Fishing		1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	929-532	California G	Commercial Fishing		1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	CFCS	Capt. Smithy	Commercial Fishing		1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	CF4885TB	Carmela	Commercial Fishing		1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	958-223	Dana West	Commercial Fishing		1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	947-935	Determinati	Commercial Fishing	Ron Loper/John Bater	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	252-749	Eileen	Commercial Fishing	So. Sound Fisheries (NSo. Sound Fisheries (N	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	295-397	Gloria Marie	Commercial Fishing	Fred Hepp Fred Hepp	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	647-528	Lady J	Commercial Fishing	Thomas Noto Thomas Noto	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	602-150	Lucky Marie	Commercial Fishing	ANTHONY FAVALCANTHONY FAVAL	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	CF-6999 KC	Mary Claire	Commercial Fishing	Darrel Wilson Darrel Wilson	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	598-813	New Stella	Commercial Fishing	SAL BOY INC(RON SAL BOY INC(RON	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	584-366	Ocean Ange	Commercial Fishing	OCEAN ANGEL I, L OCEAN ANGEL I, I	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	118-6583	Pacific Bully	Commercial Fishing	SOUTHERN CALIFCSOUTHERN CALIF	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	693-271	Pamela Rose	Commercial Fishing	Steve Greys shock Steve Greys shock	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	582-022	Retriever	Commercial Fishing	JOHN AIELLO/WIL JOHN AIELLO/WII	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	633-570	Saint Joseph	Commercial Fishing	SAINT JOSEPH, INC SAINT JOSEPH, INC	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	697-944	Sheelagh	Commercial Fishing	John S. Bateman John S. Bateman	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
Berth	CF 9713 TK	T-Bone	Commercial Fishing	Greg Kuglis Greg Kuglis	1 propulsion	0 ULS	230	172	Tier 0-Cat 1		1600	LA	0.27	
73	643138	Pacific Lead	Commercial Fishing	Southern California Ba Southern California B	4 auxiliary	2002 ULS	50	37	Tier 1-Cat 1	Port	2002-Q4	3000	LA	0.43
73	602455	Ferrigno Bo	Commercial Fishing		2 auxiliary	2002 ULS	71	53	Tier 1-Cat 1	Carl Moyer	2002-Q4	1300	LA	0.43
73	246518	G. Nazzaren	Commercial Fishing		2 auxiliary	2002 ULS	71	53	Tier 1-Cat 1	Carl Moyer	2002-Q4	1300	LA	0.43
73	507798	Kathy Jeann	Commercial Fishing		2 auxiliary	2002 ULS	71	53	Tier 1-Cat 1	Carl Moyer	2003-Q3	1300	LA	0.43
73	650871	Maria	Commercial Fishing		2 auxiliary	2002 ULS	71	53	Tier 1-Cat 1	Carl Moyer	2002	1300	LA	0.43
73	578511	Misty Moon	Commercial Fishing		2 auxiliary	2002 ULS	71	53	Tier 1-Cat 1	Carl Moyer	2002	1300	LA	0.43
73	265552	Paloma	Commercial Fishing		2 auxiliary	2002 ULS	71	53	Tier 1-Cat 1	Carl Moyer	2001-Q4	1300	LA	0.43
73	1000189	Sea Quest	Commercial Fishing		2 auxiliary	2002 ULS	71	53	Tier 1-Cat 1	Carl Moyer	2002-Q4	1300	LA	0.43
73	643138	Pacific Lead	Commercial Fishing	Southern California Ba Southern California B	3 auxiliary	2002 ULS	100	75	Tier 1-Cat 1	Port	2002-Q4	2000	LA	0.43
73	643138	Pacific Lead	Commercial Fishing	Southern California Ba Southern California B	2 auxiliary	2002 ULS	110	82	Tier 1-Cat 1	Port	2002-Q4	3000	LA	0.43
73	502206	Endurance	Commercial Fishing		1 propulsion	2002 ULS	230	172	Tier 1-Cat 1	Port	2002	1600	LA	0.27
73	507798	Kathy Jeann	Commercial Fishing		1 propulsion	2003 ULS	230	172	Tier 1-Cat 1	Carl Moyer	2003-Q3	1600	LA	0.27
73	504605	Linda C	Commercial Fishing		1 propulsion	2002 ULS	230	172	Tier 1-Cat 1	Carl Moyer	2002-Q2	1600	LA	0.27
73	76920	Midnight Hc	Commercial Fishing		1 propulsion	2002 ULS	230	172	Tier 1-Cat 1	Carl Moyer		1600	LA	0.27
73	573793	Pacific Sun	Commercial Fishing		1 propulsion	2002 ULS	230	172	Tier 1-Cat 1	Port	2002-Q4	1600	LA	0.27
73	265552	Paloma	Commercial Fishing		1 propulsion	2002 ULS	230	172	Tier 1-Cat 1	Carl Moyer	2001-Q4	1600	LA	0.27
73	549506	San Pedro P	Commercial Fishing		1 propulsion	2003 ULS	230	172	Tier 1-Cat 1	Port	2003-Q2	1600	LA	0.27
73	1000189	Sea Quest	Commercial Fishing		1 propulsion	2002 ULS	230	172	Tier 1-Cat 1	Carl Moyer	2002-Q4	1600	LA	0.27
73	CG793769	St. Katherine	Commercial Fishing		1 propulsion	2002 ULS	230	172	Tier 1-Cat 1	Carl Moyer	2002	1600	LA	0.27
73	276600	Thrush	Commercial Fishing		1 propulsion	2002 ULS	230	172	Tier 1-Cat 1	Carl Moyer	2003-Q2	1600	LA	0.27
Berth	927890	Blazer II	Commercial Fishing		1 propulsion	2002 ULS	230	172	Tier 1-Cat 1	Carl Moyer	2003-Q2	1600	LA	0.27
73	643138	Pacific Lead	Commercial Fishing	Southern California Ba Southern California B	1 propulsion	2002 ULS	615	459	Tier 1-Cat 1	Port	2002-Q4	4000	LA	0.27
73	509632	Maria T	Commercial Fishing		2 auxiliary	2004 ULS	71	53	Tier 2-Cat 1	Port	2004-Q2	1300	LA	0.43
73	648720	Donna B	Commercial Fishing	James Bunn Enterprise James Bunn Enterpris	2 auxiliary	2004 ULS	165	123	Tier 2-Cat 1	Carl Moyer	2004-Q1	4500	LA	0.43
73	648720	Donna B	Commercial Fishing	James Bunn Enterprise James Bunn Enterpris	3 auxiliary	2004 ULS	165	123	Tier 2-Cat 1	Carl Moyer	2004-Q1	4500	LA	0.43
73	648720	Donna B	Commercial Fishing	James Bunn Enterprise James Bunn Enterpris	4 auxiliary	2004 ULS	165	123	Tier 2-Cat 1	Carl Moyer	2004-Q1	2500	LA	0.43
73	509632	Maria T	Commercial Fishing		1 propulsion	2004 ULS	230	172	Tier 2-Cat 1	Port	2004-Q2	1600	LA	0.27
73	648720	Donna B	Commercial Fishing	James Bunn Enterprise James Bunn Enterpris	1 propulsion	2004 ULS	940	701	Tier 2-Cat 1	Carl Moyer	2004-Q1	3500	LA	0.27
	582572	Larissa Ann	Crewboat	U.S. Water Taxi U.S. Water Taxi	3 auxiliary	1977 ULS		8	Tier 0-Cat 1			300	LA	0.45
		Cypress Poir	Crewboat	U.S. Water Taxi U.S. Water Taxi	3 auxiliary	ULSD		15	Tier 0-Cat 1			300	LA	0.45
	582572	Larissa Ann	Crewboat	U.S. Water Taxi U.S. Water Taxi	1 propulsion	1977 ULS	350	261	Tier 0-Cat 1			300	LA	0.45
		Cypress Poir	Crewboat	U.S. Water Taxi U.S. Water Taxi	1 propulsion	ULSD	480	358	Tier 0-Cat 1			300	LA	0.45
		Cypress Poir	Crewboat	U.S. Water Taxi U.S. Water Taxi	2 propulsion	ULSD	480	358	Tier 0-Cat 1			300	LA	0.45
	582572	Larissa Ann	Crewboat	U.S. Water Taxi U.S. Water Taxi	2 propulsion	1977 ULS	350	261	Tier 0-Cat 1			300	LA	0.45
	CUL	U Lee	Crewboat	US Water Taxi US Water Taxi	1 propulsion	2003 ULS	210	157	Tier 1-Cat 1	Carl Moyer	2003	300	LA	0.45
	CUL	U Lee	Crewboat	US Water Taxi US Water Taxi	2 propulsion	2003 ULS	210	157	Tier 1-Cat 1	Carl Moyer	2003	300	LA	0.45
	504784	Provider	Crewboat	US Water Taxi US Water Taxi	1 propulsion	2003 ULS	235	175	Tier 1-Cat 1	Carl Moyer	2003	300	LA	0.45
	504784	Provider	Crewboat	US Water Taxi US Water Taxi	2 propulsion	2003 ULS	235	175	Tier 1-Cat 1	Carl Moyer	2003	300	LA	0.45
	507562	C Adams	Crewboat	U.S. Water Taxi U.S. Water Taxi	1 propulsion	2003 ULS	300	224	Tier 1-Cat 1			300	LA	0.45
	507562	C Adams	Crewboat	U.S. Water Taxi U.S. Water Taxi	2 propulsion	2003 ULS	300	224	Tier 1-Cat 1			300	LA	0.45
	545137	Sea Bass	Excursion	Jerry Lewis Jerry Lewis	3 auxiliary	0 ULS	7	5	Tier 0-Cat 1			1800	LA	0.42
	252222	Mauretania	Excursion	Boyt Company Boyt Company	3 auxiliary	0 ULS	20	15	Tier 0-Cat 1			400	LA	0.42
	252222	Mauretania	Excursion	Boyt Company Boyt Company	4 auxiliary	0 ULS	20	15	Tier 0-Cat 1			400	LA	0.42
	1000157	Pacific Spirit	Excursion	Spirit Cruises Spirit Cruises	3 auxiliary	1992 ULS	20	15	Tier 0-Cat 1			1000	LA	0.42
	248084	Scorpio	Excursion	Fiesta Harbor Cruises Fiesta Harbor Cruises	2 auxiliary	0 ULS	30	22	Tier 0-Cat 1			1400	LA	0.42
	566019	Magician	Excursion	Jerry Lewis Jerry Lewis	3 auxiliary	0 ULS	30	22	Tier 0-Cat 1			2400	LA	0.42
	WAB7418	Angelena II	Excursion	Port of Los Angeles Port of Los Angeles	3 auxiliary	0 Biodiesel	32	24	Tier 0-Cat 1			125	LA	0.42
	WAB7418	Angelena II	Excursion	Port of Los Angeles Port of Los Angeles	4 auxiliary	0 Biodiesel	32	24	Tier 0-Cat 1			125	LA	0.42

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CF8277SM	Westerly	Excursion	Jim Ingrahm	Jim Ingrahm	3 auxiliary	0 ULS	40	30 Tier 0-Cat 1		2400	LA	0.42
	ET	Excursion	John Watanabe	John Watanabe	3 auxiliary	0 ULS	40	30 Tier 0-Cat 1		4260	LA	0.42
609626	Fiesta	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	3 auxiliary	0 ULS	40	30 Tier 0-Cat 1		1000	LA	0.42
1132413	Gail Force	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	3 auxiliary	0 ULS	40	30 Tier 0-Cat 1		900	LA	0.42
579584	Thunderbird	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	3 auxiliary	1981 ULS	40	30 Tier 0-Cat 1		1000	LA	0.42
655047	Seahawk LX	Excursion	Seahawk Sportfishing	Seahawk Sportfishing	3 auxiliary	0 ULS	40	30 Tier 0-Cat 1		3500	LA	0.42
669176	First String	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	3 auxiliary	1984 ULS	50	37 Tier 0-Cat 1		650	LA	0.42
669176	First String	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	4 auxiliary	1984 ULS	50	37 Tier 0-Cat 1		650	LA	0.42
248084	Scorpio	Excursion	Fiesta Harbor Cruises	Fiesta Harbor Cruises	1 propulsion	0 ULS	150	112 Tier 0-Cat 1		1400	LA	0.42
609626	Fiesta	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	1 propulsion	0 ULS	250	187 Tier 0-Cat 1		1000	LA	0.42
609626	Fiesta	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	2 propulsion	0 ULS	250	187 Tier 0-Cat 1		1000	LA	0.42
1132413	Gail Force	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	1 propulsion	0 ULS	250	187 Tier 0-Cat 1		900	LA	0.42
1132413	Gail Force	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	2 propulsion	0 ULS	250	187 Tier 0-Cat 1		900	LA	0.42
D510938	Lanakai	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	1 propulsion	0 ULS	250	187 Tier 0-Cat 1		900	LA	0.42
579584	Thunderbird	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	1 propulsion	1981 ULS	250	187 Tier 0-Cat 1		1000	LA	0.42
579584	Thunderbird	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	2 propulsion	1981 ULS	250	187 Tier 0-Cat 1		1000	LA	0.42
6431381	Pacific Mist	Excursion	Spirit Cruises	Spirit Cruises	1 propulsion	1959 ULS	300	224 Tier 0-Cat 1		500	LA	0.42
545137	Sea Bass	Excursion	Jerry Lewis	Jerry Lewis	1 propulsion	0 ULS	315	235 Tier 0-Cat 1		1800	LA	0.42
545137	Sea Bass	Excursion	Jerry Lewis	Jerry Lewis	2 propulsion	0 ULS	315	235 Tier 0-Cat 1		1800	LA	0.42
252222	Mauretania	Excursion	Boyt Company	Boyt Company	1 propulsion	0 ULS	340	254 Tier 0-Cat 1		700	LA	0.42
252222	Mauretania	Excursion	Boyt Company	Boyt Company	2 propulsion	0 ULS	340	254 Tier 0-Cat 1		700	LA	0.42
WAB7418	Angelena II	Excursion	Port of Los Angeles	Port of Los Angeles	1 propulsion	0 Biodiesel	350	261 Tier 0-Cat 1		350	LA	0.42
WAB7418	Angelena II	Excursion	Port of Los Angeles	Port of Los Angeles	2 propulsion	0 Biodiesel	350	261 Tier 0-Cat 1		350	LA	0.42
514012	Sea Angler	Excursion	Greg Watson	Greg Watson	1 propulsion	0 ULS	375	280 Tier 0-Cat 1		3000	LA	0.42
514012	Sea Angler	Excursion	Greg Watson	Greg Watson	2 propulsion	0 ULS	375	280 Tier 0-Cat 1		3000	LA	0.42
669176	First String	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	1 propulsion	1984 ULS	375	280 Tier 0-Cat 1		650	LA	0.42
669176	First String	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	2 propulsion	1984 ULS	375	280 Tier 0-Cat 1		650	LA	0.42
1000135	Monte Carlo	Excursion	Paul Strauser	Paul Strauser	1 propulsion	0 ULS	375	280 Tier 0-Cat 1		3600	LA	0.42
1000135	Monte Carlo	Excursion	Paul Strauser	Paul Strauser	2 propulsion	0 ULS	375	280 Tier 0-Cat 1		3600	LA	0.42
1000135	Monte Carlo	Excursion	Paul Strauser	Paul Strauser	3 propulsion	0 ULS	375	280 Tier 0-Cat 1		3600	LA	0.42
OR1915Y	Adventure	Excursion	Spirit Cruises	Spirit Cruises	1 propulsion	1986 ULS	400	298 Tier 0-Cat 1		500	LA	0.42
D958881	Motor Yacht	Excursion	Spirit Cruises	Spirit Cruises	1 propulsion	1990 ULS	400	298 Tier 0-Cat 1		1500	LA	0.42
D958881	Motor Yacht	Excursion	Spirit Cruises	Spirit Cruises	2 propulsion	1990 ULS	400	298 Tier 0-Cat 1		1500	LA	0.42
1000157	Pacific Spirit	Excursion	Spirit Cruises	Spirit Cruises	1 propulsion	1992 ULS	440	328 Tier 0-Cat 1		1000	LA	0.42
1000157	Pacific Spirit	Excursion	Spirit Cruises	Spirit Cruises	2 propulsion	1992 ULS	440	328 Tier 0-Cat 1		1000	LA	0.42
655047	Seahawk LX	Excursion	Seahawk Sportfishing	Seahawk Sportfishing	1 propulsion	0 ULS	530	395 Tier 0-Cat 1		2000	LA	0.42
655047	Seahawk LX	Excursion	Seahawk Sportfishing	Seahawk Sportfishing	2 propulsion	0 ULS	530	395 Tier 0-Cat 1		2000	LA	0.42
OR1915Y	Adventure	Excursion	Spirit Cruises	Spirit Cruises	2 auxiliary	2002 ULS	40	30 Tier 1-Cat 1	Carl Moyer 2002	500	LA	0.42
386271	Freedom	Excursion	Mike Frank	Mike Frank	3 auxiliary	2002 ULS	47	35 Tier 1-Cat 1	Carl Moyer 2002	6600	LA	0.42
386271	Freedom	Excursion	Mike Frank	Mike Frank	4 auxiliary	2002 ULS	47	35 Tier 1-Cat 1	Carl Moyer 2002	6600	LA	0.42
D515292	Legacy	Excursion	Gary Morby	Gary Morby	3 auxiliary	2003 ULS	50	37 Tier 1-Cat 1	Carl Moyer 2002-Q2	5400	LA	0.42
1000127	Matt Walsh	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	2 auxiliary	2003 ULS	50	37 Tier 1-Cat 1	Carl Moyer 2003-Q2	1000	LA	0.42
1000211	SportKing	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	3 auxiliary	2003 ULS	50	37 Tier 1-Cat 1	Carl Moyer 2003-Q2	1200	LA	0.42
1000135	Monte Carlo	Excursion	Paul Strauser	Paul Strauser	4 auxiliary	2003 ULS	50	37 Tier 1-Cat 1	Port 2003-Q1	3600	LA	0.42
1000135	Monte Carlo	Excursion	Paul Strauser	Paul Strauser	5 auxiliary	2003 ULS	50	37 Tier 1-Cat 1	Port 2003-Q1	3600	LA	0.42
295420	Pursuit	Excursion	Paul Strauser	Paul Strauser	3 auxiliary	2003 ULS	50	37 Tier 1-Cat 1	Carl Moyer 2002-Q2	3600	LA	0.42
514012	Sea Angler	Excursion	Greg Watson	Greg Watson	3 auxiliary	2003 ULS	54	40 Tier 1-Cat 1	Carl Moyer 2003-Q2	3000	LA	0.42
D515292	Legacy	Excursion	Gary Morby	Gary Morby	1 propulsion	2003 ULS	300	224 Tier 1-Cat 1	Carl Moyer 2002-Q2	5400	LA	0.42
D515292	Legacy	Excursion	Gary Morby	Gary Morby	2 propulsion	2003 ULS	300	224 Tier 1-Cat 1	Carl Moyer 2002-Q2	5400	LA	0.42
CF8277SM	Westerly	Excursion	Jim Ingrahm	Jim Ingrahm	1 propulsion	2003 ULS	350	261 Tier 1-Cat 1	Carl Moyer 2002	2400	LA	0.42
CF8277SM	Westerly	Excursion	Jim Ingrahm	Jim Ingrahm	2 propulsion	2003 ULS	350	261 Tier 1-Cat 1	Carl Moyer 2002	2400	LA	0.42
386271	Freedom	Excursion	Mike Frank	Mike Frank	1 propulsion	2002 ULS	360	269 Tier 1-Cat 1	Carl Moyer 2002	6600	LA	0.42
386271	Freedom	Excursion	Mike Frank	Mike Frank	2 propulsion	2002 ULS	360	269 Tier 1-Cat 1	Carl Moyer 2002	6600	LA	0.42
295420	Pursuit	Excursion	Paul Strauser	Paul Strauser	1 propulsion	2003 ULS	375	280 Tier 1-Cat 1	Carl Moyer 2002-Q2	3600	LA	0.42
295420	Pursuit	Excursion	Paul Strauser	Paul Strauser	2 propulsion	2003 ULS	375	280 Tier 1-Cat 1	Carl Moyer 2002-Q2	3600	LA	0.42
1000127	Matt Walsh	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	1 propulsion	2003 ULS	400	298 Tier 1-Cat 1	Carl Moyer 2002-Q2	1000	LA	0.42
1000211	SportKing	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	1 propulsion	2003 ULS	400	298 Tier 1-Cat 1	Carl Moyer 2003-Q2	1200	LA	0.42
1000211	SportKing	Excursion	LA Harbor Sportfishin	LA Harbor Sportfishin	2 propulsion	2003 ULS	400	298 Tier 1-Cat 1	Carl Moyer 2003-Q2	1200	LA	0.42
ET	Trueline	Excursion	John Watanabe	John Watanabe	1 propulsion	2003 ULS	450	336 Tier 1-Cat 1		2003	LA	0.42
ET	Trueline	Excursion	John Watanabe	John Watanabe	2 propulsion	2003 ULS	450	336 Tier 1-Cat 1		2003	LA	0.42
566019	Magician	Excursion	Jerry Lewis	Jerry Lewis	1 propulsion	2004 ULS	300	224 Tier 2-Cat 1	Carl Moyer 2004	2400	LA	0.42
566019	Magician	Excursion	Jerry Lewis	Jerry Lewis	2 propulsion	2004 ULS	300	224 Tier 2-Cat 1	Carl Moyer 2004	2400	LA	0.42
1000037	Catalina Jet	Ferry	Catalina Express	Catalina Express	3 auxiliary	0 ULS	120	90 Tier 0-Cat 1		750	LA	0.42
1000037	Catalina Jet	Ferry	Catalina Express	Catalina Express	4 auxiliary	0 ULS	120	90 Tier 0-Cat 1		750	LA	0.42
1000037	Catalina Jet	Ferry	Catalina Express	Catalina Express	1 propulsion	1997 ULS	1800	1343 Tier 0-Cat 1		1200	LA	0.42
1000037	Catalina Jet	Ferry	Catalina Express	Catalina Express	2 propulsion	1997 ULS	1800	1343 Tier 0-Cat 1		1200	LA	0.42
D965020	Avalon Expt	Ferry	Catalina Express	Catalina Express	3 auxiliary	2003 ULS	18	13 Tier 1-Cat 1	company 2003	750	LA	0.42

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D965020	Avalon Exprt Ferry	Catalina Express	Catalina Express	4 auxiliary	2003 ULS	18	13 Tier 1-Cat 1	company	2003	750	LA	0.42	
D948896	Super Expre Ferry	Catalina Express	Catalina Express	3 auxiliary	2003 ULS	18	13 Tier 1-Cat 1	company	2003	750	LA	0.42	
D948896	Super Expre Ferry	Catalina Express	Catalina Express	4 auxiliary	2003 ULS	18	13 Tier 1-Cat 1	company	2003	750	LA	0.42	
D1020244	Islander Exp Ferry	Catalina Express	Catalina Express	3 auxiliary	2000 ULS	44	33 Tier 1-Cat 1	company	2003	750	LA	0.42	
D1020244	Islander Exp Ferry	Catalina Express	Catalina Express	4 auxiliary	2000 ULS	44	33 Tier 1-Cat 1	company	2003	750	LA	0.42	
WCZ3442	Starship Exp Ferry	Catalina Express	Catalina Express	3 auxiliary	2003 ULS	44	33 Tier 1-Cat 1	company	2003	750	LA	0.42	
WCZ3442	Starship Exp Ferry	Catalina Express	Catalina Express	4 auxiliary	2003 ULS	44	33 Tier 1-Cat 1	company	2003	750	LA	0.42	
D907138	Cat Express Ferry	Catalina Express	Catalina Express	3 auxiliary	2003 ULS	95	71 Tier 1-Cat 1	Carl Moyer	2003	750	LA	0.42	
D907138	Cat Express Ferry	Catalina Express	Catalina Express	4 auxiliary	2003 ULS	95	71 Tier 1-Cat 1	Carl Moyer	2003	750	LA	0.42	
D907138	Cat Express Ferry	Catalina Express	Catalina Express	1 propulsion	2001 ULS	1800	1343 Tier 1-Cat 1	Carl Moyer	2002	1200	LA	0.42	
D907138	Cat Express Ferry	Catalina Express	Catalina Express	2 propulsion	2001 ULS	1800	1343 Tier 1-Cat 1	Carl Moyer	2001	1200	LA	0.42	
WCZ3442	Starship Exp Ferry	Catalina Express	Catalina Express	1 propulsion	2003 ULS	2300	1716 Tier 1-Cat 1	Carl Moyer	2003	1200	LA	0.42	
WCZ3442	Starship Exp Ferry	Catalina Express	Catalina Express	2 propulsion	2003 ULS	2300	1716 Tier 1-Cat 1	Carl Moyer	2003	1200	LA	0.42	
D965020	Avalon Exprt Ferry	Catalina Express	Catalina Express	1 propulsion	2004 ULS	2000	1492 Tier 2-Cat 1	Carl Moyer	2003-Q2	1200	LA	0.42	
D965020	Avalon Exprt Ferry	Catalina Express	Catalina Express	2 propulsion	2004 ULS	2000	1492 Tier 2-Cat 1	Carl Moyer	2003-Q2	1200	LA	0.42	
D1020244	Islander Exp Ferry	Catalina Express	Catalina Express	1 propulsion	2004 ULS	2300	1716 Tier 2-Cat 1	Carl Moyer	2003	1200	LA	0.42	
D1020244	Islander Exp Ferry	Catalina Express	Catalina Express	2 propulsion	2004 ULS	2300	1716 Tier 2-Cat 1	Carl Moyer	2003	1200	LA	0.42	
1109985	Jet Cat Expr Ferry	Catalina Express	Catalina Express	1 propulsion	2004 ULS	2300	1716 Tier 2-Cat 1	Port	2004	1200	LA	0.42	
1109985	Jet Cat Expr Ferry	Catalina Express	Catalina Express	2 propulsion	2004 ULS	2300	1716 Tier 2-Cat 1	Port	2004	1200	LA	0.42	
1109985	Jet Cat Expr Ferry	Catalina Express	Catalina Express	3 propulsion	2004 ULS	2300	1716 Tier 2-Cat 1	Port	2004	750	LA	0.42	
1109985	Jet Cat Expr Ferry	Catalina Express	Catalina Express	4 propulsion	2004 ULS	2300	1716 Tier 2-Cat 1	Port	2004	750	LA	0.42	
D948896	Super Expre Ferry	Catalina Express	Catalina Express	1 propulsion	2004 ULS	2300	1716 Tier 2-Cat 1	Carl Moyer	2003-Q2	1200	LA	0.42	
D948896	Super Expre Ferry	Catalina Express	Catalina Express	2 propulsion	2004 ULS	2300	1716 Tier 2-Cat 1	Carl Moyer	2003-Q2	1200	LA	0.42	
CGB1	boat 1	Government	USCG	USCG	3 auxiliary	0 ULS	127	95 Tier 0-Cat 1		300	LA	0.43	
CGB1	boat 1	Government	USCG	USCG	4 auxiliary	0 ULS	127	95 Tier 0-Cat 1		300	LA	0.43	
CGB1	boat 1	Government	USCG	USCG	5 auxiliary	0 ULS	127	95 Tier 0-Cat 1		300	LA	0.43	
FB1	fire boat 1	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	3 auxiliary	0 ULS	180	134 Tier 0-Cat 1		180	LA	0.43	
FB3	fire boat 3	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	3 auxiliary	0 ULS	180	134 Tier 0-Cat 1		180	LA	0.43	
FB5	fire boat 5	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	3 auxiliary	0 ULS	180	134 Tier 0-Cat 1		180	LA	0.43	
FB2	fire boat 2	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	4 auxiliary	0 ULS	200	149 Tier 0-Cat 1		50	LA	0.43	
FB4	fire boat 4	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	3 auxiliary	0 ULS	400	298 Tier 0-Cat 1		20	LA	0.43	
FB4	fire boat 4	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	4 auxiliary	0 ULS	400	298 Tier 0-Cat 1		20	LA	0.43	
CGB5	boat 5	Government	USCG	USCG	1 propulsion	0 ULS	150	112 Tier 0-Cat 1		500	LA	0.51	
PB1	police boat 1	Government	Los Angeles Police De	Los Angeles Police D	1 propulsion	1998 ULS	300	224 Tier 0-Cat 1		500	LA	0.51	
PB3	police boat 3	Government	Los Angeles Police De	Los Angeles Police D	1 propulsion	1995 ULS	300	224 Tier 0-Cat 1		500	LA	0.51	
CGB2	boat 2	Government	USCG	USCG	1 propulsion	0 ULS	318	237 Tier 0-Cat 1		600	LA	0.51	
CGB3	boat 3	Government	USCG	USCG	1 propulsion	0 ULS	318	237 Tier 0-Cat 1		600	LA	0.51	
CGB4	boat 4	Government	USCG	USCG	1 propulsion	0 ULS	318	237 Tier 0-Cat 1		600	LA	0.51	
FB1	fire boat 1	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	1 propulsion	0 ULS	450	336 Tier 0-Cat 1		440	LA	0.51	
FB1	fire boat 1	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	2 propulsion	0 ULS	450	336 Tier 0-Cat 1		440	LA	0.51	
FB3	fire boat 3	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	1 propulsion	0 ULS	450	336 Tier 0-Cat 1		440	LA	0.51	
FB3	fire boat 3	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	2 propulsion	0 ULS	450	336 Tier 0-Cat 1		440	LA	0.51	
FB5	fire boat 5	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	1 propulsion	0 ULS	450	336 Tier 0-Cat 1		440	LA	0.51	
FB5	fire boat 5	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	2 propulsion	0 ULS	450	336 Tier 0-Cat 1		440	LA	0.51	
CGB1	boat 1	Government	USCG	USCG	1 propulsion	0 ULS	500	373 Tier 0-Cat 1		300	LA	0.51	
CGB1	boat 1	Government	USCG	USCG	2 propulsion	0 ULS	500	373 Tier 0-Cat 1		300	LA	0.51	
FB4	fire boat 4	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	1 propulsion	0 ULS	750	560 Tier 0-Cat 1		240	LA	0.51	
FB4	fire boat 4	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	2 propulsion	0 ULS	750	560 Tier 0-Cat 1		240	LA	0.51	
FB2	fire boat 2	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	3 auxiliary	2003 ULS	200	149 Tier 1-Cat 1	Carl Moyer	2003	50	LA	0.43
PB2	police boat 2	Government	Los Angeles Police De	Los Angeles Police D	1 propulsion	2001 ULS	300	224 Tier 1-Cat 1		500	LA	0.51	
FB2	fire boat 2	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	2 propulsion	2003 ULS	1550	1156 Tier 1-Cat 1	Carl Moyer	2003	400	LA	0.51
FB2	fire boat 2	Government	Los Angeles Fire Depa	Los Angeles Fire Dep	1 propulsion	2003 ULS	1800	1343 Tier 1-Cat 1	Carl Moyer	2003	400	LA	0.51

(1) Transit time from base to gate for assist tugs was provided by Crawley port engineer and Starcrest via telephone communication, 2/2008. Total (lb/yr)

Transit Time (when not assisting OGVs) for Baseline and Alt. 6 = 30 minutes/1-way trip * 2 one-way trips * 2 trips/day * 365 days/year = 730 hr/year

Transit Time (when not assisting OGVs) for Alt. 1,2,3,4,5 = 15 minutes/1-way trip * 2 one-way trips * 2 trips/day * 365 days/year = 365 hr/year

(2) Hotelling time at base for assist tugs was provided by Crawley port engineer and Starcrest via telephone conversation, 2/2008. Total (ton/yr)

Hotelling time at base - Crawley Assist Tugs = 8 hr/day * 365 days/year = 2920 hr/year during this time only one auxiliary engine operates

Hotelling time at base - Millennium Assist Tugs = 8 hr/day * 365 days/year = all engines shut off during hotelling

(3) 2006 tugboat AMP = 0 in 2006. Crawley & Millennium and Starcrest via telephone conversation, 2/2008.

Source: 2006 Harbor Craft Inventory, Starcrest.

1 HC = 1.053

1 lb = 453.59

San Pedro Waterfront

Craft Inventory and Emission Calculations
 ne 2006

Vessel ID	Harbor Craft Criteria Pollutant Emissions Annual (lb/yr)										Harbor Craft Criteria Pollutant Emissions Daily (lb/day)										Harbor Craft Criteria Pollutant Emissions Hourly (lb/hr)									
	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC						
1063760	89	24	16	594	24	22	0	15	0.24	0.07	0.04	1.63	0.07	0.06	0.0010	0.04	0.12	0.03	0.02	0.81	0.03	0.03	0.00	0.021						
1063760	89	24	16	594	24	22	0	15	0.24	0.07	0.04	1.63	0.07	0.06	0.0010	0.04	0.12	0.03	0.02	0.81	0.03	0.03	0.00	0.021						
503695	89	24	16	594	24	22	0	15	0.24	0.07	0.04	1.63	0.07	0.06	0.0010	0.04	0.12	0.03	0.02	0.81	0.03	0.03	0.00	0.021						
503695	89	24	16	594	24	22	0	15	0.24	0.07	0.04	1.63	0.07	0.06	0.0010	0.04	0.12	0.03	0.02	0.81	0.03	0.03	0.00	0.021						
1063748	89	24	16	582	24	22	0	15	0.24	0.07	0.04	1.59	0.07	0.06	0.0010	0.04	0.12	0.03	0.02	0.80	0.03	0.03	0.00	0.021						
1063748	89	24	16	582	24	22	0	15	0.24	0.07	0.04	1.59	0.07	0.06	0.0010	0.04	0.12	0.03	0.02	0.80	0.03	0.03	0.00	0.021						
8034851	89	24	16	582	24	22	0	15	0.24	0.07	0.04	1.59	0.07	0.06	0.0010	0.04	0.12	0.03	0.02	0.80	0.03	0.03	0.00	0.021						
8034851	89	24	16	582	24	22	0	15	0.24	0.07	0.04	1.59	0.07	0.06	0.0010	0.04	0.12	0.03	0.02	0.80	0.03	0.03	0.00	0.021						
1092296	97	26	17	632	26	24	0	17	0.27	0.07	0.05	1.73	0.07	0.07	0.0011	0.05	0.13	0.04	0.02	0.87	0.04	0.03	0.00	0.023						
1092296	97	26	17	632	26	24	0	17	0.27	0.07	0.05	1.73	0.07	0.07	0.0011	0.05	0.13	0.04	0.02	0.87	0.04	0.03	0.00	0.023						
1099591	97	26	17	632	26	24	0	17	0.27	0.07	0.05	1.73	0.07	0.07	0.0011	0.05	0.13	0.04	0.02	0.87	0.04	0.03	0.00	0.023						
1099591	97	26	17	632	26	24	0	17	0.27	0.07	0.05	1.73	0.07	0.07	0.0011	0.05	0.13	0.04	0.02	0.87	0.04	0.03	0.00	0.023						
1150866	382	23	21	520	23	21	0	20	1.05	0.06	0.06	1.42	0.06	0.06	0.0013	0.05	0.52	0.03	0.03	0.71	0.03	0.03	0.00	0.027						
1150866	382	23	21	520	23	21	0	20	1.05	0.06	0.06	1.42	0.06	0.06	0.0013	0.05	0.52	0.03	0.03	0.71	0.03	0.03	0.00	0.027						
1043481	139	28	25	929	28	26	1	24	0.38	0.08	0.08	2.55	0.08	0.07	0.0015	0.07	0.19	0.04	0.03	1.27	0.04	0.04	0.00	0.033						
1043481	139	28	25	929	28	26	1	24	0.38	0.08	0.08	2.55	0.08	0.07	0.0015	0.07	0.19	0.04	0.03	1.27	0.04	0.04	0.00	0.033						
1000319	155	31	28	1033	31	28	1	26	0.42	0.08	0.08	2.83	0.08	0.08	0.0017	0.07	0.21	0.04	0.04	1.41	0.04	0.04	0.00	0.036						
Assist Tug Hotelling Emissions	1,425	380	256	9,499	380	350	6	244	3.90	1.04	0.70	26.02	1.04	0.96	0.02	0.67	0.12	0.03	0.02	0.81	0.03	0.03	0.00	0.021						
1150866	3,443	207	186	4,682	207	190	4	177	9.43	0.57	0.51	12.83	0.57	0.52	0.0113	0.48	4.72	0.28	0.25	6.41	0.28	0.26	0.01	0.242						
1150866	3,443	207	186	4,682	207	190	4	177	9.43	0.57	0.51	12.83	0.57	0.52	0.0113	0.48	4.72	0.28	0.25	6.41	0.28	0.26	0.01	0.242						
1000319	819	536	372	9,826	536	493	4	353	2.24	1.47	1.02	26.92	1.47	1.35	0.0122	0.97	1.12	0.73	0.51	13.46	0.73	0.68	0.01	0.484						
1000319	819	536	372	9,826	536	493	4	353	2.24	1.47	1.02	26.92	1.47	1.35	0.0122	0.97	1.12	0.73	0.51	13.46	0.73	0.68	0.01	0.484						
1043481	880	576	400	10,563	576	530	5	380	2.41	1.58	1.10	28.94	1.58	1.45	0.0132	1.04	1.21	0.79	0.55	14.47	0.79	0.73	0.01	0.520						
1043481	880	576	400	10,563	576	530	5	380	2.41	1.58	1.10	28.94	1.58	1.45	0.0132	1.04	1.21	0.79	0.55	14.47	0.79	0.73	0.01	0.520						
1092296	2,047	246	221	8,024	246	226	5	210	5.61	0.67	0.61	21.98	0.67	0.62	0.0135	0.58	2.80	0.34	0.30	10.99	0.34	0.31	0.01	0.288						
1092296	2,047	246	221	8,024	246	226	5	210	5.61	0.67	0.61	21.98	0.67	0.62	0.0135	0.58	2.80	0.34	0.30	10.99	0.34	0.31	0.01	0.288						
1099591	2,047	246	221	8,024	246	226	5	210	5.61	0.67	0.61	21.98	0.67	0.62	0.0135	0.58	2.80	0.34	0.30	10.99	0.34	0.31	0.01	0.288						
1099591	2,047	246	221	8,024	246	226	5	210	5.61	0.67	0.61	21.98	0.67	0.62	0.0135	0.58	2.80	0.34	0.30	10.99	0.34	0.31	0.01	0.288						
1063748	2,233	268	241	11,612	268	247	5	229	6.12	0.73	0.66	31.81	0.73	0.68	0.0147	0.63	3.06	0.37	0.33	15.91	0.37	0.34	0.01	0.314						
1063748	2,233	268	241	11,612	268	247	5	229	6.12	0.73	0.66	31.81	0.73	0.68	0.0147	0.63	3.06	0.37	0.33	15.91	0.37	0.34	0.01	0.314						
1063760	2,233	268	241	11,612	268	247	5	229	6.12	0.73	0.66	31.81	0.73	0.68	0.0147	0.63	3.06	0.37	0.33	15.91	0.37	0.34	0.01	0.314						
1063760	2,233	268	241	11,612	268	247	5	229	6.12	0.73	0.66	31.81	0.73	0.68	0.0147	0.63	3.06	0.37	0.33	15.91	0.37	0.34	0.01	0.314						
8034851	2,233	268	241	11,612	268	247	5	229	6.12	0.73	0.66	31.81	0.73	0.68	0.0147	0.63	3.06	0.37	0.33	15.91	0.37	0.34	0.01	0.314						
8034851	2,233	268	241	11,612	268	247	5	229	6.12	0.73	0.66	31.81	0.73	0.68	0.0147	0.63	3.06	0.37	0.33	15.91	0.37	0.34	0.01	0.314						
503695	2,233	268	241	11,612	268	247	5	229	6.12	0.73	0.66	31.81	0.73	0.68	0.0147	0.63	3.06	0.37	0.33	15.91	0.37	0.34	0.01	0.314						
503695	2,233	268	241	11,612	268	247	5	229	6.12	0.73	0.66	31.81	0.73	0.68	0.0147	0.63	3.06	0.37	0.33	15.91	0.37	0.34	0.01	0.314						
CF2776KR2	22	10	3	122	10	9	0	3	0.06	0.03	0.01	0.33	0.03	0.03	0.0002	0.01	0.04	0.02	0.01	0.24	0.02	0.02	0.00	0.006						
1060787	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
1060787	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
602455	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
262507	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
246518	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
528758	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
608155	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
578511	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
558005	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
549243	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
CF09521LZ	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
564009	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
1036317	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
1036317	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03	0.00	0.026						
FVTG	246	49	44	1,638	49	45	1	42	0.67	0.13	0.12	4.49	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.02	0.03	0.03</								

San Pedro Waterfront

1000189	111	26	18	640	26	24	0	17	0.30	0.07	0.05	1.75	0.07	0.07	0.0011	0.05	0.09	0.02	0.01	0.49	0.02	0.02	0.00	0.013
645138	240	57	38	1,386	57	52	1	36	0.66	0.16	0.10	3.80	0.16	0.14	0.0023	0.10	0.12	0.03	0.02	0.69	0.03	0.03	0.00	0.018
645138	350	93	63	2,287	93	86	1	60	0.96	0.26	0.17	6.27	0.26	0.24	0.0088	0.16	0.12	0.03	0.02	0.76	0.03	0.03	0.00	0.020
502206	246	49	44	1,605	49	45	1	42	0.67	0.13	0.12	4.40	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.00	0.03	0.03	0.00	0.026
507798	246	49	44	1,605	49	45	1	42	0.67	0.13	0.12	4.40	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.00	0.03	0.03	0.00	0.026
504605	246	49	44	1,605	49	45	1	42	0.67	0.13	0.12	4.40	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.00	0.03	0.03	0.00	0.026
76920	246	49	44	1,605	49	45	1	42	0.67	0.13	0.12	4.40	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.00	0.03	0.03	0.00	0.026
573793	246	49	44	1,605	49	45	1	42	0.67	0.13	0.12	4.40	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.00	0.03	0.03	0.00	0.026
265552	246	49	44	1,605	49	45	1	42	0.67	0.13	0.12	4.40	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.00	0.03	0.03	0.00	0.026
549586	246	49	44	1,605	49	45	1	42	0.67	0.13	0.12	4.40	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.00	0.03	0.03	0.00	0.026
1000189	246	49	44	1,605	49	45	1	42	0.67	0.13	0.12	4.40	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.00	0.03	0.03	0.00	0.026
CG793769	246	49	44	1,605	49	45	1	42	0.67	0.13	0.12	4.40	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.00	0.03	0.03	0.00	0.026
276600	246	49	44	1,605	49	45	1	42	0.67	0.13	0.12	4.40	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.00	0.03	0.03	0.00	0.026
927890	246	49	44	1,605	49	45	1	42	0.67	0.13	0.12	4.40	0.13	0.12	0.0027	0.12	0.15	0.03	0.03	1.00	0.03	0.03	0.00	0.026
645138	1,639	328	295	10,705	301	328	7	280	4.49	0.90	0.81	29.53	0.90	0.85	0.0180	0.77	0.41	0.08	0.07	2.68	0.08	0.08	0.00	0.070
504632	327	20	18	444	20	18	0	17	0.89	0.05	0.05	1.22	0.05	0.05	0.0011	0.05	0.25	0.02	0.01	0.34	0.02	0.01	0.00	0.013
648720	2,625	158	142	3,571	158	145	3	135	7.19	0.43	0.39	9.78	0.43	0.40	0.0086	0.37	0.58	0.04	0.03	0.79	0.04	0.03	0.00	0.030
648720	2,625	158	142	3,571	158	145	3	135	7.19	0.43	0.39	9.78	0.43	0.40	0.0086	0.37	0.58	0.04	0.03	0.79	0.04	0.03	0.00	0.030
648720	1,459	88	79	1,984	88	81	2	75	4.00	0.24	0.22	5.43	0.24	0.22	0.0048	0.20	0.58	0.04	0.03	0.79	0.04	0.03	0.00	0.030
509632	819	49	44	1,114	49	45	1	42	2.24	0.13	0.12	3.05	0.13	0.12	0.0027	0.12	0.51	0.03	0.03	0.70	0.03	0.03	0.00	0.026
648720	7,305	438	394	9,934	438	403	9	375	20.01	1.20	1.08	27.22	1.20	1.10	0.0240	1.03	2.09	0.13	0.11	2.84	0.13	0.12	0.00	0.107
582572	5	2	1	26	2	0	1	1	0.01	0.01	0.00	0.07	0.01	0.01	0.0000	0.00	0.02	0.01	0.00	0.09	0.01	0.01	0.00	0.002
582572	9	4	1	49	4	4	0	1	0.02	0.01	0.00	0.13	0.01	0.01	0.0001	0.00	0.03	0.01	0.00	0.16	0.01	0.01	0.00	0.004
582572	194	23	21	1,010	23	21	0	20	0.53	0.06	0.06	2.77	0.06	0.06	0.0013	0.05	0.65	0.08	0.07	3.37	0.08	0.07	0.00	0.066
582572	266	32	29	1,385	32	29	1	27	0.73	0.09	0.08	3.80	0.09	0.08	0.0018	0.07	0.89	0.11	0.10	4.62	0.11	0.10	0.00	0.091
582572	266	32	29	1,385	32	29	1	27	0.73	0.09	0.08	3.80	0.09	0.08	0.0018	0.07	0.89	0.11	0.10	4.62	0.11	0.10	0.00	0.091
582572	194	23	21	1,010	23	21	0	20	0.53	0.06	0.06	2.77	0.06	0.06	0.0013	0.05	0.65	0.08	0.07	3.37	0.08	0.07	0.00	0.066
582572	70	14	13	457	14	13	0	12	0.19	0.04	0.03	1.25	0.04	0.04	0.0008	0.03	0.23	0.05	0.04	1.52	0.05	0.04	0.00	0.040
582572	70	14	13	457	14	13	0	12	0.19	0.04	0.03	1.25	0.04	0.04	0.0008	0.03	0.23	0.05	0.04	1.52	0.05	0.04	0.00	0.040
504784	78	16	14	511	16	14	0	13	0.21	0.04	0.04	1.40	0.04	0.04	0.0009	0.04	0.26	0.05	0.05	1.70	0.05	0.05	0.00	0.045
504784	78	16	14	511	16	14	0	13	0.21	0.04	0.04	1.40	0.04	0.04	0.0009	0.04	0.26	0.05	0.05	1.70	0.05	0.05	0.00	0.045
507562	100	20	18	653	20	18	0	17	0.27	0.05	0.05	1.79	0.05	0.05	0.0011	0.05	0.33	0.07	0.06	2.18	0.07	0.06	0.00	0.057
507562	100	20	18	653	20	18	0	17	0.27	0.05	0.05	1.79	0.05	0.05	0.0011	0.05	0.33	0.07	0.06	2.18	0.07	0.06	0.00	0.057
545137	17	8	2	96	8	7	0	2	0.05	0.02	0.01	0.26	0.02	0.02	0.0001	0.01	0.01	0.00	0.00	0.05	0.00	0.00	0.00	0.001
545137	17	8	2	96	8	7	0	2	0.05	0.02	0.01	0.26	0.02	0.02	0.0001	0.01	0.01	0.00	0.00	0.05	0.00	0.00	0.00	0.001
252222	11	5	1	61	5	5	0	1	0.03	0.01	0.00	0.17	0.01	0.01	0.0001	0.00	0.03	0.01	0.00	0.15	0.01	0.01	0.00	0.004
252222	11	5	1	61	5	5	0	1	0.03	0.01	0.00	0.17	0.01	0.01	0.0001	0.00	0.03	0.01	0.00	0.15	0.01	0.01	0.00	0.004
1000157	28	12	4	152	12	11	0	4	0.08	0.03	0.01	0.42	0.03	0.03	0.0002	0.01	0.03	0.01	0.00	0.15	0.01	0.01	0.00	0.004
248884	58	26	8	319	26	24	0	7	0.16	0.07	0.02	0.87	0.07	0.07	0.0005	0.02	0.04	0.02	0.01	0.23	0.02	0.02	0.00	0.005
248884	58	26	8	319	26	24	0	7	0.16	0.07	0.02	0.87	0.07	0.07	0.0005	0.02	0.04	0.02	0.01	0.23	0.02	0.02	0.00	0.005
599	45	13	547	45	41	13	0	13	0.27	0.12	0.04	1.50	0.12	0.11	0.0008	0.03	0.04	0.02	0.01	0.11	0.02	0.02	0.00	0.008
599	45	13	547	45	41	13	0	13	0.27	0.12	0.04	1.50	0.12	0.11	0.0008	0.03	0.04	0.02	0.01	0.11	0.02	0.02	0.00	0.008
WAB7418	6	2	1	30	2	2	0	1	0.02	0.01	0.00	0.08	0.01	0.01	0.0000	0.00	0.04	0.02	0.01	0.24	0.02	0.02	0.00	0.006
WAB7418	6	2	1	30	2	2	0	1	0.02	0.01	0.00	0.08	0.01	0.01	0.0000	0.00	0.04	0.02	0.01	0.24	0.02	0.02	0.00	0.006
CF8277SM	133	60	18	729	60	55	0	17	0.36	0.16	0.05	2.00	0.16	0.15	0.0011	0.05	0.06	0.02	0.01	0.30	0.02	0.02	0.00	0.007
CF8277SM	133	60	18	729	60	55	0	17	0.36	0.16	0.05	2.00	0.16	0.15	0.0011	0.05	0.06	0.02	0.01	0.30	0.02	0.02	0.00	0.007
ET	235	106	32	1,295	106	97	1	30	0.64	0.29	0.09	5.55	0.29	0.27	0.0019	0.08	0.06	0.02	0.01	0.30	0.02	0.02	0.00	0.007
ET	235	106	32	1,295	106	97	1	30	0.64	0.29	0.09	5.55	0.29	0.27	0.0019	0.08	0.06	0.02	0.01	0.30	0.02	0.02	0.00	0.007
609626	55	25	7	304	25	23	0	7	0.15	0.07	0.02	0.83	0.07	0.06	0.0005	0.02	0.06	0.02	0.01	0.30	0.02	0.02	0.00	0.007
609626	55	25	7	304	25	23	0	7	0.15	0.07	0.02	0.83	0.07	0.06	0.0005	0.02	0.06	0.02	0.01	0.30	0.02	0.02	0.00	0.007
1132413	50	22	21	624	22	21	0	6	0.16	0.06	0.04	0.73	0.06	0.06	0.0004	0.02	0.02	0.02	0.01	0.30	0.02	0.02	0.00	0.007
1132413	50	22	21	624	22	21	0	6	0.16	0.06	0.04	0.73	0.06	0.06	0.0004	0.02	0.02	0.02	0.01	0.30	0.02	0.02	0.00	0.007
579584	55	25	7	304	25	23	0	7	0.15	0.07	0.02	0.83	0.07	0.06	0.0005	0.02	0.06	0.02	0.01	0.30	0.02	0.02	0.00	0.007
579584	55	25	7	304	25	23	0	7	0.15	0.07	0.02	0.83	0.07	0.06	0.0005	0.02	0.06	0.02	0.01	0.30	0.02	0.02	0.00	0.007
65047	193	87	26	1,064	87	80	1	25	0.53	0.24	0.07	2.91	0.24	0.22	0.0016	0.07	0.06	0.02	0.01	0.30	0.02	0.02	0.00	0.007
65047	193	87	26	1,064	87	80	1	25	0.53	0.24	0.07	2.91	0.24	0.22	0.0016	0.07	0.06	0.02	0.01	0.30	0.02	0.02	0.00	0.007

San Pedro Waterfront

386271	2,462	492	443	16,084	492	453	10	421	6.74	1.35	1.21	44.07	1.35	1.24	0.0270	1.15	0.37	0.07	0.07	2.44	0.07	0.07	0.00	0.064
295420	1,399	280	252	9,139	280	257	6	239	3.83	0.77	0.69	25.04	0.77	0.71	0.0153	0.66	0.39	0.08	0.07	2.54	0.08	0.07	0.00	0.066
295420	1,399	280	252	9,139	280	257	6	239	3.83	0.77	0.69	25.04	0.77	0.71	0.0153	0.66	0.39	0.08	0.07	2.54	0.08	0.07	0.00	0.066
D000127	414	83	75	2,708	83	76	2	71	1.14	0.23	0.20	7.42	0.23	0.21	0.0045	0.19	0.41	0.08	0.07	2.71	0.08	0.08	0.00	0.071
1000211	497	99	90	3,249	99	92	2	85	1.36	0.27	0.25	8.90	0.27	0.25	0.0055	0.23	0.41	0.08	0.07	2.71	0.08	0.08	0.00	0.071
1000211	497	99	90	3,249	99	92	2	85	1.36	0.27	0.25	8.90	0.27	0.25	0.0055	0.23	0.41	0.08	0.07	2.71	0.08	0.08	0.00	0.071
ET	1,986	397	358	12,977	397	365	8	340	5.44	1.09	0.98	35.55	1.09	1.00	0.0218	0.93	0.47	0.09	0.08	3.05	0.09	0.09	0.00	0.080
ET	1,986	397	358	12,977	397	365	8	340	5.44	1.09	0.98	35.55	1.09	1.00	0.0218	0.93	0.47	0.09	0.08	3.05	0.09	0.09	0.00	0.080
566919	2,487	149	134	3,382	149	137	3	128	6.81	0.41	0.37	9.27	0.41	0.38	0.0082	0.35	1.04	0.06	0.06	1.41	0.06	0.06	0.00	0.053
566919	2,487	149	134	3,382	149	137	3	128	6.81	0.41	0.37	9.27	0.41	0.38	0.0082	0.35	1.04	0.06	0.06	1.41	0.06	0.06	0.00	0.053
1000037	93	25	17	622	25	23	0	16	0.26	0.07	0.05	1.70	0.07	0.06	0.0010	0.04	0.12	0.03	0.02	0.83	0.03	0.03	0.00	0.021
1000037	93	25	17	622	25	23	0	16	0.26	0.07	0.05	1.70	0.07	0.06	0.0010	0.04	0.12	0.03	0.02	0.83	0.03	0.03	0.00	0.021
1000037	3,730	448	403	19,396	448	412	9	383	10.22	1.23	1.10	53.14	1.23	1.13	0.0245	1.05	3.11	0.37	0.34	16.16	0.37	0.34	0.01	0.319
1000037	3,730	448	403	19,396	448	412	9	383	10.22	1.23	1.10	53.14	1.23	1.13	0.0245	1.05	3.11	0.37	0.34	16.16	0.37	0.34	0.01	0.319
D965020	19	8	3	91	8	8	0	2	0.05	0.02	0.01	0.25	0.02	0.02	0.0002	0.01	0.02	0.01	0.00	0.12	0.01	0.01	0.00	0.003
D965020	19	8	3	91	8	8	0	2	0.05	0.02	0.01	0.25	0.02	0.02	0.0002	0.01	0.02	0.01	0.00	0.12	0.01	0.01	0.00	0.003
D948896	19	8	3	91	8	8	0	2	0.05	0.02	0.01	0.25	0.02	0.02	0.0002	0.01	0.02	0.01	0.00	0.12	0.01	0.01	0.00	0.003
D948896	19	8	3	91	8	8	0	2	0.05	0.02	0.01	0.25	0.02	0.02	0.0002	0.01	0.02	0.01	0.00	0.12	0.01	0.01	0.00	0.003
D1020244	39	9	6	223	9	8	0	6	0.11	0.02	0.02	0.61	0.02	0.02	0.0004	0.02	0.05	0.01	0.01	0.30	0.01	0.01	0.00	0.008
D1020244	39	9	6	223	9	8	0	6	0.11	0.02	0.02	0.61	0.02	0.02	0.0004	0.02	0.05	0.01	0.01	0.30	0.01	0.01	0.00	0.008
WCZ3442	39	9	6	223	9	8	0	6	0.11	0.02	0.02	0.61	0.02	0.02	0.0004	0.02	0.05	0.01	0.01	0.30	0.01	0.01	0.00	0.008
WCZ3442	39	9	6	223	9	8	0	6	0.11	0.02	0.02	0.61	0.02	0.02	0.0004	0.02	0.05	0.01	0.01	0.30	0.01	0.01	0.00	0.008
D907138	84	20	13	482	20	18	0	13	0.23	0.05	0.04	1.32	0.05	0.05	0.0008	0.03	0.11	0.03	0.02	0.64	0.03	0.02	0.00	0.017
D907138	84	20	13	482	20	18	0	13	0.23	0.05	0.04	1.32	0.05	0.05	0.0008	0.03	0.11	0.03	0.02	0.64	0.03	0.02	0.00	0.017
D907138	3,730	448	403	14,622	448	412	9	383	10.22	1.23	1.10	40.06	1.23	1.13	0.0245	1.05	3.11	0.37	0.34	12.18	0.37	0.34	0.01	0.319
D907138	3,730	448	403	14,622	448	412	9	383	10.22	1.23	1.10	40.06	1.23	1.13	0.0245	1.05	3.11	0.37	0.34	12.18	0.37	0.34	0.01	0.319
4766	4766	572	515	18,683	572	526	11	489	13.06	1.57	1.41	51.19	1.57	1.44	0.0313	1.34	3.97	0.48	0.43	15.57	0.48	0.44	0.01	0.407
WCZ3442	4766	572	515	18,683	572	526	11	489	13.06	1.57	1.41	51.19	1.57	1.44	0.0313	1.34	3.97	0.48	0.43	15.57	0.48	0.44	0.01	0.407
D965020	8,289	497	448	11,273	497	458	10	425	22.71	1.36	1.23	30.89	1.36	1.25	0.0273	1.16	6.91	0.41	0.37	9.39	0.41	0.38	0.01	0.354
D965020	8,289	497	448	11,273	497	458	10	425	22.71	1.36	1.23	30.89	1.36	1.25	0.0273	1.16	6.91	0.41	0.37	9.39	0.41	0.38	0.01	0.354
D1020244	9,532	572	515	12,964	572	526	11	489	26.12	1.57	1.41	35.52	1.57	1.44	0.0313	1.34	7.94	0.48	0.43	10.80	0.48	0.44	0.01	0.407
D1020244	9,532	572	515	12,964	572	526	11	489	26.12	1.57	1.41	35.52	1.57	1.44	0.0313	1.34	7.94	0.48	0.43	10.80	0.48	0.44	0.01	0.407
1109985	9,532	572	515	12,964	572	526	11	489	26.12	1.57	1.41	35.52	1.57	1.44	0.0313	1.34	7.94	0.48	0.43	10.80	0.48	0.44	0.01	0.407
1109985	9,532	572	515	12,964	572	526	11	489	26.12	1.57	1.41	35.52	1.57	1.44	0.0313	1.34	7.94	0.48	0.43	10.80	0.48	0.44	0.01	0.407
1109985	5,958	357	322	8,103	357	329	7	306	16.32	0.98	0.88	22.20	0.98	0.90	0.0196	0.84	7.94	0.48	0.43	10.80	0.48	0.44	0.01	0.407
1109985	5,958	357	322	8,103	357	329	7	306	16.32	0.98	0.88	22.20	0.98	0.90	0.0196	0.84	7.94	0.48	0.43	10.80	0.48	0.44	0.01	0.407
1109985	9,532	572	515	12,964	572	526	11	489	26.12	1.57	1.41	35.52	1.57	1.44	0.0313	1.34	7.94	0.48	0.43	10.80	0.48	0.44	0.01	0.407
D948896	9,532	572	515	12,964	572	526	11	489	26.12	1.57	1.41	35.52	1.57	1.44	0.0313	1.34	7.94	0.48	0.43	10.80	0.48	0.44	0.01	0.407
D948896	9,532	572	515	12,964	572	526	11	489	26.12	1.57	1.41	35.52	1.57	1.44	0.0313	1.34	7.94	0.48	0.43	10.80	0.48	0.44	0.01	0.407
CGB1	41	11	7	270	11	10	0	7	0.11	0.03	0.02	0.74	0.03	0.03	0.0004	0.02	0.14	0.04	0.02	0.90	0.04	0.03	0.00	0.023
CGB1	41	11	7	270	11	10	0	7	0.11	0.03	0.02	0.74	0.03	0.03	0.0004	0.02	0.14	0.04	0.02	0.90	0.04	0.03	0.00	0.023
FB1	34	9	6	229	9	8	0	6	0.09	0.03	0.02	0.63	0.03	0.02	0.0004	0.02	0.19	0.05	0.03	1.27	0.05	0.05	0.00	0.033
FB1	34	9	6	229	9	8	0	6	0.09	0.03	0.02	0.63	0.03	0.02	0.0004	0.02	0.19	0.05	0.03	1.27	0.05	0.05	0.00	0.033
FB2	11	2	2	71	2	2	0	2	0.03	0.01	0.01	0.19	0.01	0.01	0.0001	0.00	0.21	0.04	0.04	1.41	0.04	0.01	0.00	0.036
FB2	11	2	2	71	2	2	0	2	0.03	0.01	0.01	0.19	0.01	0.01	0.0001	0.00	0.21	0.04	0.04	1.41	0.04	0.01	0.00	0.036
FB4	8	2	2	57	2	2	0	1	0.02	0.00	0.00	0.16	0.00	0.00	0.0001	0.00	0.42	0.08	0.08	2.83	0.08	0.08	0.00	0.073
FB4	8	2	2	57	2	2	0	1	0.02	0.00	0.00	0.16	0.00	0.00	0.0001	0.00	0.42	0.08	0.08	2.83	0.08	0.08	0.00	0.073
CGB5	94	25	17	629	25	23	0	16	0.26	0.07	0.05	1.72	0.07	0.06	0.0010	0.04	0.19	0.05	0.03	1.26	0.05	0.05	0.00	0.032
CGB5	94	25	17	629	25	23	0	16	0.26	0.07	0.05	1.72	0.07	0.06	0.0010	0.04	0.19	0.05	0.03	1.26	0.05	0.05	0.00	0.032
PB1	189	38	34	1,258	38	35	1	32	0.52	0.10	0.09	3.45	0.10	0.10	0.0021	0.09	0.38	0.08	0.07	2.52	0.08	0.07	0.00	0.065
PB1	189	38	34	1,258	38	35	1	32	0.52	0.10	0.09	3.45	0.10	0.10	0.0021	0.09	0.38	0.08	0.07	2.52	0.08	0.07	0.00	0.065
CGB2	240	48	43	1,600	48	44	1	41	0.66	0.13	0.12	4.38	0.13	0.12	0.0026	0.11	0.40	0.08	0.07	2.67	0.08	0.07	0.00	0.068
CGB2	240	48	43	1,600	48	44	1	41	0.66	0.13	0.12	4.38	0.13	0.12	0.0026	0.11	0.40	0.08	0.07	2.67	0.08	0.07	0.00	0.068
CGB4	240	48	43	1,600	48	44	1	41	0.66	0.13	0.12	4.38	0.13	0.12	0.0026	0.11	0.40	0.08	0.07	2.67	0.08	0.07	0.00	0.068
CGB4	240	48	43	1,600	48	44	1	41	0.66	0.13	0.12	4.38	0.13	0.12	0.0026	0.11	0.40	0.08	0.07	2.67	0.08	0.07	0.00	0.068
FB1	249	50	45	1,661	50																			

San Pedro Waterfront

Cruise Ship Operations												
	2006-2009	Proposed Project					Alt. 1				Alt. 2	
		2011	2015	2022	2037	2011	2015	2022	2037	2011	2015	
Total Cruise ship calls (annual)	258	269	275	282	287	269	275	275	275	269	275	
Total Cruise ship calls (monthly avg.)	22	22	23	23	24	22	23	23	23	22	23	
Total Peak monthly calls	36	38	38	39	40	38	38	38	38	38	38	
IMO Ships	116	142	161	190	215	142	161	190	213	142	161	
Non-IMO Ships	142	127	114	92	72	127	114	85	62	127	114	
Inner harbor (Berths 87-90, 91-92, and 93)												
Inner Harbor Ship Calls (annual)	258	269	138	141	144	269	183	183	183	269	138	
Inner Harbor Ship Calls (peak monthly)	36	38	19	20	20	38	25	25	25	38	19	
Outer harbor (Berths 45-47 and 49-50)												
Outer Harbor Ship Calls (annual)	0	0	138	141	144	0	92	92	92	0	138	
Outer Harbor Ship Calls (peak monthly)	0	0	19	20	20	0	13	13	13	0	19	
Average Day Scenario	2											
Maximum Day Scenario												
Inner Harbor Berths	3	3	2	2	2	3	2	2	2	3	2	
Type 1 Vessel	3											
Type 2 Vessel		3	1	1	1	3	1	1	1	3	1	
Type 3 Vessel			1	1	1		1	1	1		1	
Outer Harbor Berths	0	0	2	2	2	0	1	1	1	0	2	
Type 1 Vessel												
Type 2 Vessel												
Type 3 Vessel			2	2	2	0	1	1	1	0	2	

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		Alt. 3				Alt. 4				Alt. 5 (NEPA Baseline)				Alt. 6 (No Project)			
2022	2037	2011	2015	2022	2037	2011	2015	2022	2037	2011	2015	2022	2037	2011	2015	2022	2037
282	287	269	275	275	275	269	275	275	275	269	275	275	275	269	275	275	275
23	24	22	23	23	23	22	23	23	23	22	23	23	23	22	23	23	23
39	40	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
190	215	142	161	190	213	142	161	190	213	142	161	190	213	142	161	190	213
92	72	127	114	85	62	127	114	85	62	127	114	85	62	127	114	85	62
141	144	269	183	183	183	269	275	275	275	269	275	275	275	269	275	275	275
20	20	38	25	25	25	38	38	38	38	38	38	38	38	38	38	38	38
141	144	0	92	92	92	0	0	0	0	0	0	0	0	0	0	0	0
20	20	0	13	13	13	0	0	0	0	0	0	0	0	0	0	0	0
2	2	3	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3
1	1	3	1	1	1	3	3	3	3	3	3	3	3	3	3	3	3
1	1		1	1	1		0	0	0		0	0	0		0	0	0
2	2	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
2	2	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0

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<i>OGV Trip by Route</i> ⁽²⁾		Percent of Total
North-Bound Trips	12	2.9%
South-Bound Trips	401	97.1%
Total	413	

<i>OGVs per Day - Average</i>	
North-Bound Trips	0.03
South-Bound Trips	1.10

<i>OGV Activity</i>	<i>ships</i>	<i>days</i>
	0	167
	1	148
	2	41
	3	8

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IMO Ships												
	Cruise Ships in 2006 ⁽³⁾	Year	Project: Total Ships	Project: IMO Ships	Project: Non-IMO Ships	% IMO Ships	Alt. 1: Total Ships	Alt. 1: IMO Ships	Alt. 1: Non-IMO Ships	% IMO Ships	Alt. 2: Total Ships	Alt. 2: IMO Ships
		2006	258	116	142	45%	258	116	142	45%	258	116
		2007	258	122	136	47%	258	122	136	47%	258	122
		2008	258	127	131	49%	258	127	131	49%	258	127
		2009	258	132	126	51%	258	132	126	51%	258	132
		2010	258	137	121	53%	258	137	121	53%	258	137
Cruise Ships in 2011 ⁽⁴⁾		2011	269	142	127	53%	269	142	127	53%	269	142
		2012	269	147	122	55%	269	147	122	55%	269	147
		2013	269	152	117	57%	269	152	117	57%	269	152
		2014	269	157	112	58%	269	157	112	58%	269	157
Cruise Ships in 2015 ⁽⁴⁾		2015	275	161	114	59%	275	161	114	59%	275	161
		2016	275	166	109	60%	275	166	109	60%	275	166
		2017	275	170	105	62%	275	170	105	62%	275	170
		2018	275	174	101	63%	275	174	101	63%	275	174
		2019	275	179	96	65%	275	179	96	65%	275	179
		2020	275	182	93	66%	275	182	93	66%	275	182
		2021	275	186	89	68%	275	186	89	68%	275	186
Cruise Ships in 2022 ⁽⁴⁾		2022	282	190	92	67%	275	190	85	69%	282	190
		2023	282	193	89	69%	275	193	82	70%	282	193
		2024	282	197	85	70%	275	196	79	71%	282	197
		2025	282	200	82	71%	275	199	76	73%	282	200
		2026	282	204	78	72%	275	202	73	74%	282	204
		2027	282	207	75	73%	275	205	70	75%	282	207
		2028	282	210	72	74%	275	208	67	76%	282	210
		2029	282	213	69	75%	275	211	64	77%	282	213
Cruise Ships in 2037 ⁽⁴⁾		2037	287	215	72	75%	275	213	62	78%	287	215

Percentage of IMO-compliant Vessels (NOx standard for 2000

model year ships)⁽¹⁾ 45%

Annual OGV fleet turnover rate: 4%

Reference:

(1) 2006 IMO vessel count is based on information provided by Starcrest. A 4% annual fleet turnover rate was assumed for future project and alternative years.

(2) OGV trip direction statistics were provided by Starcrest. Sam Wells, Starcrest, February 2008.

(3) 2006 cruise ship call information provided by Starcrest, Guiselle Aldrete. 02/2008. The data was based on data from Marine Exchange.

(4) Traffic study performed for project

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Alt.2: Non-IMO Ships % IMO Ships		Alt. 3: Total Ships	Alt. 3: IMO Ships	Alt.3: Non-IMO Ships % IMO Ships		Alt. 4: Total Ships	Alt. 4: IMO Ships	Alt.4: Non-IMO Ships % IMO Ships		Alt. 5: Total Ships	Alt. 5: IMO Ships	Alt.5: Non-IMO Ships % IMO Ships		Alt. 6: Total Ships	Alt. 6: IMO Ships	Alt.6: Non-IMO Ships % IMO Ships	
142	45%	258	116	142	45%	258	116	142	45%	258	116	142	45%	258	116	142	45%
136	47%	258	122	136	47%	258	122	136	47%	258	122	136	47%	258	122	136	47%
131	49%	258	127	131	49%	258	127	131	49%	258	127	131	49%	258	127	131	49%
126	51%	258	132	126	51%	258	132	126	51%	258	132	126	51%	258	132	126	51%
121	53%	258	137	121	53%	258	137	121	53%	258	137	121	53%	258	137	121	53%
127	53%	269	142	127	53%	269	142	127	53%	269	142	127	53%	269	142	127	53%
122	55%	269	147	122	55%	269	147	122	55%	269	147	122	55%	269	147	122	55%
117	57%	269	152	117	57%	269	152	117	57%	269	152	117	57%	269	152	117	57%
112	58%	269	157	112	58%	269	157	112	58%	269	157	112	58%	269	157	112	58%
114	59%	275	161	114	59%	275	161	114	59%	275	161	114	59%	275	161	114	59%
109	60%	275	166	109	60%	275	166	109	60%	275	166	109	60%	275	166	109	60%
105	62%	275	170	105	62%	275	170	105	62%	275	170	105	62%	275	170	105	62%
101	63%	275	174	101	63%	275	174	101	63%	275	174	101	63%	275	174	101	63%
96	65%	275	179	96	65%	275	179	96	65%	275	179	96	65%	275	179	96	65%
93	66%	275	182	93	66%	275	182	93	66%	275	182	93	66%	275	182	93	66%
89	68%	275	186	89	68%	275	186	89	68%	275	186	89	68%	275	186	89	68%
92	67%	275	190	85	69%	275	190	85	69%	275	190	85	69%	275	190	85	69%
89	69%	275	193	82	70%	275	193	82	70%	275	193	82	70%	275	193	82	70%
85	70%	275	196	79	71%	275	196	79	71%	275	196	79	71%	275	196	79	71%
82	71%	275	199	76	73%	275	199	76	73%	275	199	76	73%	275	199	76	73%
78	72%	275	202	73	74%	275	202	73	74%	275	202	73	74%	275	202	73	74%
75	73%	275	205	70	75%	275	205	70	75%	275	205	70	75%	275	205	70	75%
72	74%	275	208	67	76%	275	208	67	76%	275	208	67	76%	275	208	67	76%
69	75%	275	211	64	77%	275	211	64	77%	275	211	64	77%	275	211	64	77%
72	75%	275	213	62	78%	275	213	62	78%	275	213	62	78%	275	213	62	78%

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Vessel Characteristics			
OGV Vessel Maximum Size	Type 1	Type 2	Type 3
Berth Description	Inner Harbor Berths (Baseline 2006 ⁽¹⁾) Diesel-Electric	Inner Harbor Berths (Project 2009-2037 ⁽²⁾) Diesel-Electric	Outer Harbor Berths and One Inner Harbor Berth (Project 2013-2037 ⁽³⁾) Diesel-Electric
Maximum Rated Speed (knots)		23	23
<i>Total Available Power</i>			
Single Engine power rating (kW)		11,700	12,600
Number of Engines		5	6
Total Rated Power (kW)		58,500	75,600
Assumed Efficiency Loss		2.4%	2.4%
Total Available Power (kW)	40,914	57,096	73,786
<i>Propulsion Power Requirement</i>			
Single Propulsion Engine power rating (kW)		20,100	14,000
Number of Propulsion Engines		2	3
Total Available Power for Propulsion (kW)	30,330	46,050	54,000
<i>Maneuvering/Docking Power Requirement</i>			
Bow Thruster power rating (kW)		1,170	3,000
Number of Bow Thrusters		5	4
Total Available Power for Maneuvering/Docking (kW)		5,850	12,000
<i>Hoteling/Auxiliary Systems</i>			
Total Available Power for Hoteling/Auxiliary (kW)⁽⁴⁾	10,584	11,046	12,000
<i>Boiler</i>			
Boiler rating (kW)	1,000	1,000	1,000
References:			
(1) Starcrest 2005 cruise ship vessel data provided to Jones & Stokes; per Starcrest the 2006 fleet was the same as for 2005.			
(2) Vessel characteristics provided by POLA to Jones & Stokes (based on Vision Legend of the Seas or similar cruise ship).			
(3) Vessel characteristics provided by POLA and B&A to Jones & Stokes (based on Voyager Adventure of the Seas or similar cruise ship).			
(4) Hotelling load for Type 3 ship was provided by vessel operators. The available power for hotelling is approximately 19,786 kW, but the actual needed and used power is only 12,000 kW (maximum and average). Source: Royal Caribbean electrical operator for Mariner Voyager vessel.			

San Pedro Waterfront

Special Vessel Activity & Engine Load Factors

No VSRP										
	Speed (knots)	VSRP Speed (knots)	North Route Distance (nm)	South Route Distance (nm)	Northbound Travel Time (hrs per one-way trip)	Southbound Travel Time (hrs per one-way trip)	Propulsion Load: no VSRP	Auxiliary Load	Boiler Load ⁽⁷⁾	Ref.
Maximum Rated Speed	23									
Sea / Fairway Zone - 20 nm from Point Fermin to SCAB Boundary ^{(3),(4)}	21.5	12	18.2	23	0.85	1.07	82%	64%	0%	(2)
Fairway Zone - 20 nm ^{(3),(4)}	18	12	21.8	11	1.21	0.61	48%	64%	0%	(2)
Precautionary Zone ^{(3),(4)}	12	12	7.5	8.5	0.63	0.71	14%	64%	100%	(2)
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	5	5	1.1	1.1	0.22	0.22	3.1%	80%	100%	(1),(2)
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽⁶⁾	8	8	2.2	2.2	0.28	0.28	3.1%	80%	100%	(2)
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	5	5	1.6	1.6	0.32	0.32	3.1%	80%	100%	(2)
Hoteling	0	0	0	0	12	12	0.0%	64%	100%	(2)

Baseline: 59% VSRP Compliance to 20 nm										
	Speed (knots)	VSRP Speed (knots)	North Route Distance (nm)	South Route Distance (nm)	Northbound Travel Time (hrs per one-way trip)	Southbound Travel Time (hrs per one-way trip)	Propulsion Load	Auxiliary Load	Boiler Load ⁽⁷⁾	
Maximum Rated Speed	23									
Sea / Fairway Zone - 20 nm from Point Fermin to SCAB Boundary ^{(3),(4)}	21.5	12	18.2	23	0.85	1.07	82%	64%	0%	
Fairway Zone - 20 nm ^{(3),(4)}	18	12	21.8	11	1.57	0.79	28%	64%	0%	
Precautionary Zone ^{(3),(4)}	12	12	7.5	8.5	0.63	0.71	14%	64%	100%	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	5	5	1.1	1.1	0.22	0.22	3%	80%	100%	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽⁶⁾	8	8	2.2	2.2	0.28	0.28	3%	80%	100%	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	5	5	1.6	1.6	0.32	0.32	3%	80%	100%	
Hoteling	0	0	0	0	12	12	0%	64%	100%	

Unmitigated Project: No VSRP Compliance										
	Speed (knots)	VSRP Speed (knots)	North Route Distance (nm)	South Route Distance (nm)	Northbound Travel Time (hrs per one-way trip)	Southbound Travel Time (hrs per one-way trip)	Propulsion Load	Auxiliary Load	Boiler Load ⁽⁷⁾	
Maximum Rated Speed	23									
Sea / Fairway Zone - 20 nm from Point Fermin to SCAB Boundary ^{(3),(4)}	21.5	12	18.2	23	0.85	1.07	82%	64%	0%	
Fairway Zone - 20 nm ^{(3),(4)}	18	12	21.8	11	1.21	0.61	48%	64%	0%	
Precautionary Zone ^{(3),(4)}	12	12	7.5	8.5	0.63	0.71	14%	64%	100%	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	5	5	1.1	1.1	0.22	0.22	3%	80%	100%	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽⁶⁾	8	8	2.2	2.2	0.28	0.28	3%	80%	100%	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	5	5	1.6	1.6	0.32	0.32	3%	80%	100%	
Hoteling	0	0	0	0	12	12	0%	64%	100%	

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Unmitigated Project: 80% VSRP Compliance to 20 nm									
	Speed (knots)	VSRP Speed (knots)	North Route Distance (nm)	South Route Distance (nm)	Northbound Travel Time (hrs per one-way trip)	Southbound Travel Time (hrs per one-way trip)	Propulsion Load	Auxiliary Load	Boiler Load ⁽⁷⁾
Maximum Rated Speed	23								
Sea / Fairway Zone - 20 nm from Point Fermin to SCAB Boundary ^{(3),(4)}	21.5	12	18.2	23	0.85	1.07	82%	64%	0%
Fairway Zone - 20 nm ^{(3),(4)}	18	12	21.8	11	1.70	0.86	21%	64%	0%
Precautionary Zone ^{(3),(4)}	12	12	7.5	8.5	0.63	0.71	14%	64%	100%
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	5	5	1.1	1.1	0.22	0.22	3%	80%	100%
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽⁶⁾	8	8	2.2	2.2	0.28	0.28	3%	80%	100%
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	5	5	1.6	1.6	0.32	0.32	3%	80%	100%
Hoteling	0	0	0	0	12	12	0%	64%	100%

Mitigated Project: 30% VSRP Compliance to 40 nm for Vessels Using Inner Harbor Berths; 100% VSRP Compliance to 20 nm 2009-2011									
	Speed (knots)	VSRP Speed (knots)	North Route Distance (nm)	South Route Distance (nm)	Northbound Travel Time (hrs per one-way trip)	Southbound Travel Time (hrs per one-way trip)	Propulsion Load	Auxiliary Load	Boiler Load ⁽⁷⁾
Maximum Rated Speed	23								
Sea / Fairway Zone - 20 nm from Point Fermin to SCAB Boundary ^{(3),(4)}	21.5	12	18.2	23	1.05	1.32	61%	64%	0%
Fairway Zone - 20 nm ^{(3),(4)}	18	12	21.8	11	1.82	0.92	14%	64%	0%
Precautionary Zone ^{(3),(4)}	12	12	7.5	8.5	0.63	0.71	14%	64%	100%
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	5	5	1.1	1.1	0.22	0.22	3%	80%	100%
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽⁶⁾	8	8	2.2	2.2	0.28	0.28	3%	80%	100%
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	5	5	1.6	1.6	0.32	0.32	3%	80%	100%
Hoteling	0	0	0	0	12	12	0%	64%	100%

Mitigated Project: 100% VSRP Compliance to 40 nm 2013-2037									
	Speed (knots)	VSRP Speed (knots)	North Route Distance (nm)	South Route Distance (nm)	Northbound Travel Time (hrs per one-way trip)	Southbound Travel Time (hrs per one-way trip)	Propulsion Load	Auxiliary Load	Boiler Load ⁽⁷⁾
Maximum Rated Speed	23								
Sea / Fairway Zone - 20 nm from Point Fermin to SCAB Boundary ^{(3),(4)}	21.5	12	18.2	23	1.52	1.92	14%	64%	0%
Fairway Zone - 20 nm ^{(3),(4)}	18	12	21.8	11	1.82	0.92	14%	64%	0%
Precautionary Zone ^{(3),(4)}	12	12	7.5	8.5	0.63	0.71	14%	64%	100%
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	5	5	1.1	1.1	0.22	0.22	3%	80%	100%
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽⁶⁾	8	8	2.2	2.2	0.28	0.28	3%	80%	100%
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	5	5	1.6	1.6	0.32	0.32	3%	80%	100%
Hoteling	0	0	0	0	12	12	0%	64%	100%

1 knot = 1 nm / hr

Reference:

- (1) 2005 Port Inventory, Table 2.10 Composite Maneuvering Loads. *Starcrest, 2006*
- (2) Information provided by Starcrest, Sam Wells, 02/2008
- (3) Vessel speed information in fairway and precautionary zones was provided by Starcrest, Sam Wells, 02/2008
- (4) MAREX route distances were provided by Starcrest for the sea, fairway and precautionary zones, Sam Wells, 02/2008; Route distances for outer and inner harbor were measured from nautical charts, Jerry Aspland, 02/2008.
- (5) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (6) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (7) Boiler load information was provided by Starcrest, Sam Wells, 2/2008

OGV Fleet Turnover

Year	IMO vessels	non-IMO vessels
2006	45%	55%
2009	52%	48%
2011	55%	45%
2015	63%	37%
2037	96%	4%

OGV Fleet Turnover is 4% annually,
 Johanna Wahlström, Niko Karvosenoja and Petri
 Porvari. Ship Emissions and Technical Emission
 Reduction Potential in the Northern Baltic Sea. 2006.

AMP Mitigation

Year	Inner Harbor Berths		Outer Harbor Berths	
	% Compliance	Effective Emissions Reduction ₍₁₎	% Compliance	Effective Emissions Reduction
2009	30%	28%		
2013+	80%	73%	97%	89%

(1) Assumes that a vessels takes 1 hour total out of 12 for tie-up/untie 91.7%

Peak scenario assumes half of vessels in years 2013+ comply with AMP mitigation.

**AMP Mitigation
for Peak Hour**

Year	Inner Harbor Berths		Outer Harbor Berths	
	% Compliance	Effective Emissions Reduction ₍₁₎	% Compliance	Effective Emissions Reduction
2009	100%	92%		
2013+	100%	92%	100%	92%

(1) Assumes that a vessels takes 1 hour total out of 12 for tie-up/untie 91.7%

Peak scenario assumes half of vessels in years 2013+ comply with AMP mitigation.

San Pedro Waterfront

2005 and 2006 OGV Emission Factors⁽¹⁾ (g/kW-hr)

Unmitigated

Engine Category		MY Range		CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x
2005	OGV-Main-Slow	0	1999	1.4	1.5	0.6	18.1	1.5	1.2	10.5
	OGV-Main-Medium	0	1999	1.1	1.5	0.5	14	1.5	1.2	11.5
	OGV-Main-Steam	0	2040	0.2	0	0.1	2.1	0.8	0.64	16.5
	OGV-Aux-Medium	0	1999	1.1	1.5	0.4	14.7	1.5	1.2	12.3
	OGV-Aux-High	0	1999	0.9	1.5	0.4	12.7	1.5	1.2	12.3
	OGV-Main-Gas-Turbine	0	2040	0.2	0	0.1	6.1	0.05	0.04	16.5
	OGV-Main-Slow-IMO	2000	2040	1.4	1.5	0.6	17	1.5	1.2	10.5
	OGV-Main-Medium-IMO	2000	2040	1.1	1.5	0.5	13	1.5	1.2	11.5
	OGV-Aux-Medium-IMO	2000	2040	1.1	1.5	0.4	13	1.5	1.2	12.3
OGV-Aux-High-IMO	2000	2040	0.9	1.5	0.4	9.8	1.5	1.2	12.3	
2006	OGV-Main-Slow	0	1999	1.4	1	0.6	18.1	1	0.8	10.5
	OGV-Main-Medium ⁽²⁾	0	1999	1.1	1.5	0.5	14.0	1.5	1.2	11.5
	OGV-Main-Steam	0	2040	0.2	0	0.1	2.1	0.8	0.64	16.5
	OGV-Aux-Medium	0	1999	1.1	1	0.4	14.7	1	0.8	12.3
	OGV-Aux-High	0	1999	0.9	1	0.4	12.7	1	0.8	12.3
	OGV-Main-Gas-Turbine	0	2040	0.2	0	0.1	6.1	0.05	0.04	16.5
	OGV-Main-Slow-IMO	2000	2040	1.4	1	0.6	17	1	0.8	10.5
	OGV-Main-Medium-IMO ⁽²⁾	2000	2040	1.1	1.5	0.5	13	1.5	1.5	11.5
	OGV-Aux-Medium-IMO	2000	2040	1.1	1	0.4	13	1	0.8	12.3
OGV-Aux-High-IMO	2000	2040	0.9	1	0.4	9.8	1	0.8	12.3	
<i>OGV-Main-Medium⁽²⁾</i>										
Worst case fuel	Residual Oil (4.5% S)			1.1	2.0	0.5	14	2.0	1.6	19.2
Current in-use average	Residual Oil (2.7% S)			1.1	1.5	0.5	14	1.5	1.2	11.5
Low sulfur fuel	MDO (0.5% S)			1.1	0.585	0.5	12.6	0.585	0.47	2.1
Low sulfur fuel	MGO (0.2% S)			1.1	0.54	0.5	12.6	0.54	0.43	0.85
Low sulfur fuel	MGO (0.1% S)			1.1	0.525	0.5	12.6	0.525	0.42	0.43
<i>OGV-Main-Medium-IMO⁽²⁾</i>										
Worst case fuel	Residual Oil (4.5% S)			1.1	2.0	0.5	13	2.0	1.6	19.2
Current in-use average	Residual Oil (2.7% S)			1.1	1.5	0.5	13	1.5	1.50	11.5
Low sulfur fuel	MDO (0.5% S)			1.1	0.59	0.5	11.7	0.59	0.59	2.1
Low sulfur fuel	MGO (0.2% S)			1.1	0.54	0.5	11.7	0.54	0.54	0.85
Low sulfur fuel	MGO (0.1% S)			1.1	0.53	0.5	11.7	0.53	0.53	0.43
<i>Boiler Emission Factors (g/kW-hr)</i>										
Worst case fuel	Residual Oil (4.5% S)			0.20	0	0.10	2.10	1.3	1.0	27.5
Current in-use average	Residual Oil (2.7% S)			0.20	0	0.10	2.10	0.80	0.64	16.50
Low sulfur fuel	MDO (0.5% S)			0.20	0	0.10	1.89	0.31	0.25	3.1
Low sulfur fuel	MGO (0.2% S)			0.20	0	0.10	1.89	0.29	0.23	1.2
Low sulfur fuel	MGO (0.1% S)			0.20	0	0.10	1.89	0.28	0.22	0.6

Reference:

Emission factors are based on residual fuel with an average sulfur content of 2.7%
 IMO refers to OGV propulsion standards established in Annex VI for NOx since year 2000

(1) Information provided by Starcrest, Guiselle Ardrete, 02/2008

(2) There is no differentiation between main propulsion and auxiliary engines on diesel-electric vessels. All power is provided by the same engines
 The more conservative main engine emission factors were used in calculations

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2009-2013 OGV Emission Factors ⁽¹⁾ (g/kW-hr)								
Mitigated								
		CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x
<i>OGV-Main-Medium⁽²⁾</i>								
Current in-use average	Residual Oil (2.7% S)	1.10	1.50	0.50	14.00	1.50	1.20	11.50
Low sulfur fuel	MDO (0.5% S)	1.10	1.23	0.50	13.58	1.23	0.98	8.69
Low sulfur fuel	MGO (0.2% S)	1.10	1.21	0.50	13.58	1.21	0.97	8.31
Low sulfur fuel	MGO (0.1% S)	1.10	1.21	0.50	13.58	1.21	0.97	8.18
<i>OGV-Main-Medium-IMO⁽²⁾</i>								
Current in-use average	Residual Oil (2.7% S)	1.10	1.50	0.50	13.00	1.50	1.50	11.50
Low sulfur fuel	MDO (0.5% S)	1.10	1.23	0.50	12.61	1.23	1.23	8.69
Low sulfur fuel	MGO (0.2% S)	1.10	1.21	0.50	12.61	1.21	1.21	8.31
Low sulfur fuel	MGO (0.1% S)	1.10	1.21	0.50	12.61	1.21	1.21	8.18
<i>Boiler Emission Factors (g/kW-hr)</i>								
Current in-use average	Residual Oil (2.7% S)	0.20	0.00	0.10	2.10	0.80	0.64	16.50
Low sulfur fuel	MDO (0.5% S)	0.20	0.00	0.10	2.04	0.65	0.52	12.47
Low sulfur fuel	MGO (0.2% S)	0.20	0.00	0.10	2.04	0.65	0.52	11.92
Low sulfur fuel	MGO (0.1% S)	0.20	0.00	0.10	2.04	0.64	0.52	11.73
Mitigation: Low Sulfur Fuel (0.2% S) to 40 nm in engines and boilers- 30%								
Peak scenario assumes all ships use 4.5% sulfur fuel 2009-2013 (mitigation does not apply for these years to peak scenario)								
Fuel Correction Factors for Ship Main Engines, Auxiliary Engines, Boilers (with Mitigation)								
Fuel Type	CO	DPM	VOC	NO _x	PM10	PM2.5	SO _x	
MGO (0.5% S)	1.00	0.82	1.00	0.97	0.82	0.82	0.76	
MGO (0.2% S)	1.00	0.81	1.00	0.97	0.81	0.81	0.72	
MGO (0.1% S)	1.00	0.81	1.00	0.97	0.81	0.81	0.71	

2013+ OGV Emission Factors ⁽¹⁾ (g/kW-hr)								
Mitigated - Inner & Outer Harbor Terminals								
		CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x
<i>OGV-Main-Medium(2)</i>								
Current in-use Residual Oil (2.7% S)		1.10	1.50	0.50	14.00	1.50	1.20	11.50
Low sulfur fuel MDO (0.5% S)		1.10	0.68	0.50	12.74	0.68	0.54	3.07
Low sulfur fuel MGO (0.2% S)		1.10	0.64	0.50	12.74	0.64	0.51	1.92
Low sulfur fuel MGO (0.1% S)		1.10	0.62	0.50	12.74	0.62	0.50	1.53
<i>OGV-Main-Medium-IMO(2)</i>								
Current in-use Residual Oil (2.7% S)		1.10	1.50	0.50	13.00	1.50	1.50	11.50
Low sulfur fuel MDO (0.5% S)		1.10	0.68	0.50	11.83	0.68	0.68	3.07
Low sulfur fuel MGO (0.2% S)		1.10	0.64	0.50	11.83	0.64	0.64	1.92
Low sulfur fuel MGO (0.1% S)		1.10	0.62	0.50	11.83	0.62	0.62	1.53
<i>Boiler Emission Factors (g/kW-hr)</i>								
Current in-use Residual Oil (2.7% S)		0.20	0.00	0.10	2.10	0.80	0.64	16.50
Low sulfur fuel MDO (0.5% S)		0.20	0.00	0.10	1.91	0.36	0.29	4.40
Low sulfur fuel MGO (0.2% S)		0.20	0.00	0.10	1.91	0.34	0.27	2.75
Low sulfur fuel MGO (0.1% S)		0.20	0.00	0.10	1.91	0.33	0.27	2.20
Mitigation: Low Sulfur Fuel (0.2% S) to 40 nm in engines and boiler 90%								
Peak scenario assumes half of ships use 2.7% sulfur fuel in 2013+								
Fuel Correction Factors for Ship Main Engines, Auxiliary Engines, Boilers (with Mitigation)								
Fuel Type	CO	DPM	VOC	NO _x	PM10	PM2.5	SO _x	
MGO (0.5% S)	1.00	0.45	1.00	0.91	0.45	0.45	0.27	
MGO (0.2% S)	1.00	0.42	1.00	0.91	0.42	0.42	0.17	
MGO (0.1% S)	1.00	0.42	1.00	0.91	0.42	0.42	0.13	

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Emission Factors for AMP Electricity Consumption

<i>Emission Source</i>	<i>CO</i>	<i>DPM</i>	<i>VOC</i>	<i>NOx</i>	<i>PM10</i>	<i>PM2.5</i>	<i>SOx</i>
Electricity Consumption Emissions (lb/MW-hr)	0.20	-	0.01	1.15	0.04	0.04	0.12

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

Fuel Correction Factors for Ship Main Engines, Auxiliary Engines, Boilers

<i>Fuel Type</i>	<i>CO</i>	<i>DPM</i>	<i>VOC</i>	<i>NOx</i>	<i>PM10</i>	<i>PM2.5</i>	<i>SOx</i>
HFO (1.5% S)	1.00	na	1.00	1.00	0.82	0.82	n/a
MDO (1.5% S)	1.00	na	1.00	0.90	0.47	0.47	n/a
MGO (0.5% S)	1.00	na	1.00	0.90	0.39	0.39	n/a
MGO (0.2% S)	1.00	na	1.00	0.90	0.36	0.36	n/a
MGO (0.1% S)	1.00	na	1.00	0.90	0.35	0.35	n/a

Source: 2005 EI Table 2.15. The factors for MGO (0.2% S) were interpolated from the 0.5% S and 0.1% S factors.

Fuel Correction Factors for Tugboat Main & Auxiliary Engines

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

Source: 2005 EI Table 3.8.

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Ports of Los Angeles and Long Beach DRAFT 2006 Harbor Craft Emission Factors							
2006 Harbor Craft (diesel engines) Emission Factors, g/kw-hr							
Power, minimum kW	Emission Factor, g/kW-hr						
	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x
<i>Tier 0 Engines⁽¹⁾</i>							
37	2.00	0.90	0.27	11.0	0.90	0.828	0.006
75	1.70	0.40	0.27	10.0	0.40	0.368	0.006
130	1.50	0.40	0.27	10.0	0.40	0.368	0.006
225	1.50	0.30	0.27	10.0	0.30	0.276	0.006
450	1.50	0.30	0.27	10.0	0.30	0.276	0.006
560	1.50	0.30	0.27	10.0	0.30	0.276	0.006
1,000	2.50	0.30	0.27	13.0	0.30	0.276	0.006
Category 2 engines	1.10	0.72	0.50	13.20	0.72	0.6624	0.006
<i>Tier 1 Engines⁽¹⁾</i>							
37	2.00	0.90	0.27	9.8	0.90	0.828	0.006
75	1.70	0.40	0.27	9.8	0.40	0.368	0.006
130	1.50	0.40	0.27	9.8	0.40	0.368	0.006
225	1.50	0.30	0.27	9.8	0.30	0.276	0.006
450	1.50	0.30	0.27	9.8	0.30	0.276	0.006
560	1.50	0.30	0.27	9.8	0.30	0.276	0.006
1,000	2.50	0.30	0.27	9.8	0.30	0.276	0.006
Category 2 engines	1.10	0.72	0.50	9.8	0.72	0.6624	0.006
<i>Tier 2 Engines⁽¹⁾</i>							
37	5.00	0.40	0.27	6.8	0.40	0.368	0.006
75	5.00	0.30	0.27	6.8	0.30	0.276	0.006
130	5.00	0.30	0.27	6.8	0.30	0.276	0.006
225	5.00	0.30	0.27	6.8	0.30	0.276	0.006
450	5.00	0.30	0.27	6.8	0.30	0.276	0.006
560	5.00	0.30	0.27	6.8	0.30	0.276	0.006
1,000	5.00	0.30	0.27	6.8	0.30	0.276	0.006
Category 2 engines	5.00	0.72	0.50	9.8	0.72	0.6624	0.006
<i>Tier 3 Engines⁽²⁾</i>							
<37	5.00	0.13	0.30	1.73	0.13	0.12	0.006
37-75	5.00	0.17	0.3	3.56	0.17	0.16	0.006
75-600	5.00	0.08	0.13	4.77	0.08	0.07	0.006
600-1000	5.00	0.07	0.1	4.77	0.07	0.06	0.006
1000-1400	5.00	0.08	0.1	4.77	0.08	0.07	0.006
>1400	5.00	0.07	0.1	4.81	0.07	0.06	0.006
Category 2 engines	5.00	0.11	0.07	5.97	0.11	0.10	0.006
(1) Source of emission factors: 2005 POLA Inventory, Starcrest 2007.							
(2) Source of emission factors: Regulatory Impact Analysis: control of Emissions of Air Pollution from locomotive engines and marine compression-ignition engines less than 30 L per cylinder. EF							
Note: SO _x Ef is for 15 ppm on-road diesel fuel							
PM 2.5 EF is 0.92*PM EF							
DPM = PM for diesel engines							

San Pedro Waterfront

Ports of Los Angeles and Long Beach DRAFT 2006 Harbor Craft Load Factors

2006 Load Factors

Harbor Vessel Type	Engine LF
Assist Tug	0.31
Commercial Fishing	0.27
Crewboat	0.45
Excursion	0.42
Ferry	0.42
Government	0.51
Tugboat, harbor	0.31
Tugboat, ocean	0.68
Workboat	0.45
Auxiliary engines	0.43

Mitigated Project Criteria Pollutant Emissions

Year: 2011

Hourly (lb/hr) for Single Type 2 Vessel with No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Fairway - South-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Precautionary Zone - North-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	0.63
Precautionary Zone - North-Bound	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.2	
<i>Total Precautionary Zone - North-Bound</i>		<i>33.4</i>	<i>59.8</i>	<i>15.2</i>	<i>424.7</i>	<i>62.6</i>	<i>50.1</i>	<i>635.7</i>	<i>16.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	0.71
Precautionary Zone - South-Bound	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>33.4</i>	<i>59.8</i>	<i>15.2</i>	<i>424.7</i>	<i>62.6</i>	<i>50.1</i>	<i>635.7</i>	<i>16.0</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	24.9	45.1	11.3	316.8	45.1	36.1	433.7	11.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Outer Harbor Zone1</i>		<i>25.3</i>	<i>45.1</i>	<i>11.5</i>	<i>321.4</i>	<i>47.9</i>	<i>38.3</i>	<i>494.3</i>	<i>12.1</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	24.9	45.1	11.3	316.8	45.1	36.1	433.7	11.9	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Outer Harbor Zone2</i>		<i>25.3</i>	<i>45.1</i>	<i>11.5</i>	<i>321.4</i>	<i>47.9</i>	<i>38.3</i>	<i>494.3</i>	<i>12.1</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	24.9	45.1	11.3	316.8	45.1	36.1	433.7	11.9	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Inner Harbor Zone</i>		<i>25.3</i>	<i>45.1</i>	<i>11.5</i>	<i>321.4</i>	<i>47.9</i>	<i>38.3</i>	<i>494.3</i>	<i>12.1</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	

Emissions = Engine Power * Load Factor * Emission Factor

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.
5. No VSRP

For air dispersion modeling, multiply peak hour emissions by number of Type 2 vessels applicable for the alternative

Mitigated Project Criteria Pollutant Emissions

Year: 2011

Hourly (lb/hr) for Single Type 3 Vessel with No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>125.6</i>	<i>227.4</i>	<i>57.1</i>	<i>1,598.4</i>	<i>227.4</i>	<i>181.9</i>	<i>2,188.4</i>	<i>60.1</i>	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>125.6</i>	<i>227.4</i>	<i>57.1</i>	<i>1,598.4</i>	<i>227.4</i>	<i>181.9</i>	<i>2,188.4</i>	<i>60.1</i>	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>81.4</i>	<i>147.4</i>	<i>37.0</i>	<i>1,035.9</i>	<i>147.4</i>	<i>117.9</i>	<i>1,418.2</i>	<i>39.0</i>	
Fairway - South-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>81.4</i>	<i>147.4</i>	<i>37.0</i>	<i>1,035.9</i>	<i>147.4</i>	<i>117.9</i>	<i>1,418.2</i>	<i>39.0</i>	
Precautionary Zone - North-Bound	Diesel Engines	37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	0.63
Precautionary Zone - North-Bound	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.2	
<i>Total Precautionary Zone - North-Bound</i>		<i>37.7</i>	<i>67.4</i>	<i>17.1</i>	<i>478.4</i>	<i>70.2</i>	<i>56.2</i>	<i>709.2</i>	<i>18.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>26.8</i>	<i>47.7</i>	<i>12.2</i>	<i>340.2</i>	<i>50.6</i>	<i>40.5</i>	<i>520.0</i>	<i>12.9</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	27.3	49.5	12.4	348.0	49.5	39.6	476.4	13.1	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Outer Harbor Zone1</i>		<i>27.8</i>	<i>49.5</i>	<i>12.6</i>	<i>352.6</i>	<i>52.3</i>	<i>41.9</i>	<i>537.0</i>	<i>13.3</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	27.3	49.5	12.4	348.0	49.5	39.6	476.4	13.1	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Outer Harbor Zone2</i>		<i>27.8</i>	<i>49.5</i>	<i>12.6</i>	<i>352.6</i>	<i>52.3</i>	<i>41.9</i>	<i>537.0</i>	<i>13.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	27.3	49.5	12.4	348.0	49.5	39.6	476.4	13.1	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Inner Harbor Zone</i>		<i>27.8</i>	<i>49.5</i>	<i>12.6</i>	<i>352.6</i>	<i>52.3</i>	<i>41.9</i>	<i>537.0</i>	<i>13.3</i>	
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>19.1</i>	<i>33.7</i>	<i>8.7</i>	<i>241.7</i>	<i>36.6</i>	<i>29.3</i>	<i>385.1</i>	<i>9.1</i>	

Emissions = Engine Power * Load Factor * Emission Factor

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.
5. No VSRP

For air dispersion modeling, multiply peak hour emissions by number of Type 3 vessels applicable for the alternative

0.0 Half of 2011
Type 3 vessels

Mitigated Project Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 2 Vessel with Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>33.0</i>	<i>59.8</i>	<i>15.0</i>	<i>420.1</i>	<i>59.8</i>	<i>47.8</i>	<i>575.1</i>	<i>15.8</i>	
Fairway - South-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>33.0</i>	<i>59.8</i>	<i>15.0</i>	<i>420.1</i>	<i>59.8</i>	<i>47.8</i>	<i>575.1</i>	<i>15.8</i>	
Precautionary Zone - North-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>33.3</i>	<i>59.8</i>	<i>15.1</i>	<i>423.0</i>	<i>61.5</i>	<i>49.2</i>	<i>613.0</i>	<i>15.9</i>	
Precautionary Zone - South-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	0.71
Precautionary Zone - South-Bound	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>33.4</i>	<i>59.8</i>	<i>15.2</i>	<i>424.7</i>	<i>62.6</i>	<i>50.1</i>	<i>635.7</i>	<i>16.0</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	24.9	45.1	11.3	316.8	45.1	36.1	433.7	11.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Outer Harbor Zone1</i>		<i>25.3</i>	<i>45.1</i>	<i>11.5</i>	<i>321.4</i>	<i>47.9</i>	<i>38.3</i>	<i>494.3</i>	<i>12.1</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	24.9	45.1	11.3	316.8	45.1	36.1	433.7	11.9	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Outer Harbor Zone2</i>		<i>25.3</i>	<i>45.1</i>	<i>11.5</i>	<i>321.4</i>	<i>47.9</i>	<i>38.3</i>	<i>494.3</i>	<i>12.1</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	24.9	45.1	11.3	316.8	45.1	36.1	433.7	11.9	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Inner Harbor Zone</i>		<i>25.3</i>	<i>45.1</i>	<i>11.5</i>	<i>321.4</i>	<i>47.9</i>	<i>38.3</i>	<i>494.3</i>	<i>12.1</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	

Emissions = Engine Power * Load Factor * Emission Factor

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.
5. VSRP = 100% within 20 nm

For air dispersion modeling, multiply peak hour emissions by number of Type 2 vessels applicable for the alternative

Mitigated Project Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 3 Vessel with Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>125.6</i>	<i>227.4</i>	<i>57.1</i>	<i>1,598.4</i>	<i>227.4</i>	<i>181.9</i>	<i>2,188.4</i>	<i>60.1</i>	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>125.6</i>	<i>227.4</i>	<i>57.1</i>	<i>1,598.4</i>	<i>227.4</i>	<i>181.9</i>	<i>2,188.4</i>	<i>60.1</i>	
Fairway - North-Bound	Diesel Engines	37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>37.2</i>	<i>67.4</i>	<i>16.9</i>	<i>473.8</i>	<i>67.4</i>	<i>53.9</i>	<i>648.6</i>	<i>17.8</i>	
Fairway - South-Bound	Diesel Engines	37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>37.2</i>	<i>67.4</i>	<i>16.9</i>	<i>473.8</i>	<i>67.4</i>	<i>53.9</i>	<i>648.6</i>	<i>17.8</i>	
Precautionary Zone - North-Bound	Diesel Engines	37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	0.63
Precautionary Zone - North-Bound	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.2	
<i>Total Precautionary Zone - North-Bound</i>		<i>37.7</i>	<i>67.4</i>	<i>17.1</i>	<i>478.4</i>	<i>70.2</i>	<i>56.2</i>	<i>709.2</i>	<i>18.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	0.71
Precautionary Zone - South-Bound	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>37.7</i>	<i>67.4</i>	<i>17.1</i>	<i>478.4</i>	<i>70.2</i>	<i>56.2</i>	<i>709.2</i>	<i>18.0</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	27.3	49.5	12.4	348.0	49.5	39.6	476.4	13.1	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Outer Harbor Zone1</i>		<i>27.8</i>	<i>49.5</i>	<i>12.6</i>	<i>352.6</i>	<i>52.3</i>	<i>41.9</i>	<i>537.0</i>	<i>13.3</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	27.3	49.5	12.4	348.0	49.5	39.6	476.4	13.1	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Outer Harbor Zone2</i>		<i>27.8</i>	<i>49.5</i>	<i>12.6</i>	<i>352.6</i>	<i>52.3</i>	<i>41.9</i>	<i>537.0</i>	<i>13.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Diesel Engines	27.3	49.5	12.4	348.0	49.5	39.6	476.4	13.1	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Inner Harbor Zone</i>		<i>27.8</i>	<i>49.5</i>	<i>12.6</i>	<i>352.6</i>	<i>52.3</i>	<i>41.9</i>	<i>537.0</i>	<i>13.3</i>	
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>19.1</i>	<i>33.7</i>	<i>8.7</i>	<i>241.7</i>	<i>36.6</i>	<i>29.3</i>	<i>385.1</i>	<i>9.1</i>	

*Emissions = Engine Power * Load Factor * Emission Factor*

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor

VOC/HC = 1.053
1 lb = 453.59

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario
5. VSRP = 100% within 20 nm

For air dispersion modeling, multiply peak hour emissions by number of Type 3 vessels applicable for the alternative

Mitigated Project Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 2 Vessel No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Fairway - South-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Precautionary Zone - North-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	0.63
Precautionary Zone - North-Bound	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.2	
<i>Total Precautionary Zone - North-Bound</i>		<i>33.4</i>	<i>59.8</i>	<i>15.2</i>	<i>424.7</i>	<i>62.6</i>	<i>50.1</i>	<i>635.7</i>	<i>16.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	0.71
Precautionary Zone - South-Bound	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>33.4</i>	<i>59.8</i>	<i>15.2</i>	<i>424.7</i>	<i>62.6</i>	<i>50.1</i>	<i>635.7</i>	<i>16.0</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	24.9	45.1	11.3	316.8	45.1	36.1	433.7	11.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Outer Harbor Zone1</i>		<i>25.3</i>	<i>45.1</i>	<i>11.5</i>	<i>321.4</i>	<i>47.9</i>	<i>38.3</i>	<i>494.3</i>	<i>12.1</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	24.9	45.1	11.3	316.8	45.1	36.1	433.7	11.9	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Outer Harbor Zone2</i>		<i>25.3</i>	<i>45.1</i>	<i>11.5</i>	<i>321.4</i>	<i>47.9</i>	<i>38.3</i>	<i>494.3</i>	<i>12.1</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Diesel Engines	24.9	45.1	11.3	316.8	45.1	36.1	433.7	11.9	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Inner Harbor Zone</i>		<i>25.3</i>	<i>45.1</i>	<i>11.5</i>	<i>321.4</i>	<i>47.9</i>	<i>38.3</i>	<i>494.3</i>	<i>12.1</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	

*Emissions = Engine Power * Load Factor * Emission Factor*

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor

$$\text{VOC/HC} = 1.053$$

$$1 \text{ lb} = 453.59$$

Assumptions

1. Residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth
4. Half of all Type 2 vessels will have this mitigated profile for the peak scenario

For air dispersion modeling, multiply peak hour emissions by number of Type 2 vessels applicable for the alternative

Mitigated Project Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 3 Vessel No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>125.6</i>	<i>227.4</i>	<i>57.1</i>	<i>1,598.4</i>	<i>227.4</i>	<i>181.9</i>	<i>2,188.4</i>	<i>60.1</i>	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>125.6</i>	<i>227.4</i>	<i>57.1</i>	<i>1,598.4</i>	<i>227.4</i>	<i>181.9</i>	<i>2,188.4</i>	<i>60.1</i>	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>81.4</i>	<i>147.4</i>	<i>37.0</i>	<i>1,035.9</i>	<i>147.4</i>	<i>117.9</i>	<i>1,418.2</i>	<i>39.0</i>	
Fairway - South-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>81.4</i>	<i>147.4</i>	<i>37.0</i>	<i>1,035.9</i>	<i>147.4</i>	<i>117.9</i>	<i>1,418.2</i>	<i>39.0</i>	
Precautionary Zone - North-Bound	Diesel Engines	37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	0.63
Precautionary Zone - North-Bound	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.2	
<i>Total Precautionary Zone - North-Bound</i>		<i>37.7</i>	<i>67.4</i>	<i>17.1</i>	<i>478.4</i>	<i>70.2</i>	<i>56.2</i>	<i>709.2</i>	<i>18.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	0.71
Precautionary Zone - South-Bound	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>37.7</i>	<i>67.4</i>	<i>17.1</i>	<i>478.4</i>	<i>70.2</i>	<i>56.2</i>	<i>709.2</i>	<i>18.0</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	27.3	49.5	12.4	348.0	49.5	39.6	476.4	13.1	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Outer Harbor Zone1</i>		<i>27.8</i>	<i>49.5</i>	<i>12.6</i>	<i>352.6</i>	<i>52.3</i>	<i>41.9</i>	<i>537.0</i>	<i>13.3</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	27.3	49.5	12.4	348.0	49.5	39.6	476.4	13.1	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Outer Harbor Zone2</i>		<i>27.8</i>	<i>49.5</i>	<i>12.6</i>	<i>352.6</i>	<i>52.3</i>	<i>41.9</i>	<i>537.0</i>	<i>13.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Diesel Engines	27.3	49.5	12.4	348.0	49.5	39.6	476.4	13.1	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Inner Harbor Zone</i>		<i>27.8</i>	<i>49.5</i>	<i>12.6</i>	<i>352.6</i>	<i>52.3</i>	<i>41.9</i>	<i>537.0</i>	<i>13.3</i>	
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12.00
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>19.1</i>	<i>33.7</i>	<i>8.7</i>	<i>241.7</i>	<i>36.6</i>	<i>29.3</i>	<i>385.1</i>	<i>9.1</i>	

*Emissions = Engine Power * Load Factor * Emission Factor*

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor

$$\text{VOC/HC} = 1.053$$

$$1 \text{ lb} = 453.59$$

Assumptions

1. Residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth
4. Half of all Type 3 vessels will have this mitigated profile for the peak scenario

For air dispersion modeling, multiply peak hour emissions by number of Type 3 vessels applicable for the alternative

Mitigated Project Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 2 Vessel With Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.52
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>33.0</i>	<i>19.1</i>	<i>15.0</i>	<i>382.3</i>	<i>19.1</i>	<i>15.3</i>	<i>57.5</i>	<i>15.8</i>	
Sea / Fairway - South-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.92
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>33.0</i>	<i>19.1</i>	<i>15.0</i>	<i>382.3</i>	<i>19.1</i>	<i>15.3</i>	<i>57.5</i>	<i>15.8</i>	
Fairway - North-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>33.0</i>	<i>19.1</i>	<i>15.0</i>	<i>382.3</i>	<i>19.1</i>	<i>15.3</i>	<i>57.5</i>	<i>15.8</i>	
Fairway - South-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>33.0</i>	<i>19.1</i>	<i>15.0</i>	<i>382.3</i>	<i>19.1</i>	<i>15.3</i>	<i>57.5</i>	<i>15.8</i>	
Precautionary Zone - North-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	0.63
Precautionary Zone - North-Bound	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.2	
<i>Total Precautionary Zone - North-Bound</i>		<i>33.4</i>	<i>19.1</i>	<i>15.2</i>	<i>386.5</i>	<i>19.8</i>	<i>15.9</i>	<i>63.6</i>	<i>16.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	0.71
Precautionary Zone - South-Bound	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>33.4</i>	<i>19.1</i>	<i>15.2</i>	<i>386.5</i>	<i>19.8</i>	<i>15.9</i>	<i>63.6</i>	<i>16.0</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁶⁾	Diesel Engines	24.9	14.4	11.3	288.3	14.4	11.5	43.4	11.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁶⁾	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
<i>Total Outer Harbor Zone1</i>		<i>25.3</i>	<i>14.4</i>	<i>11.5</i>	<i>292.5</i>	<i>15.1</i>	<i>12.1</i>	<i>49.4</i>	<i>12.1</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	24.9	14.4	11.3	288.3	14.4	11.5	43.4	11.9	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
<i>Total Outer Harbor Zone2</i>		<i>25.3</i>	<i>14.4</i>	<i>11.5</i>	<i>292.5</i>	<i>15.1</i>	<i>12.1</i>	<i>49.4</i>	<i>12.1</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	24.9	14.4	11.3	288.3	14.4	11.5	43.4	11.9	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
<i>Total Inner Harbor Zone</i>		<i>25.3</i>	<i>14.4</i>	<i>11.5</i>	<i>292.5</i>	<i>15.1</i>	<i>12.1</i>	<i>49.4</i>	<i>12.1</i>	
Hoteling	Diesel Engines	1.4	0.8	0.6	16.5	0.8	0.7	2.5	0.7	12
Hoteling	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
<i>Total Hoteling</i>		<i>1.9</i>	<i>0.8</i>	<i>0.9</i>	<i>20.8</i>	<i>1.6</i>	<i>1.3</i>	<i>8.6</i>	<i>0.9</i>	

Emissions = Engine Power * Load Factor * Emission Factor

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = 1.053$$

$$1 \text{ lb} = 453.59$$

Assumptions

- Residual fuel with 2.7% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 2 vessels will have this mitigated profile for the peak scenario.
- AMP applied to hoteling: 80% to inner harbor; 90% to outer harbor.

For air dispersion modeling, multiply peak hour emissions by number of Type 2 vessels applicable for the alternative

Mitigated Project Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 3 Vessel With Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.52
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>37.2</i>	<i>21.5</i>	<i>16.9</i>	<i>431.1</i>	<i>21.5</i>	<i>17.2</i>	<i>64.9</i>	<i>17.8</i>	
Sea / Fairway - South-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.92
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>37.2</i>	<i>21.5</i>	<i>16.9</i>	<i>431.1</i>	<i>21.5</i>	<i>17.2</i>	<i>64.9</i>	<i>17.8</i>	
Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>37.2</i>	<i>21.5</i>	<i>16.9</i>	<i>431.1</i>	<i>21.5</i>	<i>17.2</i>	<i>64.9</i>	<i>17.8</i>	
Fairway - South-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>37.2</i>	<i>21.5</i>	<i>16.9</i>	<i>431.1</i>	<i>21.5</i>	<i>17.2</i>	<i>64.9</i>	<i>17.8</i>	
Precautionary Zone - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	0.63
Precautionary Zone - North-Bound	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.2	
<i>Total Precautionary Zone - North-Bound</i>		<i>37.7</i>	<i>21.5</i>	<i>17.1</i>	<i>435.3</i>	<i>22.3</i>	<i>17.8</i>	<i>70.9</i>	<i>18.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	0.71
Precautionary Zone - South-Bound	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>37.7</i>	<i>21.5</i>	<i>17.1</i>	<i>435.3</i>	<i>22.3</i>	<i>17.8</i>	<i>70.9</i>	<i>18.0</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	27.3	15.8	12.4	316.7	15.8	12.6	47.6	13.1	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
<i>Total Outer Harbor Zone1</i>		<i>27.8</i>	<i>15.8</i>	<i>12.6</i>	<i>320.9</i>	<i>16.6</i>	<i>13.2</i>	<i>53.7</i>	<i>13.3</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	27.3	15.8	12.4	316.7	15.8	12.6	47.6	13.1	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
<i>Total Outer Harbor Zone2</i>		<i>27.8</i>	<i>15.8</i>	<i>12.6</i>	<i>320.9</i>	<i>16.6</i>	<i>13.2</i>	<i>53.7</i>	<i>13.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	27.3	15.8	12.4	316.7	15.8	12.6	47.6	13.1	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
<i>Total Inner Harbor Zone</i>		<i>27.8</i>	<i>15.8</i>	<i>12.6</i>	<i>320.9</i>	<i>16.6</i>	<i>13.2</i>	<i>53.7</i>	<i>13.3</i>	
Hoteling	Diesel Engines	1.6	0.9	0.7	18.0	0.9	0.7	2.7	0.7	12.00
Hoteling	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
<i>Total Hoteling</i>		<i>2.0</i>	<i>0.9</i>	<i>0.9</i>	<i>22.2</i>	<i>1.6</i>	<i>1.3</i>	<i>8.8</i>	<i>1.0</i>	

Emissions = Engine Power * Load Factor * Emission Factor

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
 1 lb = 453.59

Assumptions

- Residual fuel with 2.7% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this mitigated profile for the peak scenario.
- AMP applied to hoteling: 80% to inner harbor; 90% to outer harbor.

For air dispersion modeling, multiply peak hour emissions by number of Type 3 vessels applicable for the alternative

San Pedro Waterfront

Harbor Craft Unmitigated Emissions									
Proposed Project, Alt1, Alt2, Alt3, Alt4, Alt5 - Summary									
average=peak for harbor craft									
	Harbor Craft Criteria Pollutant Emissions Annual (lb/yr)								
	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Assist Tugs Transit 2009-2013	39,313	6,192	5,047	184,160	6,192	5,697	96	5,315	
Assist Tugs Hotelling 2009-2013	1,425	380	257	9,405	380	350	6	270	
Assist Tugs Transit 2013-2014	19,656	3,096	2,524	92,080	3,096	2,848	48.2	2,657	
Assist Tugs Hotelling 2013-2014	1,425	380	257	9,405	380	350	5.7	270	
Assist Tugs Transit 2014-2015	19,656	3,096	2,524	92,080	3,096	2,848	48.2	2,657	
Assist Tugs Hotelling 2014-2015	1,425	380	257	9,405	380	350	5.7	270	
Assist Tugs Transit 2015-2018	27,356	3,090	2,524	78,571	3,090	2,842	48.2	2,657	
Assist Tugs Hotelling 2015-2018	1,425	380	257	9,405	380	350	5.7	270	
Assist Tugs Transit 2018-2020	27,356	3,090	2,524	78,571	3,090	2,842	48.2	2,657	
Assist Tugs Hotelling 2018-2020	1,425	380	257	9,405	380	350	5.7	270	
Assist Tugs Transit 2020-2037	40,156	3,058	2,524	59,245	3,058	2,813	48.2	2,657	
Assist Tugs Hotelling 2020-2037	1,425	380	257	9,405	380	350	5.7	270	
Ferry Vessels 2009	81,563	6,127	5,482	169,573	6,127	5,637	122	5,773	
Ferry Vessels 2010-2014	81,563	6,127	5,482	169,573	6,127	5,637	122	5,773	
Ferry Vessels 2015-2029	84,785	6,124	5,482	161,749	6,124	5,634	122	5,773	
Ferry Vessels 2030-2037	101,520	6,091	5,482	138,067	6,091	5,604	122	5,773	
Commercial Fishing 2010-2014	19,869	2,585	2,198	69,460	2,585	2,379	49	2,314	
Commercial Fishing 2015-2029	27,601	2,514	2,198	67,304	2,514	2,312	49	2,314	
Commercial Fishing 2030+	40,695	2,442	2,198	55,345	2,442	2,246	49	2,314	
Crew Boats 2010-2014	1,966	727	294	11,017	727	669	6.5	309	
Crew Boats 2015-2029	2,661	661	294	10,187	661	608	6.5	309	
Crew Boats 2030+	5,440	393	294	7,398	393	362	6.5	309	
Excursion 2010-2014	27,618	5,839	4,407	161,066	5,839	5,372	98	4,641	
Excursion 2015-2029	46,084	5,598	4,407	143,478	5,598	5,150	98	4,641	
Excursion 2030-2037	81,619	5,054	4,407	111,002	5,054	4,650	98	4,641	
Government Boats 2010-2014	3,439	688	619	22,855	688	633	14	652	
Government Boats 2015-2029	6,841	688	619	19,744	688	633	14	652	
Government Boats 2030+	11,462	688	619	15,589	688	633	14	652	
Total 2009-2013	175,193	22,539	18,304	627,536	22,539	20,736	391	19,274	
Total 2013-2014	155,537	19,443	15,780	535,455	19,443	17,888	343	16,616	
Total 2015	196,754	19,053	15,780	490,438	19,053	17,529	343	16,616	
Total 2015-2018	196,754	19,053	15,780	490,438	19,053	17,529	343	16,616	
Total 2018-2020	196,754	19,053	15,780	490,438	19,053	17,529	343	16,616	
Total 2020-2037	276,877	17,713	15,486	388,653	17,713	16,296	336	16,307	

San Pedro Waterfront

Harbor Craft Criteria Pollutant Emissions Daily (lb/day)								Harbor Craft Criteria Pollutant Emissions Hourly (lb/hr)							
CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
108	17	14	505	17	16	0	15	54	8	7	252	8	8	0	7.3
4	1	1	26	1	1	0	1	0	0	0	3	0	0	0	0.1
54	8.5	6.9	252	8.5	7.8	0.13	7.3	53.9	8.5	6.9	252	8.5	7.8	0.1	7.3
3.9	1.0	0.7	26	1.0	1.0	0.02	0.7	0.5	0.1	0.1	3	0.1	0.1	0.002	0.1
53.9	8.5	6.9	252	8.5	7.8	0.13	7.3	53.9	8.5	6.9	252	8.5	7.8	0.1	7.3
3.9	1.0	0.7	26	1.0	1.0	0.02	0.7	0.5	0.1	0.1	3	0.1	0.1	0.002	0.1
74.9	8.5	6.9	215	8.5	7.8	0.13	7.3	74.9	8.5	6.9	215	8.5	7.8	0.1	7.3
3.9	1.0	0.7	26	1.0	1.0	0.02	0.7	0.5	0.1	0.1	3	0.1	0.1	0.002	0.1
74.9	8.5	6.9	215	8.5	7.8	0.13	7.3	74.9	5.1	4.5	136	5.1	4.6	0.1	4.8
3.9	1.0	0.7	26	1.0	1.0	0.02	0.7	0.5	0.1	0.1	3	0.1	0.1	0.002	0.1
110.0	8.4	6.9	162	8.4	7.7	0.13	7.3	110.0	1.7	2.1	110	1.7	1.6	0.1	2.2
3.9	1.0	0.7	26	1.0	1.0	0.02	0.7	0.5	0.1	0.1	3	0.1	0.1	0.002	0.1
223	17	15	465	17	15	0	16	72	5	5	150	5	5	0.107	5
223	17	15	465	17	15	0.3	16	71.6	5.4	4.8	149.9	5.4	5.0	0.1	5.1
232	17	15	443	17	15	0.3	16	74.4	5.4	4.8	143.0	5.4	5.0	0.1	5.1
278	17	15	378	17	15	0.3	16	89.6	5.4	4.8	121.8	5.4	4.9	0.1	5.1
54	7.1	6.0	190	7.1	6.5	0.1	6.3	14	1.4	1.2	39	1.4	1.3	0.03	1.3
76	6.9	6.0	184	6.9	6.3	0.1	6.3	15	1.4	1.2	38	1.4	1.3	0.03	1.3
111	6.7	6.0	152	6.7	6.2	0.1	6.3	23	1.4	1.2	31	1.4	1.3	0.03	1.3
5	2.0	0.8	30	2.0	1.8	0.02	0.8	7	2.4	1.0	37	2.4	2.2	0.02	1.0
7	1.8	0.8	28	1.8	1.7	0.02	0.8	9	2.2	1.0	34	2.2	2.0	0.02	1.0
15	1.1	0.8	20	1.1	1.0	0.02	0.8	18	1.3	1.0	25	1.3	1.2	0.02	1.0
76	16	12	441	16	15	0.3	13	13	2.7	2.0	75	2.7	2.5	0.05	2.2
126	15	12	393	15	14	0.3	13	21	2.6	2.0	67	2.6	2.4	0.05	2.2
224	14	12	304	14	13	0.3	13	38	2.3	2.0	52	2.3	2.2	0.05	2.2
9	1.9	1.7	63	1.9	1.7	0.04	1.8	9	1.9	1.7	62	1.9	1.7	0.04	1.8
19	1.9	1.7	54	1.9	1.7	0.04	1.8	19	1.9	1.7	53	1.9	1.7	0.04	1.8
31	1.9	1.7	43	1.9	1.7	0.04	1.8	31	1.9	1.7	42	1.9	1.7	0.04	1.8
480	62	50	1,719	62	57	1	53	169	22	18	617	22	21	0	19
426	53	43	1,467	53	49	1	46	169	22	18	617	22	21	0	19
539	52	43	1,344	52	48	1	46	214	22	18	553	22	20	0	19
539	52	43	1,344	52	48	1	46	214	22	18	553	22	20	0	19
539	52	43	1,344	52	48	1	46	214	19	15	474	19	17	0	16
759	49	42	1,065	49	45	1	45	292	13	12	360	13	12	0	13

San Pedro Waterfront

Harbor Craft Mitigated Emissions									
Proposed Project, Alt1, Alt2, Alt3, Alt4, Alt5 - Summary									
average=peak for harbor craft									
Harbor Craft Criteria Pollutant Emissions Annual (lb/yr)									
	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Assist Tugs Transit 2009	39,313	6,192	5,047	184,160	6,192	5,697	96	5,315	
Assist Tugs Hotelling 2009	1,425	380	257	9,405	380	350	6	270	
Assist Tugs Transit 2010-2012	51,607	6,169	5,047	164,443	6,169	5,675	96	5,314	
Assist Tugs Hotelling 2010-2012	2,581	374	273	9,078	374	344	6	288	
Assist Tugs Transit 2013-2014	25,803	3,084	2,523	82,221	3,084	2,838	48	2,657	
Assist Tugs Hotelling 2013-2014	2,581	159	120	3,825	159	147	3	126	
Assist Tugs Transit 2014-2015	40,151	3,058	2,523	59,240	3,058	2,813	48	2,657	
Assist Tugs Hotelling 2014-2015	258	16	12	383	16	15	0.3	13	
Assist Tugs Transit 2015-2018	40,151	2,572	2,174	55,423	2,572	2,366	48	2,289	
Assist Tugs Hotelling 2015-2018	258	16	12	383	16	15	0.3	13	
Assist Tugs Transit 2018-2020	40,151	1,844	1,649	49,699	1,844	1,696	48	1,736	
Assist Tugs Hotelling 2018-2020	258	16	12	383	16	15	0.3	13	
Assist Tugs Transit 2020-2037	40,151	630	774	40,158	630	579	48	815	
Assist Tugs Hotelling 2020-2037	258	16	12	383	16	15	0.3	13	
Ferry Vessels 2009	81,596	6,129	5,484	169,631	6,129	5,639	122	5,775	
Ferry Vessels 2010-2014	87,584	6,118	5,484	160,177	6,118	5,629	122	5,775	
Ferry Vessels 2015-2029	101,556	6,093	5,484	138,116	6,093	5,606	122	5,775	
Ferry Vessels 2030-2037	101,556	6,093	5,484	138,116	6,093	5,606	122	5,775	
Commercial Fishing 2010-2014	19,869	2,585	2,198	69,460	2,585	2,379	49	2,314	
Commercial Fishing 2015-2029	27,601	2,514	2,198	67,304	2,514	2,312	49	2,314	
Commercial Fishing 2030+	40,695	2,442	2,198	55,345	2,442	2,246	49	2,314	
Crew Boats 2010-2014	1,966	727	294	11,017	727	669	7	309	
Crew Boats 2015-2029	2,661	661	294	10,187	661	608	7	309	
Crew Boats 2030+	5,440	393	294	7,398	393	362	7	309	
Excursion 2010-2014	27,618	5,839	4,407	161,066	5,839	5,372	98	4,641	
Excursion 2015-2029	46,084	5,598	4,407	143,478	5,598	5,150	98	4,641	
Excursion 2030-2037	81,619	5,054	4,407	111,002	5,054	4,650	98	4,641	
Government Boats 2010-2014	3,439	688	619	22,855	688	633	14	652	
Government Boats 2015-2029	6,841	688	619	19,744	688	633	14	652	
Government Boats 2030+	11,462	688	619	15,589	688	633	14	652	
Total 2009	175,226	22,541	18,306	627,594	22,541	20,738	391	19,276	
Total 2010-2012	194,663	22,502	18,322	598,095	22,502	20,701	391	19,293	
Total 2013-2014	168,860	19,202	15,645	510,621	19,202	17,666	340	16,474	
Total 2014-2015	180,885	19,032	15,537	484,196	19,032	17,510	337	16,361	
Total 2015-2018	225,153	18,141	15,187	434,635	18,141	16,690	337	15,992	
Total 2018-2020	225,153	17,413	14,663	428,911	17,413	16,020	337	15,440	
Total 2020-2037	281,182	15,316	13,788	367,991	15,316	14,091	337	14,519	

San Pedro Waterfront

Harbor Craft Criteria Pollutant Emissions Daily (lb/day)								Harbor Craft Criteria Pollutant Emissions Hourly (lb/hr)							
CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
108	17	14	505	17	16	0	15	54	8	7	252	8	8	0	7
4	1	1	26	1	1	0	1	0	0	0	3	0	0	0	0
141	17	14	451	17	16	0	15	71	8	7	225	8	8	0	7
7	1	1	25	1	1	0	1	1	0	0	3	0	0	0	0
71	8	7	225	8.45	7.77	0.13	7	71	8.5	6.9	225	8.5	7.8	0.132	7.3
7	0.4	0.3	10	0.44	0.40	0.01	0.3	4	0.4	0.3	10	0.4	0.4	0.007	0.3
110	8	7	162	8.38	7.71	0.13	7	110	8.4	6.9	162	8.4	7.7	0.132	7.3
0.7	0.0	0.03	1.0	0.04	0.04	0.00	0.03	0.4	0.04	0.03	1	0.04	0.04	0.001	0.03
110	7	6	152	7.05	6.48	0.13	6	110	7.0	6.0	152	7.0	6.5	0.132	6.3
0.7	0.04	0.03	1.0	0.04	0.04	0.00	0.03	0.4	0.04	0.03	1	0.04	0.04	0.001	0.03
110	5	5	136	5.05	4.65	0.13	5	110	5.1	4.5	136	5.1	4.6	0.132	4.8
0.7	0.04	0.03	1.0	0.04	0.04	0.00	0.03	0.4	0.04	0.03	1	0.04	0.04	0.001	0.03
110	2	2	110	1.73	1.59	0.13	2	110	1.7	2.1	110	1.7	1.6	0.132	2.2
0.7	0.04	0.03	1.0	0.04	0.04	0.00	0.03	0.4	0.04	0.03	1	0.04	0.04	0.001	0.03
224	17	15	465	17	15	0	16	72	5	5	150	5	5	0	5
240	17	15	439	17	15	0.33	16	77	5	5	141	5.4	5.0	0.11	5.1
278	17	15	378	17	15	0.33	16	90	5	5	122	5.4	4.9	0.11	5.1
278	17	15	378	17	15	0.33	16	90	5	5	122	5.4	4.9	0.11	5.1
54	7.1	6.0	190	7.1	6.5	0.13	6.3	14	1.4	1.2	39	1.4	1.3	0.03	1.3
76	6.9	6.0	184	6.9	6.3	0.13	6.3	15	1.4	1.2	38	1.4	1.3	0.03	1.3
111	6.7	6.0	152	6.7	6.2	0.13	6.3	23	1.4	1.2	31	1.4	1.3	0.03	1.3
5	2.0	0.8	30	1.993	1.833	0.018	0.8	7	2.4	1.0	37	2.4	2.2	0.02	1.0
7	1.8	0.8	28	1.810	1.665	0.018	0.8	9	2.2	1.0	34	2.2	2.0	0.02	1.0
15	1.1	0.8	20	1.077	0.991	0.018	0.8	18	1.3	1.0	25	1.3	1.2	0.02	1.0
76	16.0	12.1	441	16	15	0.27	13	13	2.7	2.0	75	2.7	2.5	0	2.2
126	15.3	12.1	393	15	14	0.27	13	21	2.6	2.0	67	2.6	2.4	0	2.2
224	13.8	12.1	304	14	13	0.27	13	38	2.3	2.0	52	2.3	2.2	0	2.2
9	1.9	1.7	63	1.9	1.7	0.04	1.8	9	1.9	1.7	62	1.9	1.7	0.04	1.8
19	1.9	1.7	54	1.9	1.7	0.04	1.8	19	1.9	1.7	53	1.9	1.7	0.04	1.8
31	1.9	1.7	43	1.9	1.7	0.04	1.8	31	1.9	1.7	42	1.9	1.7	0.04	1.8
480	62	50	1,719	62	57	1	53	169	22	18	617	22	21	0	19
533	62	50	1,639	62	57	1	53	191	22	18	582	22	21	0	19
463	53	43	1,399	53	48	1	45	194	23	18	589	23	21	0	19
496	52	43	1,327	52	48	1	45	230	22	18	517	22	20	0	19
617	50	42	1,191	50	46	1	44	264	21	17	466	21	19	0	18
617	48	40	1,175	48	44	1	42	264	19	15	451	19	17	0	16
770	42	38	1,008	42	39	1	40	310	14	13	382	14	13	0	14

San Pedro Waterfront

Harbor Craft Unmitigated Emissions Proposed Project, Alt1, Alt2, Alt3, Alt4, Alt5 - Summary Peak-Hour										
	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Assist Tugs Transit 2009-2012	0.613	0.166	1.243	0.083	0.007	0.013	0.215	0.124	-	-
Assist Tugs Hotelling 2009-2012	0.008	0.002	0.016	0.001	0.000	0.000	0.003	0.002	-	-
Assist Tugs Transit 2013-2014	0.613	0.166	1.243	0.083	0.007	0.013	0.215	0.124	-	-
Assist Tugs Hotelling 2013-2014	0.008	0.002	0.016	0.001	0.000	0.000	0.003	0.002	-	-
Assist Tugs Transit 2014-2015	0.613	0.166	1.243	0.083	0.007	0.013	0.215	0.124	-	-
Assist Tugs Hotelling 2014-2015	0.008	0.002	0.016	0.001	0.000	0.000	0.003	0.002	-	-
Assist Tugs Transit 2015-2018	0.613	0.166	1.243	0.083	0.007	0.013	0.215	0.124	-	-
Assist Tugs Hotelling 2015-2018	0.008	0.002	0.016	0.001	0.000	0.000	0.003	0.002	-	-
Assist Tugs Transit 2018-2020	0.401	0.108	0.812	0.054	0.005	0.009	0.141	0.081	-	-
Assist Tugs Hotelling 2018-2020	0.008	0.002	0.016	0.001	0.000	0.000	0.003	0.002	-	-
Assist Tugs Transit 2020-2037	0.188	0.051	0.381	0.025	0.002	0.004	0.066	0.038	-	-
Assist Tugs Hotelling 2020-2037	0.008	0.002	0.016	0.001	0.000	0.000	0.003	0.002	-	-
Ferry Vessels 2010-2014	0.429	0.116	0.870	0.058	0.005	0.009	0.151	0.087	-	-
Ferry Vessels 2015-2029	0.429	0.116	0.870	0.058	0.005	0.009	0.151	0.087	-	-
Ferry Vessels 2030-2037	0.429	0.116	0.870	0.058	0.005	0.009	0.151	0.087	-	-
Commercial Fishing 2010-2014	0.109	0.030	0.221	0.015	0.001	0.002	0.038	0.022	-	-
Commercial Fishing 2015-2029	0.109	0.030	0.221	0.015	0.001	0.002	0.038	0.022	-	-
Commercial Fishing 2030+	0.109	0.030	0.221	0.015	0.001	0.002	0.038	0.022	-	-
Crew Boats 2010-2014	0.087	0.023	0.176	0.012	0.001	0.002	0.031	0.018	-	-
Crew Boats 2015-2029	0.087	0.023	0.176	0.012	0.001	0.002	0.031	0.018	-	-
Crew Boats 2030+	0.087	0.023	0.176	0.012	0.001	0.002	0.031	0.018	-	-
Excursion 2010-2014	0.181	0.049	0.368	0.025	0.002	0.004	0.064	0.037	-	-
Excursion 2015-2029	0.181	0.049	0.368	0.025	0.002	0.004	0.064	0.037	-	-
Excursion 2030-2037	0.181	0.049	0.368	0.025	0.002	0.004	0.064	0.037	-	-
Government Boats 2010-2014	0.148	0.040	0.301	0.020	0.002	0.003	0.052	0.030	-	-
Government Boats 2015-2029	0.148	0.040	0.301	0.020	0.002	0.003	0.052	0.030	-	-
Government Boats 2030+	0.148	0.040	0.301	0.020	0.002	0.003	0.052	0.030	-	-

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	1.272	0.047	-	-	-	-	-
-	-	-	-	-	-	-	0.020	0.001	-	-	-	-	-
-	-	-	-	-	-	-	1.272	0.047	-	-	-	-	-
-	-	-	-	-	-	-	0.020	0.001	-	-	-	-	-
-	-	-	-	-	-	-	1.272	0.047	-	-	-	-	-
-	-	-	-	-	-	-	0.020	0.001	-	-	-	-	-
-	-	-	-	-	-	-	1.270	0.047	-	-	-	-	-
-	-	-	-	-	-	-	0.020	0.001	-	-	-	-	-
-	-	-	-	-	-	-	0.758	0.028	-	-	-	-	-
-	-	-	-	-	-	-	0.020	0.001	-	-	-	-	-
-	-	-	-	-	-	-	0.259	0.009	-	-	-	-	-
-	-	-	-	-	-	-	0.020	0.001	-	-	-	-	-
-	-	-	-	-	-	-	0.813	0.030	-	-	-	-	-
-	-	-	-	-	-	-	0.813	0.030	-	-	-	-	-
-	-	-	-	-	-	-	0.806	0.030	-	-	-	-	-
-	-	-	-	-	-	-	0.215	0.008	-	-	-	-	-
-	-	-	-	-	-	-	0.210	0.008	-	-	-	-	-
-	-	-	-	-	-	-	0.205	0.008	-	-	-	-	-
-	-	-	-	-	-	-	0.364	0.013	-	-	-	-	-
-	-	-	-	-	-	-	0.330	0.012	-	-	-	-	-
-	-	-	-	-	-	-	0.197	0.007	-	-	-	-	-
-	-	-	-	-	-	-	0.405	0.015	-	-	-	-	-
-	-	-	-	-	-	-	0.389	0.014	-	-	-	-	-
-	-	-	-	-	-	-	0.352	0.013	-	-	-	-	-
-	-	-	-	-	-	-	0.279	0.010	-	-	-	-	-
-	-	-	-	-	-	-	0.279	0.010	-	-	-	-	-
-	-	-	-	-	-	-	0.279	0.010	-	-	-	-	-

San Pedro Waterfront

Harbor Craft Mitigated Emissions Proposed Project, Alt1, Alt2, Alt3, Alt4, Alt5 - Summary Peak-Hour										
	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Assist Tugs Transit 2009	0.613	0.166	1.243	0.083	0.007	0.013	0.215	0.124	-	-
Assist Tugs Hotelling 2009	0.008	0.002	0.016	0.001	0.000	0.000	0.003	0.002	-	-
Assist Tugs Transit 2010-2012	0.613	0.166	1.243	0.083	0.007	0.013	0.215	0.124	-	-
Assist Tugs Hotelling 2010-2012	0.008	0.002	0.017	0.001	0.000	0.000	0.003	0.002	-	-
Assist Tugs Transit 2013-2014	0.613	0.166	1.243	0.083	0.007	0.013	0.215	0.124	-	-
Assist Tugs Hotelling 2013-2014	0.029	0.008	0.059	0.004	0.000	0.001	0.010	0.006	-	-
Assist Tugs Transit 2014-2015	0.613	0.166	1.243	0.083	0.007	0.013	0.215	0.124	-	-
Assist Tugs Hotelling 2014-2015	0.003	0.001	0.006	0.000	0.000	0.000	0.001	0.001	-	-
Assist Tugs Transit 2015-2018	0.528	0.143	1.071	0.071	0.006	0.011	0.186	0.107	-	-
Assist Tugs Hotelling 2015-2018	0.003	0.001	0.006	0.000	0.000	0.000	0.001	0.001	-	-
Assist Tugs Transit 2018-2020	0.401	0.108	0.812	0.054	0.005	0.009	0.141	0.081	-	-
Assist Tugs Hotelling 2018-2020	0.003	0.001	0.006	0.000	0.000	0.000	0.001	0.001	-	-
Assist Tugs Transit 2020-2037	0.188	0.051	0.381	0.025	0.002	0.004	0.066	0.038	-	-
Assist Tugs Hotelling 2020-2037	0.003	0.001	0.006	0.000	0.000	0.000	0.001	0.001	-	-
Ferry Vessels 2010-2014	0.429	0.116	0.870	0.058	0.005	0.009	0.151	0.087	-	-
Ferry Vessels 2015-2029	0.429	0.116	0.870	0.058	0.005	0.009	0.151	0.087	-	-
Ferry Vessels 2030-2037	0.429	0.116	0.870	0.058	0.005	0.009	0.151	0.087	-	-
Commercial Fishing 2010-2014	0.109	0.030	0.221	0.015	0.001	0.002	0.038	0.022	-	-
Commercial Fishing 2015-2029	0.109	0.030	0.221	0.015	0.001	0.002	0.038	0.022	-	-
Commercial Fishing 2030+	0.109	0.030	0.221	0.015	0.001	0.002	0.038	0.022	-	-
Crew Boats 2010-2014	0.087	0.023	0.176	0.012	0.001	0.002	0.031	0.018	-	-
Crew Boats 2015-2029	0.087	0.023	0.176	0.012	0.001	0.002	0.031	0.018	-	-
Crew Boats 2030+	0.087	0.023	0.176	0.012	0.001	0.002	0.031	0.018	-	-
Excursion 2010-2014	0.181	0.049	0.368	0.025	0.002	0.004	0.064	0.037	-	-
Excursion 2015-2029	0.181	0.049	0.368	0.025	0.002	0.004	0.064	0.037	-	-
Excursion 2030-2037	0.181	0.049	0.368	0.025	0.002	0.004	0.064	0.037	-	-
Government Boats 2010-2014	0.148	0.040	0.301	0.020	0.002	0.003	0.052	0.030	-	-
Government Boats 2015-2029	0.148	0.040	0.301	0.020	0.002	0.003	0.052	0.030	-	-
Government Boats 2030+	0.148	0.040	0.301	0.020	0.002	0.003	0.052	0.030	-	-

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	1.272	0.047	-	-	-	-	-
-	-	-	-	-	-	-	0.020	0.001	-	-	-	-	-
-	-	-	-	-	-	-	1.268	0.046	-	-	-	-	-
-	-	-	-	-	-	-	0.019	0.001	-	-	-	-	-
-	-	-	-	-	-	-	1.268	0.046	-	-	-	-	-
-	-	-	-	-	-	-	0.066	0.002	-	-	-	-	-
-	-	-	-	-	-	-	1.257	0.046	-	-	-	-	-
-	-	-	-	-	-	-	0.007	0.000	-	-	-	-	-
-	-	-	-	-	-	-	1.057	0.039	-	-	-	-	-
-	-	-	-	-	-	-	0.007	0.000	-	-	-	-	-
-	-	-	-	-	-	-	0.758	0.028	-	-	-	-	-
-	-	-	-	-	-	-	0.007	0.000	-	-	-	-	-
-	-	-	-	-	-	-	0.259	0.009	-	-	-	-	-
-	-	-	-	-	-	-	0.007	0.000	-	-	-	-	-
-	-	-	-	-	-	-	0.811	0.030	-	-	-	-	-
-	-	-	-	-	-	-	0.806	0.030	-	-	-	-	-
-	-	-	-	-	-	-	0.806	0.030	-	-	-	-	-
-	-	-	-	-	-	-	0.215	0.008	-	-	-	-	-
-	-	-	-	-	-	-	0.210	0.008	-	-	-	-	-
-	-	-	-	-	-	-	0.205	0.008	-	-	-	-	-
-	-	-	-	-	-	-	0.364	0.013	-	-	-	-	-
-	-	-	-	-	-	-	0.330	0.012	-	-	-	-	-
-	-	-	-	-	-	-	0.197	0.007	-	-	-	-	-
-	-	-	-	-	-	-	0.405	0.015	-	-	-	-	-
-	-	-	-	-	-	-	0.389	0.014	-	-	-	-	-
-	-	-	-	-	-	-	0.352	0.013	-	-	-	-	-
-	-	-	-	-	-	-	0.279	0.010	-	-	-	-	-
-	-	-	-	-	-	-	0.279	0.010	-	-	-	-	-
-	-	-	-	-	-	-	0.279	0.010	-	-	-	-	-

San Pedro Waterfront

Harbor Craft Unmitigated Emissions	
Proposed Project, Alt1, Alt2, Alt3, Alt4, Alt5	
Maximum Year (lb/yr) - DPM Only	
	DPM
Assist Tugs Transit 2009-2013	6,192
Assist Tugs Hotelling 2009-2013	380
Assist Tugs Transit 2013-2014	3,096
Assist Tugs Hotelling 2013-2014	380
Assist Tugs Transit 2014-2015	3,096
Assist Tugs Hotelling 2014-2015	380
Assist Tugs Transit 2015-2018	3,090
Assist Tugs Hotelling 2015-2018	380
Assist Tugs Transit 2018-2020	3,090
Assist Tugs Hotelling 2018-2020	380
Assist Tugs Transit 2020-2037	3,058
Assist Tugs Hotelling 2020-2037	380
Ferry Vessels 2010-2014	6,127
Ferry Vessels 2015-2029	6,124
Ferry Vessels 2030-2037	6,091
Commercial Fishing 2010-2014	2,585
Commercial Fishing 2015-2029	2,514
Commercial Fishing 2030+	2,442
Crew Boats 2010-2014	727
Crew Boats 2015-2029	661
Crew Boats 2030+	393
Excursion 2010-2014	5,839
Excursion 2015-2029	5,598
Excursion 2030-2037	5,054
Government Boats 2010-2014	688
Government Boats 2015-2029	688
Government Boats 2030+	688

Harbor Craft Mitigated Emissions	
Proposed Project, Alt1, Alt2, Alt3, Alt4, Alt5	
Maximum Year (lb/yr) - DPM Only	
	DPM
Assist Tugs Transit 2009	6,192
Assist Tugs Hotelling 2009	380
Assist Tugs Transit 2010-2012	6,169
Assist Tugs Hotelling 2010-2012	374
Assist Tugs Transit 2013-2014	3,084
Assist Tugs Hotelling 2013-2014	159
Assist Tugs Transit 2014-2015	3,058
Assist Tugs Hotelling 2014-2015	16
Assist Tugs Transit 2015-2018	2,572
Assist Tugs Hotelling 2015-2018	16
Assist Tugs Transit 2018-2020	1,844
Assist Tugs Hotelling 2018-2020	16
Assist Tugs Transit 2020-2037	630
Assist Tugs Hotelling 2020-2037	16
Ferry Vessels 2010-2014	6,118
Ferry Vessels 2015-2029	6,093
Ferry Vessels 2030-2037	6,093
Commercial Fishing 2010-2014	2,585
Commercial Fishing 2015-2029	2,514
Commercial Fishing 2030+	2,442
Crew Boats 2010-2014	727
Crew Boats 2015-2029	661
Crew Boats 2030+	393
Excursion 2010-2014	5,839
Excursion 2015-2029	5,598
Excursion 2030-2037	5,054
Government Boats 2010-2014	688
Government Boats 2015-2029	688
Government Boats 2030+	688

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Harbor Craft: Proposed Project and Alternatives 1, 2, 3, 4, and 5												
	lb/yr	Project Start Year	Evaluation Year			Evaluation Year			Evaluation Year			Evaluation Year		
	70-year average	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
DPM														
Assist Tugs Transit	3,330	6,192	6,192	6,192	6,192	6,192	6,192	3,090	3,090	3,090	3,090	3,090		
Assist Tugs Hotelling	380	380	380	380	380	380	380	380	380	380	380	380		
Ferry Vessels	6,105	6,127	6,127	6,127	6,127	6,127	6,127	6,124	6,124	6,124	6,124	6,124		
Commercial Fishing	2,477	2,585	2,585	2,585	2,585	2,585	2,585	2,514	2,514	2,514	2,514	2,514		
Crew Boats	506	727	727	727	727	727	727	661	661	661	661	661		
Excursion	5,292	5,839	5,839	5,839	5,839	5,839	5,839	5,598	5,598	5,598	5,598	5,598		
Government Boats	688	688	688	688	688	688	688	688	688	688	688	688		
70-Year Average Calculations														
		Mitigated Harbor Craft: Proposed Project and Alternatives 1, 2, 3, 4, and 5												
	lb/yr	Project Start Year	Evaluation Year			Evaluation Year			Evaluation Year			Evaluation Year		
	70-year average	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
DPM														
Assist Tugs Transit	1,123	6,192	6,192	3,084	3,084	3,084	3,084	2,572	2,572	2,572	2,572	2,572		
Assist Tugs Hotelling	35	380	380	159	159	159	159	16	16	16	16	16		
Ferry Vessels	6,096	6,129	6,129	6,118	6,118	6,118	6,118	6,093	6,093	6,093	6,093	6,093		
Commercial Fishing	2,477	2,585	2,585	2,585	2,585	2,585	2,585	2,514	2,514	2,514	2,514	2,514		
Crew Boats	506	727	727	727	727	727	727	661	661	661	661	661		
Excursion	5,292	5,839	5,839	5,839	5,839	5,839	5,839	5,598	5,598	5,598	5,598	5,598		
Government Boats	688	688	688	688	688	688	688	688	688	688	688	688		

San Pedro Waterfront

2020	Evaluation Year																2038	
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
3,090	3,090	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058
380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380
6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,124	6,091
2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,442
661	661	661	661	661	661	661	661	661	661	661	661	661	661	661	661	661	661	393
5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,054
688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688

2020	Evaluation Year																2038	
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
2,572	2,572	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093
2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,442
661	661	661	661	661	661	661	661	661	661	661	661	661	661	661	661	661	661	393
5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,598	5,054
688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058
380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380
6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091
2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442
393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393
5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054
688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093
2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442
393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393
5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054
688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688

San Pedro Waterfront

2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058	3,058
380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380
6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091	6,091
2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442
393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393
5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054
688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688

2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093	6,093
2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442	2,442
393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393	393
5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054
688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688	688

Harbor Craft Unmitigated Emissions
Alternative 6 - Summary

	Harbor Craft Criteria Pollutant Emissions Annual (lb/yr)							
	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Assist Tugs Transit 2010-2014	39,308	6,192	5,047	184,142	6,192	5,696	96.4	5,314
Assist Tugs Hotelling 2010-2014	1,518	405	273	10,019	405	372	6.1	288
Assist Tugs Transit 2014-2015	39,308	6,192	5,047	184,142	6,192	5,696	96.4	5,314
Assist Tugs Hotelling 2014-2015	1,518	405	273	10,019	405	372	6.1	288
Assist Tugs Transit 2015-2018	54,707	6,179	5,047	157,125	6,179	5,685	96.4	5,314
Assist Tugs Hotelling 2015-2018	1,518	405	273	10,019	405	372	6.1	288
Assist Tugs Transit 2018-2020	54,707	6,179	5,047	157,125	6,179	5,685	96.4	5,314
Assist Tugs Hotelling 2018-2020	1,518	405	273	10,019	405	372	6.1	288
Assist Tugs Transit 2020-2037	80,303	6,116	5,047	118,479	6,116	5,626	96.4	5,314
Assist Tugs Hotelling 2020-2037	1,518	405	273	10,019	405	372	6.1	288
Ferry Vessels 2010-2014	81,596	6,129	5,484	169,631	6,129	5,639	122	5,775
Ferry Vessels 2015-2029	84,818	6,126	5,484	161,804	6,126	5,636	122	5,775
Ferry Vessels 2030-2037	101,556	6,093	5,484	138,116	6,093	5,606	122	5,775
Commercial Fishing 2010-2014	19,869	2,585	2,198	69,460	2,585	2,379	49	2,314
Commercial Fishing 2015-2029	27,601	2,514	2,198	67,304	2,514	2,312	49	2,314
Commercial Fishing 2030+	40,695	2,442	2,198	55,345	2,442	2,246	49	2,314
Crew Boats 2010-2014	1,966	727	294	11,017	727	669	6.5	309
Crew Boats 2015-2029	2,661	661	294	10,187	661	608	6.5	309
Crew Boats 2030+	5,440	393	294	7,398	393	362	6.5	309
Excursion 2010-2014	27,618	5,839	4,407	161,066	5,839	5,372	98	4,641
Excursion 2015-2029	46,084	5,598	4,407	143,478	5,598	5,150	98	4,641
Excursion 2030-2037	81,619	5,054	4,407	111,002	5,054	4,650	98	4,641
Government Boats 2010-2014	3,439	688	619	22,855	688	633	14	652
Government Boats 2015-2029	6,841	688	619	19,744	688	633	14	652
Government Boats 2030+	11,462	688	619	15,589	688	633	14	652
<i>Total</i>	<i>819,189</i>	<i>79,106</i>	<i>65,606</i>	<i>2,015,105</i>	<i>79,106</i>	<i>72,777</i>	<i>1,379</i>	<i>69,083</i>
Total 2010-2014	175,314	22,565	18,322	628,189	22,565	20,760	391	19,293
Total 2015	208,832	22,182	18,322	596,678	22,182	20,408	391	19,293
Total 2015-2018	224,230	22,170	18,322	569,662	22,170	20,396	391	19,293
Total 2018-2020	224,230	22,170	18,322	569,662	22,170	20,396	391	19,293
Total 2020-2037	317,153	20,797	18,028	448,550	20,797	19,134	385	18,984

Harbor Craft Criteria Pollutant Emissions Daily (lb/day)

Harbor Craft Criteria Pollutant Emissions Hourly (lb/hr)

Harbor Craft Criteria Pollutant Emissions Daily (lb/day)								Harbor Craft Criteria Pollutant Emissions Hourly (lb/hr)							
CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
108	17.0	13.8	504	17.0	15.6	0.26	14.6	53.8	8.5	6.9	252	8.5	7.8	0.1	7.3
4.2	1.1	0.7	27	1.1	1.0	0.02	0.8	0.5	0.1	0.1	3	0.1	0.1	0.002	0.1
107.7	17.0	13.8	504	17.0	15.6	0.26	14.6	53.8	8.5	6.9	252	8.5	7.8	0.1	7.3
4.2	1.1	0.7	27	1.1	1.0	0.02	0.8	0.5	0.1	0.1	3	0.1	0.1	0.002	0.1
149.9	16.9	13.8	430	16.9	15.6	0.26	14.6	74.9	8.5	6.9	215	8.5	7.8	0.1	7.3
4.2	1.1	0.7	27	1.1	1.0	0.02	0.8	0.5	0.1	0.1	3	0.1	0.1	0.002	0.1
149.9	16.9	13.8	430	16.9	15.6	0.26	14.6	74.9	8.5	6.9	215	8.5	7.8	0.1	7.3
4.2	1.1	0.7	27	1.1	1.0	0.02	0.8	0.5	0.1	0.1	3	0.1	0.1	0.002	0.1
220.0	16.8	13.8	325	16.8	15.4	0.26	14.6	110.0	8.4	6.9	162	8.4	7.7	0.1	7.3
4.2	1.1	0.7	27	1.1	1.0	0.02	0.8	0.5	0.1	0.1	3	0.1	0.1	0.002	0.1
224	17	15	465	17	15	0.3	16	71.6	5.4	4.8	149.9	5.4	5.0	0.1	5.1
232	17	15	443	17	15	0.3	16	74.4	5.4	4.8	143.0	5.4	5.0	0.1	5.1
278	17	15	378	17	15	0.3	16	89.6	5.4	4.8	121.8	5.4	4.9	0.1	5.1
54	7.1	6.0	190	7.1	6.5	0.1	6.3	14	1.4	1.2	39	1.4	1.3	0.03	1.3
76	6.9	6.0	184	6.9	6.3	0.1	6.3	15	1.4	1.2	38	1.4	1.3	0.03	1.3
111	6.7	6.0	152	6.7	6.2	0.1	6.3	23	1.4	1.2	31	1.4	1.3	0.03	1.3
5	2.0	0.8	30	2.0	1.8	0.02	0.8	7	2.4	1.0	37	2.4	2.2	0.02	1.0
7	1.8	0.8	28	1.8	1.7	0.02	0.8	9	2.2	1.0	34	2.2	2.0	0.02	1.0
15	1.1	0.8	20	1.1	1.0	0.02	0.8	18	1.3	1.0	25	1.3	1.2	0.02	1.0
76	16	12	441	16	15	0.3	13	13	2.7	2.0	75	2.7	2.5	0.05	2.2
126	15	12	393	15	14	0.3	13	21	2.6	2.0	67	2.6	2.4	0.05	2.2
224	14	12	304	14	13	0.3	13	38	2.3	2.0	52	2.3	2.2	0.05	2.2
9	1.9	1.7	63	1.9	1.7	0.04	1.8	9	1.9	1.7	62	1.9	1.7	0.04	1.8
19	1.9	1.7	54	1.9	1.7	0.04	1.8	19	1.9	1.7	53	1.9	1.7	0.04	1.8
31	1.9	1.7	43	1.9	1.7	0.04	1.8	31	1.9	1.7	42	1.9	1.7	0.04	1.8
2,244	277	180	5,527	277	199	4	189	823	83	67	2,082	83	76	7	77
480	62	50	1,721	62	57	1	53	169	22	18	618	22	21	0	19
572	61	50	1,635	61	56	1	53	193	22	18	590	22	20	0	19
614	61	50	1,561	61	56	1	53	214	22	18	553	22	20	0	19
614	61	50	1,561	61	56	1	53	214	22	18	553	22	20	0	19
869	57	49	1,229	57	52	1	52	292	19	17	412	19	18	0	18

Harbor Craft Unmitigated Emissions

Alternative 6 - Summary

Peak-Hour

	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Assist Tugs Transit 2010-2014	0.613	0.166	1.243	0.083	0.007	0.013	0.215	0.124	-	-
Assist Tugs Hotelling 2010-2014	0.008	0.002	0.017	0.001	0.000	0.000	0.003	0.002	-	-
Assist Tugs Transit 2014-2015	0.613	0.166	1.243	0.083	0.007	0.013	0.215	0.124	-	-
Assist Tugs Hotelling 2014-2015	0.008	0.002	0.017	0.001	0.000	0.000	0.003	0.002	-	-
Assist Tugs Transit 2015-2018	0.613	0.166	1.243	0.083	0.007	0.013	0.215	0.124	-	-
Assist Tugs Hotelling 2015-2018	0.008	0.002	0.017	0.001	0.000	0.000	0.003	0.002	-	-
Assist Tugs Transit 2018-2020	0.613	0.166	1.243	0.083	0.007	0.013	0.215	0.124	-	-
Assist Tugs Hotelling 2018-2020	0.008	0.002	0.017	0.001	0.000	0.000	0.003	0.002	-	-
Assist Tugs Transit 2020-2037	0.613	0.166	1.243	0.083	0.007	0.013	0.215	0.124	-	-
Assist Tugs Hotelling 2020-2037	0.008	0.002	0.017	0.001	0.000	0.000	0.003	0.002	-	-
Ferry Vessels 2010-2014	0.429	0.116	0.870	0.058	0.005	0.009	0.151	0.087	-	-
Ferry Vessels 2015-2029	0.429	0.116	0.870	0.058	0.005	0.009	0.151	0.087	-	-
Ferry Vessels 2030-2037	0.429	0.116	0.870	0.058	0.005	0.009	0.151	0.087	-	-
Commercial Fishing 2010-2014	0.109	0.030	0.221	0.015	0.001	0.002	0.038	0.022	-	-
Commercial Fishing 2015-2029	0.109	0.030	0.221	0.015	0.001	0.002	0.038	0.022	-	-
Commercial Fishing 2030+	0.109	0.030	0.221	0.015	0.001	0.002	0.038	0.022	-	-
Crew Boats 2010-2014	0.087	0.023	0.176	0.012	0.001	0.002	0.031	0.018	-	-
Crew Boats 2015-2029	0.087	0.023	0.176	0.012	0.001	0.002	0.031	0.018	-	-
Crew Boats 2030+	0.087	0.023	0.176	0.012	0.001	0.002	0.031	0.018	-	-
Excursion 2010-2014	0.181	0.049	0.368	0.025	0.002	0.004	0.064	0.037	-	-
Excursion 2015-2029	0.181	0.049	0.368	0.025	0.002	0.004	0.064	0.037	-	-
Excursion 2030-2037	0.181	0.049	0.368	0.025	0.002	0.004	0.064	0.037	-	-
Government Boats 2010-2014	0.148	0.040	0.301	0.020	0.002	0.003	0.052	0.030	-	-
Government Boats 2015-2029	0.148	0.040	0.301	0.020	0.002	0.003	0.052	0.030	-	-
Government Boats 2030+	0.148	0.040	0.301	0.020	0.002	0.003	0.052	0.030	-	-

[Redacted Header]													
Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	1.272	0.047	-	-	-	-	-
-	-	-	-	-	-	-	0.021	0.001	-	-	-	-	-
-	-	-	-	-	-	-	1.272	0.047	-	-	-	-	-
-	-	-	-	-	-	-	0.021	0.001	-	-	-	-	-
-	-	-	-	-	-	-	1.270	0.047	-	-	-	-	-
-	-	-	-	-	-	-	0.021	0.001	-	-	-	-	-
-	-	-	-	-	-	-	1.270	0.047	-	-	-	-	-
-	-	-	-	-	-	-	0.021	0.001	-	-	-	-	-
-	-	-	-	-	-	-	1.257	0.046	-	-	-	-	-
-	-	-	-	-	-	-	0.021	0.001	-	-	-	-	-
-	-	-	-	-	-	-	0.814	0.030	-	-	-	-	-
-	-	-	-	-	-	-	0.813	0.030	-	-	-	-	-
-	-	-	-	-	-	-	0.806	0.030	-	-	-	-	-
-	-	-	-	-	-	-	0.215	0.008	-	-	-	-	-
-	-	-	-	-	-	-	0.210	0.008	-	-	-	-	-
-	-	-	-	-	-	-	0.205	0.008	-	-	-	-	-
-	-	-	-	-	-	-	0.364	0.013	-	-	-	-	-
-	-	-	-	-	-	-	0.330	0.012	-	-	-	-	-
-	-	-	-	-	-	-	0.197	0.007	-	-	-	-	-
-	-	-	-	-	-	-	0.405	0.015	-	-	-	-	-
-	-	-	-	-	-	-	0.389	0.014	-	-	-	-	-
-	-	-	-	-	-	-	0.352	0.013	-	-	-	-	-
-	-	-	-	-	-	-	0.279	0.010	-	-	-	-	-
-	-	-	-	-	-	-	0.279	0.010	-	-	-	-	-
-	-	-	-	-	-	-	0.279	0.010	-	-	-	-	-

Harbor Craft Unmitigated Emissions Alternative 6 Maximum Year (lb/yr) - DPM Only	
	DPM
Assist Tugs Transit 2010-2014	6,192
Assist Tugs Hotelling 2010-2014	405
Assist Tugs Transit 2014-2015	6,192
Assist Tugs Hotelling 2014-2015	405
Assist Tugs Transit 2015-2018	6,179
Assist Tugs Hotelling 2015-2018	405
Assist Tugs Transit 2018-2020	6,179
Assist Tugs Hotelling 2018-2020	405
Assist Tugs Transit 2020-2037	6,116
Assist Tugs Hotelling 2020-2037	405
Ferry Vessels 2010-2014	6,129
Ferry Vessels 2015-2029	6,126
Ferry Vessels 2030-2037	6,093
Commercial Fishing 2010-2014	2,585
Commercial Fishing 2015-2029	2,514
Commercial Fishing 2030+	2,442
Crew Boats 2010-2014	727
Crew Boats 2015-2029	661
Crew Boats 2030+	393
Excursion 2010-2014	5,839
Excursion 2015-2029	5,598
Excursion 2030-2037	5,054
Government Boats 2010-2014	688
Government Boats 2015-2029	688
Government Boats 2030+	688

Unmitigated Project Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>43.2</i>	<i>78.2</i>	<i>19.6</i>	<i>549.7</i>	<i>78.2</i>	<i>62.6</i>	<i>752.5</i>	<i>20.7</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.8</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hotelling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hotelling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	

First Peak Hour Scenario (per vessel) 44 79 20 563 83 67 853 21

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel) 18 31 8 223 34 27 359 8

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

*Emissions = Engine Power * Load Factor * Emission Factor * Time*

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3 Year 2011 only
1 All other years

Unmitigated Project Criteria Pollutant Emissions										
Year: 2015, 2022, 2037										
Peak Hourly (lb/hr) for Single Type 3 Vessel										
Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario		19	34	9	242	37	29	385	9	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
Emissions = Engine Power * Load Factor * Emission Factor * Time										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.										
VOC/HC = 1.053										
1 lb = 453.59										
Assumptions										
1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.										
4. Peak hourly emissions assume no VSRP.										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:										
								0		Year 2011 only
								3		All other years

Unmitigated Project Criteria Pollutant Emissions
 Year: 2011, 2015, 2022, 2037

Peak Day (lb/day) for Single Type 2 Vessel, One-Way Trip

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - South-Bound	Diesel Engines	115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Fairway - North-Bound	Diesel Engines	85.6	155.0	38.9	1,089.4	155.0	124.0	1,491.4	41.0
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		85.6	155.0	38.9	1,089.4	155.0	124.0	1,491.4	41.0
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		24	42	11	301	44	35	450	11
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
Total Outer Harbor Zone1		6	10	3	71	11	8	109	3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	135.9	3.3
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.81
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.3	158.2	3.9
Hoisting	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	295.0	3,584.7	98.47
Hoisting	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.79
Total Hoisting		211.0	372.4	96.2	2,673.5	406.6	325.3	4,312.2	101.3
Outer Harbor Berths per Vessel - Peak Day (lb/day)		673	1,207	306	8,547	1,246	997	12,453	322
Inner Harbor Berths per Vessel - Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2011 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Vessel Type 2 Hoisting Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304
2015 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		481	868	218	6,114	875	700	8,511	230
2015 Vessel Type 2 Hoisting Peak Day (lb/day)		211	372	96	2,674	407	325	4,312	101
2022 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		481	868	218	6,114	875	700	8,511	230
2022 Vessel Type 2 Hoisting Peak Day (lb/day)		211	372	96	2,674	407	325	4,312	101
2037 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		481	868	218	6,114	875	700	8,511	230
2037 Vessel Type 2 Hoisting Peak Day (lb/day)		211	372	96	2,674	407	325	4,312	101

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels	
	bound to Inner Harbor	bound to Outer Harbor
2011	3	0
2015	1	0
2022	1	0
2037	1	0

Unmitigated Project Criteria Pollutant Emissions
 Year: 2015, 2022, 2037

Peak Day (lb/day) for Single Type 3 Vessel, One-Way Trip

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - South-Bound	Diesel Engines	134.4	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.4	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Fairway - North-Bound	Diesel Engines	98.6	178.5	44.8	1,254.6	178.5	142.8	1,717.7	47.2
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		98.6	178.5	44.8	1,254.6	178.5	142.8	1,717.7	47.2
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.2
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		27	48	12	339	50	40	502	13
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
Total Outer Harbor Zone1		6	11	3	78	12	9	118	3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.60
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.19
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
Total Inner Harbor Zone		8.9	15.8	4.0	112.9	16.7	13.4	171.8	4.3
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	106.91
Hotelling	Boiler	5.3	2.6	2.6	55.6	34.2	27.3	727.5	2.79
Total Hotelling		228.8	404.6	104.2	2,900.0	438.8	351.0	4,621.8	109.8
Outer Harbor Berths per Vessel - Peak Day (lb/day)		760	1,299	329	9,193	1,338	1,070	13,338	347
Inner Harbor Berths per Vessel - Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Outer Harbor Berths Peak Day (lb/day)		1,520	2,597	658	18,386	2,676	2,141	26,676	693
2015 Total Inner Harbor Berths Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2022 Total Outer Harbor Berths Peak Day (lb/day)		1,520	2,597	658	18,386	2,676	2,141	26,676	693
2022 Total Inner Harbor Berths Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2037 Total Outer Harbor Berths Peak Day (lb/day)		1,520	2,597	658	18,386	2,676	2,141	26,676	693
2037 Total Inner Harbor Berths Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2011 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,615	2,719	684	19,143	2,737	2,189	26,551	720
2015 Vessel Type 3 Hotelling Peak Day (lb/day)		686	1,214	313	8,700	1,316	1,053	13,865	329
2022 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,615	2,719	684	19,143	2,737	2,189	26,551	720
2022 Vessel Type 3 Hotelling Peak Day (lb/day)		686	1,214	313	8,700	1,316	1,053	13,865	329
2037 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,615	2,719	684	19,143	2,737	2,189	26,551	720
2037 Vessel Type 3 Hotelling Peak Day (lb/day)		686	1,214	313	8,700	1,316	1,053	13,865	329

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	0	0
2015	1	2
2022	1	2
2037	1	2

Unmitigated Project Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Total Peak Day (lb/day) for all Vessels

	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
2011 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2015 Transit & Maneuvering Peak Day (lb/day)	2,096	3,587	903	25,257	3,612	2,890	35,062	950
2015 Hotelling Peak Day (lb/day)	897	1,586	409	11,374	1,723	1,378	18,177	431
2022 Transit & Maneuvering Peak Day (lb/day)	2,096	3,587	903	25,257	3,612	2,890	35,062	950
2022 Hotelling Peak Day (lb/day)	897	1,586	409	11,374	1,723	1,378	18,177	431
2037 Transit & Maneuvering Peak Day (lb/day)	2,096	3,587	903	25,257	3,612	2,890	35,062	950
2037 Hotelling Peak Day (lb/day)	897	1,586	409	11,374	1,723	1,378	18,177	431

Unmitigated Project Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037
 8-Hour (lb/8-hr) for Single Type 2 Vessel

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	11.5	20.8	5.2	145.9	20.8	16.6	199.8	5.5	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>11.5</i>	<i>20.8</i>	<i>5.2</i>	<i>145.9</i>	<i>20.8</i>	<i>16.6</i>	<i>199.8</i>	<i>5.5</i>	
Sea / Fairway - South-Bound	Diesel Engines	14.5	26.2	6.6	184.4	26.2	21.0	252.5	6.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>14.5</i>	<i>26.2</i>	<i>6.6</i>	<i>184.4</i>	<i>26.2</i>	<i>21.0</i>	<i>252.5</i>	<i>6.9</i>	
Fairway - North-Bound	Diesel Engines	10.7	19.4	4.9	136.2	19.4	15.5	186.4	5.1	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>10.7</i>	<i>19.4</i>	<i>4.9</i>	<i>136.2</i>	<i>19.4</i>	<i>15.5</i>	<i>186.4</i>	<i>5.1</i>	
Fairway - South-Bound	Diesel Engines	5.4	9.8	2.5	68.7	9.8	7.8	94.1	2.6	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>5.4</i>	<i>9.8</i>	<i>2.5</i>	<i>68.7</i>	<i>9.8</i>	<i>7.8</i>	<i>94.1</i>	<i>2.6</i>	
Precautionary Zone - North-Bound	Diesel Engines	2.6	4.7	1.2	32.8	4.7	3.7	44.9	1.2	0.63
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.0	
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>4.7</i>	<i>1.2</i>	<i>33.2</i>	<i>4.9</i>	<i>3.9</i>	<i>49.7</i>	<i>1.3</i>	
Precautionary Zone - South-Bound	Diesel Engines	2.9	5.3	1.3	37.2	5.3	4.2	50.9	1.4	0.71
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.4	0.3	0.2	5.4	0.0	
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>5.3</i>	<i>1.3</i>	<i>37.6</i>	<i>5.5</i>	<i>4.4</i>	<i>56.3</i>	<i>1.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.7	1.2	0.3	8.7	1.2	1.0	11.9	0.3	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.01	-	0.006	0.13	0.08	0.06	1.7	0.01	
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>8.8</i>	<i>1.3</i>	<i>1.1</i>	<i>13.6</i>	<i>0.3</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.5	0.4	10.9	1.5	1.2	14.9	0.4	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.5</i>	<i>0.4</i>	<i>11.0</i>	<i>1.6</i>	<i>1.3</i>	<i>17.0</i>	<i>0.4</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.8	0.5	12.7	1.8	1.4	17.3	0.5	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.5</i>	<i>12.9</i>	<i>1.9</i>	<i>1.5</i>	<i>19.8</i>	<i>0.5</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	

First Max 8-Hour Scenario (per vessel)

50 91 23 639 91 73 889 24

First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors.

Second Max 8-Hour Scenario (per vessel)

18 31 8 223 34 27 359 8

Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.

*Emissions = Engine Power * Load Factor * Emission Factor * Time*

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.
3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak 8-hour emissions assume no VSRP.

For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 2 vessels:

3 Year 2011 only
 1 All other years

Unmitigated Project Criteria Pollutant Emissions										
Year: 2015, 2022, 2037										
8-Hour (lb/8-hr) for Single Type 3 Vessel										
Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4	
Sea / Fairway - South-Bound	Diesel Engines	16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0	
Fairway - North-Bound	Diesel Engines	12.3	22.3	5.6	156.8	22.3	17.8	214.7	5.9	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		12.3	22.3	5.6	156.8	22.3	17.8	214.7	5.9	
Fairway - South-Bound	Diesel Engines	6.2	11.3	2.8	79.1	11.3	9.0	108.3	3.0	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		6.2	11.3	2.8	79.1	11.3	9.0	108.3	3.0	
Precautionary Zone - North-Bound	Diesel Engines	2.9	5.3	1.3	37.0	5.3	4.2	50.7	1.4	0.63
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.0	
Total Precautionary Zone - North-Bound		2.9	5.3	1.3	37.4	5.5	4.4	55.4	1.4	
Precautionary Zone - South-Bound	Diesel Engines	3.3	6.0	1.5	41.9	6.0	4.8	57.4	1.6	0.71
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.4	0.3	0.2	5.4	0.0	
Total Precautionary Zone - South-Bound		3.3	6.0	1.5	42.4	6.2	5.0	62.8	1.6	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	1.4	0.3	9.6	1.4	1.1	13.1	0.4	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.1	0.1	1.7	0.01	
Total Outer Harbor Zone1		0.8	1.4	0.3	9.7	1.4	1.2	14.8	0.4	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.7	0.4	12.0	1.7	1.4	16.4	0.4	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
Total Outer Harbor Zone2		1.0	1.7	0.4	12.1	1.8	1.4	18.5	0.5	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	2.0	0.5	13.9	2.0	1.6	19.1	0.5	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
Total Inner Harbor Zone		1.1	2.0	0.5	14.1	2.1	1.7	21.5	0.5	
Hotelling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Max 8-Hour Scenario (per vessel)		58	104	26	734	105	84	1,020	28	
First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Max 8-Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	
Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.										
Emissions = Engine Power * Load Factor * Emission Factor * Time										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.										
VOC/HC = 1.053										
1 lb = 453.59										
Assumptions										
1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.										
3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.										
4. Peak 8-hour emissions assume no VSRP.										
For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 3 vessels:										
0 Year 2011 only										
3 All other years										

Unmitigated Project Criteria Pollutant Emissions

Year: 2011

Average Day (lb/day) for Single Average Vessel, Round Trip

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,425.4	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		198.0	270.1	90.0	2,425.4	270.1	216.1	2,070.5	94.8
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,065.0	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		250.3	341.3	113.8	3,065.0	341.3	273.0	2,616.5	119.8
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,798.1	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		146.8	200.2	66.7	1,798.1	200.2	160.2	1,535.0	70.3
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	907.3	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		74.1	101.0	33.7	907.3	101.0	80.8	774.6	35.5
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	537.5	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		44.4	59.9	20.2	543.3	62.1	49.6	504.3	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	609.2	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		50	68	23	616	70	56	572	24
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.5	15.7	5.2	140.7	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		11.7	15.7	5.3	142.7	16.5	13.1	136.1	5.6
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	14.4	19.6	6.5	175.9	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		14.6	19.6	6.7	178.5	20.6	16.4	170.2	7.0
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines	16.7	22.8	7.6	204.7	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		17.0	22.8	7.7	207.7	23.9	19.1	198.0	8.1
Hoteling	Diesel Engines	214.6	292.7	97.6	2,628.2	292.7	234.1	2,243.7	102.7
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hoteling		219.9	292.7	100.2	2,683.8	313.8	251.1	2,680.2	105.5

Unmitigated Project Criteria Pollutant Emissions

Year: 2011

Average Annual (lb/yr)

Spacial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,890	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.33	0.44	0.15	3.99	0.45	0.36	3.65	0.16
South-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.90	0.44	0.35	3.57	0.15
Temporal Allocation								
2011 Total Annual Emissions (ton/yr)	86	116	39	1,050	119	96	969	41

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels) * Time * 2 (1-Way) Trips * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 53%
- 6. A year based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Unmitigated Project Criteria Pollutant Emissions

Year: 2015

Average Day (lb/day) for Single Average Vessel, Round Trip

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,414.9	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		198.0	270.1	90.0	2,414.9	270.1	216.1	2,070.5	94.8
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,051.8	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		250.3	341.3	113.8	3,051.8	341.3	273.0	2,616.5	119.8
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,790.4	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		146.8	200.2	66.7	1,790.4	200.2	160.2	1,535.0	70.3
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	903.4	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		74.1	101.0	33.7	903.4	101.0	80.8	774.6	35.5
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	535.2	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		44.4	59.9	20.2	541.0	62.1	49.6	504.3	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	606.6	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		50	68	23	613	70	56	572	24
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.5	15.7	5.2	140.1	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		12	16	5	142	16	13	136	6
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	14.4	19.6	6.5	175.1	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		14.6	19.6	6.7	177.7	20.6	16.4	170.2	7.0
Inner Harbor Zone (maneuvering through main channel: in)	Diesel Engines	16.7	22.8	7.6	203.8	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel: in)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		17.0	22.8	7.7	206.8	23.9	19.1	198.0	8.1
Hoteling	Diesel Engines	214.6	292.7	97.6	2,616.9	292.7	234.1	2,243.7	102.7
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hoteling		219.9	292.7	100.2	2,672.5	313.8	251.1	2,680.2	105.5

Unmitigated Project Criteria Pollutant Emissions

Year: 2015

Average Annual (lb/yr)

Spacial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	614	828	279	7,472	853	682	6,853	294
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	291	7,856	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.92	0.45	0.36	3.60	0.15
South-Bound Single Vessel Average Day (ton/day)	0.31	0.42	0.14	3.83	0.44	0.35	3.52	0.15
Temporal Allocation								
2015 Total Annual Emissions (ton/yr)	97	111	37	1,055	120	96	970	41

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels) * Time * 2 (1-Way) Trips * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 59%
- 6. A year based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Unmitigated Project Criteria Pollutant Emissions

Year: 2022

Average Day (lb/day) for Single Average Vessel, Round Trip

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,399.5	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>198.0</i>	<i>270.1</i>	<i>90.0</i>	<i>2,399.5</i>	<i>270.1</i>	<i>216.1</i>	<i>2,070.5</i>	<i>94.8</i>
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,032.4	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>250.3</i>	<i>341.3</i>	<i>113.8</i>	<i>3,032.4</i>	<i>341.3</i>	<i>273.0</i>	<i>2,616.5</i>	<i>119.8</i>
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,779.0	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>146.8</i>	<i>200.2</i>	<i>66.7</i>	<i>1,779.0</i>	<i>200.2</i>	<i>160.2</i>	<i>1,535.0</i>	<i>70.3</i>
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	897.6	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>74.1</i>	<i>101.0</i>	<i>33.7</i>	<i>897.6</i>	<i>101.0</i>	<i>80.8</i>	<i>774.6</i>	<i>35.5</i>
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	531.8	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>44.4</i>	<i>59.9</i>	<i>20.2</i>	<i>537.6</i>	<i>62.1</i>	<i>49.6</i>	<i>504.3</i>	<i>21.3</i>
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	602.7	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>50.3</i>	<i>68</i>	<i>23</i>	<i>609</i>	<i>70</i>	<i>56</i>	<i>572</i>	<i>24</i>
Outer Harbor Zone1 (vessels bound to outer harbor)	Diesel Engines	11.5	15.7	5.2	139.2	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
<i>Total Outer Harbor Zone1</i>		<i>11.7</i>	<i>15.7</i>	<i>5.3</i>	<i>141.2</i>	<i>16.5</i>	<i>13.1</i>	<i>136.1</i>	<i>5.6</i>
Outer Harbor Zone2 (vessels bound to inner harbor)	Diesel Engines	14.4	19.6	6.5	174.0	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
<i>Total Outer Harbor Zone2</i>		<i>14.6</i>	<i>19.6</i>	<i>6.7</i>	<i>176.5</i>	<i>20.6</i>	<i>16.4</i>	<i>170.2</i>	<i>7.0</i>
Inner Harbor Zone (maneuvering through mail)	Diesel Engines	16.7	22.8	7.6	202.5	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through mail)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
<i>Total Inner Harbor Zone</i>		<i>17.0</i>	<i>22.8</i>	<i>7.7</i>	<i>205.5</i>	<i>23.9</i>	<i>19.1</i>	<i>198.0</i>	<i>8.1</i>
Hoteling	Diesel Engines	214.6	292.7	97.6	2,600.2	292.7	234.1	2,243.7	102.7
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
<i>Total Hoteling</i>		<i>219.9</i>	<i>292.7</i>	<i>100.2</i>	<i>2,655.8</i>	<i>313.9</i>	<i>251.0</i>	<i>2,680.2</i>	<i>105.5</i>

Unmitigated Project Criteria Pollutant Emissions

Year: 2022

Average Annual (lb/yr)

Spacial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	614	828	279	7,425	853	687	6,853	294
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,807	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.90	0.45	0.36	3.60	0.15
South-Bound Single Vessel Average Day (ton/day)	0.31	0.42	0.14	3.81	0.44	0.35	3.52	0.15
Temporal Allocation								
2022 Total Annual Emissions (ton/yr)	85	120	40	1,075	121	97	990	41

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels) * Time * 2 (1-Way) Trips * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 67%
- 6. A year based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Unmitigated Project Criteria Pollutant Emissions

Year: 2037

Average Day (lb/day) for Single Average Vessel, Round Trip

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,385.5	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>198.0</i>	<i>270.1</i>	<i>90.0</i>	<i>2,385.5</i>	<i>270.1</i>	<i>216.1</i>	<i>2,070.5</i>	<i>94.8</i>
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,014.6	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>250.3</i>	<i>341.3</i>	<i>113.8</i>	<i>3,014.6</i>	<i>341.3</i>	<i>273.0</i>	<i>2,616.5</i>	<i>119.8</i>
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,768.6	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>146.8</i>	<i>200.2</i>	<i>66.7</i>	<i>1,768.6</i>	<i>200.2</i>	<i>160.2</i>	<i>1,535.0</i>	<i>70.3</i>
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	892.4	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>74.1</i>	<i>101.0</i>	<i>33.7</i>	<i>892.4</i>	<i>101.0</i>	<i>80.8</i>	<i>774.6</i>	<i>35.5</i>
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	528.7	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>44.4</i>	<i>59.9</i>	<i>20.2</i>	<i>534.5</i>	<i>62.1</i>	<i>49.6</i>	<i>504.3</i>	<i>21.3</i>
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	599.2	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>50</i>	<i>68</i>	<i>23</i>	<i>606</i>	<i>70</i>	<i>56</i>	<i>572</i>	<i>24</i>
Outer Harbor Zone1 (vessels bound to outer	Diesel Engines	11.5	15.7	5.2	138.4	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
<i>Total Outer Harbor Zone1</i>		<i>12</i>	<i>16</i>	<i>5</i>	<i>140</i>	<i>16</i>	<i>13</i>	<i>136</i>	<i>6</i>
Outer Harbor Zone2 (vessels bound to inner	Diesel Engines	14.4	19.6	6.5	173.0	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
<i>Total Outer Harbor Zone2</i>		<i>14.6</i>	<i>19.6</i>	<i>6.7</i>	<i>175.6</i>	<i>20.6</i>	<i>16.4</i>	<i>170.2</i>	<i>7.0</i>
Inner Harbor Zone (maneuvering through ma	Diesel Engines	16.7	22.8	7.6	201.3	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through ma	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
<i>Total Inner Harbor Zone</i>		<i>17.0</i>	<i>22.8</i>	<i>7.7</i>	<i>204.3</i>	<i>23.9</i>	<i>19.1</i>	<i>198.0</i>	<i>8.1</i>
Hoteling	Diesel Engines	214.6	292.7	97.6	2,585.0	292.7	234.1	2,243.7	102.7
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
<i>Total Hoteling</i>		<i>219.9</i>	<i>292.7</i>	<i>100.2</i>	<i>2,640.6</i>	<i>313.8</i>	<i>251.1</i>	<i>2,680.2</i>	<i>105.5</i>

Unmitigated Project Criteria Pollutant Emissions

Year: 2037

Average Annual (lb/yr)

Spacial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	614	828	279	7,382	853	682	6,853	294
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,762	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.87	0.45	0.36	3.60	0.15
South-Bound Single Vessel Average Day (ton/day)	0.31	0.42	0.14	3.79	0.44	0.35	3.52	0.15
Temporal Allocation								
2037 Total Annual Emissions (ton/yr)	91	122	41	1,087	126	101	1,019	43

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels) * Time * 2 (1-Way) Trips * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 75%
- 6. A year based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Unmitigated Project Criteria Pollutant Emissions

Year: 2011

Year (lb/yr)

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,548	2,111	704	18,956	2,111	1,689	16,183	741
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,548</i>	<i>2,111</i>	<i>704</i>	<i>18,956</i>	<i>2,111</i>	<i>1,689</i>	<i>16,183</i>	<i>741</i>
Sea / Fairway - South-Bound	Diesel Engines	65,369	89,139	29,713	800,530	89,139	71,311	683,400	31,288
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>65,369</i>	<i>89,139</i>	<i>29,713</i>	<i>800,530</i>	<i>89,139</i>	<i>71,311</i>	<i>683,400</i>	<i>31,288</i>
Fairway - North-Bound	Diesel Engines	1,148	1,565	522	14,054	1,565	1,252	11,998	549
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,148</i>	<i>1,565</i>	<i>522</i>	<i>14,054</i>	<i>1,565</i>	<i>1,252</i>	<i>11,998</i>	<i>549</i>
Fairway - South-Bound	Diesel Engines	19,350	26,387	8,796	236,973	26,387	21,110	202,301	9,262
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>19,350</i>	<i>26,387</i>	<i>8,796</i>	<i>236,973</i>	<i>26,387</i>	<i>21,110</i>	<i>202,301</i>	<i>9,262</i>
Precautionary Zone - North-Bound	Diesel Engines	343	468	156	4,201	468	374	3,587	164
Precautionary Zone - North-Bound	Boiler	4	-	2	45	17	14	355	2
<i>Total Precautionary Zone - North-Bound</i>		<i>347</i>	<i>468</i>	<i>158</i>	<i>4,246</i>	<i>485</i>	<i>388</i>	<i>3,942</i>	<i>166</i>
Precautionary Zone - South-Bound	Diesel Engines	12,993	17,717	5,906	159,111	17,717	14,174	135,831	6,219
Precautionary Zone - South-Bound	Boiler	163	-	82	1,713	653	522	13,460	86
<i>Total Precautionary Zone - South-Bound</i>		<i>13,156</i>	<i>17,717</i>	<i>5,987</i>	<i>160,824</i>	<i>18,370</i>	<i>14,696</i>	<i>149,290</i>	<i>6,305</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,864	5,269	1,756	47,319	5,269	4,215	40,395	1,849
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	65	-	33	685	261	209	5,382	34
<i>Total Outer Harbor Zone2</i>		<i>3,929</i>	<i>5,269</i>	<i>1,789</i>	<i>48,004</i>	<i>5,530</i>	<i>4,424</i>	<i>45,777</i>	<i>1,884</i>
Inner Harbor Zone (maneuvering through main channel: inn	Diesel Engines	4,496	6,131	2,044	55,062	6,131	4,905	47,005	2,152
Inner Harbor Zone (maneuvering through main channel: inn	Boiler	76	-	38	797	304	243	6,263	40
<i>Total Inner Harbor Zone</i>		<i>4,572</i>	<i>6,131</i>	<i>2,082</i>	<i>55,859</i>	<i>6,435</i>	<i>5,148</i>	<i>53,268</i>	<i>2,192</i>
Hoteling	Diesel Engines	57,731	78,724	26,241	706,990	78,724	62,979	603,547	27,632
Hoteling	Boiler	1,423	-	712	14,945	5,693	4,555	117,423	749
<i>Total Hoteling</i>		<i>59,154</i>	<i>78,724</i>	<i>26,953</i>	<i>721,935</i>	<i>84,417</i>	<i>67,533</i>	<i>720,970</i>	<i>28,381</i>
Total		168,573	227,510	76,703	2,061,382	234,438	187,550	1,887,129	80,768
boilers only						6,928			912
Average Day (lb/day) - Transit		299.8	407.6	136.3	3,669.7	411.0	328.8	3,195.0	143.5
Average Day (lb/day) - Hotelling		162.1	215.7	73.8	1,977.9	231.3	185.0	1,975.3	77.8

*Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year*

*NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year*

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.

1 lb = 453.59 grams

Assumptions

1. Maximum of 1 ship per day per berth.

2. All berths occupied.

3. Annual emissions are based on residual fuel with 2.7% sulfur content.

4. Maximum of 2 one-way trips per vessel.

5. IMO compliance rate for NOx =

53%

6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.

7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2011: 269
 Percent of North-Bound Vessels: 2.9%
 Percent of South-Bound Vessels: 97.1%

Inner Harbor Berths: 3
 Outer Harbor Berths: 0

Unmitigated Project Criteria Pollutant Emissions

Year: 2015

Year (lb/yr)

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,582	2,158	719	19,296.1	2,158	1,726	16,544	757
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,582</i>	<i>2,158</i>	<i>719</i>	<i>19,296.1</i>	<i>2,158</i>	<i>1,726</i>	<i>16,544</i>	<i>757</i>
Sea / Fairway - South-Bound	Diesel Engines	66,827	91,127	30,376	814,870.0	91,127	72,902	698,644	31,986
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>66,827</i>	<i>91,127</i>	<i>30,376</i>	<i>814,870.0</i>	<i>91,127</i>	<i>72,902</i>	<i>698,644</i>	<i>31,986</i>
Fairway - North-Bound	Diesel Engines	1,173	1,600	533	14,305.8	1,600	1,280	12,265	562
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,173</i>	<i>1,600</i>	<i>533</i>	<i>14,305.8</i>	<i>1,600</i>	<i>1,280</i>	<i>12,265</i>	<i>562</i>
Fairway - South-Bound	Diesel Engines	19,782	26,976	8,992	241,218.2	26,976	21,580	206,813	9,468
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>19,782</i>	<i>26,976</i>	<i>8,992</i>	<i>241,218.2</i>	<i>26,976</i>	<i>21,580</i>	<i>206,813</i>	<i>9,468</i>
Precautionary Zone - North-Bound	Diesel Engines	351	478	159	4,276.5	478	383	3,667	168
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
<i>Total Precautionary Zone - North-Bound</i>		<i>355</i>	<i>478</i>	<i>162</i>	<i>4,322.6</i>	<i>496</i>	<i>397</i>	<i>4,030</i>	<i>170</i>
Precautionary Zone - South-Bound	Diesel Engines	13,282	18,112	6,037	161,961.3	18,112	14,490	138,861	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
<i>Total Precautionary Zone - South-Bound</i>		<i>13,449</i>	<i>18,112</i>	<i>6,121</i>	<i>163,713</i>	<i>18,779</i>	<i>15,024</i>	<i>152,620</i>	<i>6,445</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	1,580	2,155	718	19,266.5	2,155	1,724	16,518	756
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	27	-	13	280.1	107	85	2,201	14
<i>Total Outer Harbor Zone1</i>		<i>1,607</i>	<i>2,155</i>	<i>732</i>	<i>19,547</i>	<i>2,262</i>	<i>1,809</i>	<i>18,719</i>	<i>770</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	1,975	2,693	898	24,083.1	2,693	2,155	20,648	945
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	33	-	17	350.1	133	107	2,751	18
<i>Total Outer Harbor Zone2</i>		<i>2,008</i>	<i>2,693</i>	<i>914</i>	<i>24,433.2</i>	<i>2,827</i>	<i>2,262</i>	<i>23,399</i>	<i>963</i>
Inner Harbor Zone (maneuvering through main channel: in)	Diesel Engines	2,298	3,134	1,045	28,024.0	3,134	2,507	24,027	1,100
Inner Harbor Zone (maneuvering through main channel: in)	Boiler	39	-	19	407.4	155	124	3,201	20
<i>Total Inner Harbor Zone</i>		<i>2,337</i>	<i>3,134</i>	<i>1,064</i>	<i>28,431.4</i>	<i>3,289</i>	<i>2,631</i>	<i>27,228</i>	<i>1,120</i>
Hotelling	Diesel Engines	59,018	80,479	26,826	719,654.7	80,479	64,384	617,009	28,248
Hotelling	Boiler	1,455	-	728	15,278.0	5,820	4,656	120,042	766
<i>Total Hotelling</i>		<i>60,473</i>	<i>80,479</i>	<i>27,554</i>	<i>734,932.6</i>	<i>86,300</i>	<i>69,040</i>	<i>737,051</i>	<i>29,014</i>
Total		169,594	228,912	77,167	2,065,069	235,813	188,650	1,897,313	81,257
boilers only						6,900			908
Average Day (lb/day) - Transit		299.0	406.7	135.9	3,644.2	409.6	327.7	3,178.8	143.1
Average Day (lb/day) - Hotelling		165.7	220.5	75.5	2013.5	236.4	189.1	2019.3	79.5

*Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year*

*NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 59%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2015:	275	Inner Harbor Berths:	2
Percent of North-Bound Vessels:	2.9%	Outer Harbor Berths:	2
Percent of South-Bound Vessels:	97.1%		

Unmitigated Project Criteria Pollutant Emissions

Year: 2022

Year (lb/yr)

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,623	2,213	738	19,661.0	2,213	1,770	16,965	777
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,623</i>	<i>2,213</i>	<i>738</i>	<i>19,661.0</i>	<i>2,213</i>	<i>1,770</i>	<i>16,965</i>	<i>777</i>
Sea / Fairway - South-Bound	Diesel Engines	68,528	93,447	31,149	830,281.2	93,447	74,758	716,427	32,800
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>68,528</i>	<i>93,447</i>	<i>31,149</i>	<i>830,281.2</i>	<i>93,447</i>	<i>74,758</i>	<i>716,427</i>	<i>32,800</i>
Fairway - North-Bound	Diesel Engines	1,203	1,641	547	14,576.3	1,641	1,312	12,578	576
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,203</i>	<i>1,641</i>	<i>547</i>	<i>14,576.3</i>	<i>1,641</i>	<i>1,312</i>	<i>12,578</i>	<i>576</i>
Fairway - South-Bound	Diesel Engines	20,286	27,662	9,221	245,780.3	27,662	22,130	212,077	9,709
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>20,286</i>	<i>27,662</i>	<i>9,221</i>	<i>245,780.3</i>	<i>27,662</i>	<i>22,130</i>	<i>212,077</i>	<i>9,709</i>
Precautionary Zone - North-Bound	Diesel Engines	360	490	163	4,357.4	490	392	3,760	172
Precautionary Zone - North-Bound	Boiler	5	-	2	47.4	18	14	373	2
<i>Total Precautionary Zone - North-Bound</i>		<i>364</i>	<i>490</i>	<i>166</i>	<i>4,404.8</i>	<i>508</i>	<i>407</i>	<i>4,132</i>	<i>175</i>
Precautionary Zone - South-Bound	Diesel Engines	13,620	18,573	6,191	165,024.4	18,573	14,859	142,395	6,519
Precautionary Zone - South-Bound	Boiler	171	-	86	1,795.8	684	547	14,110	90
<i>Total Precautionary Zone - South-Bound</i>		<i>13,791</i>	<i>18,573</i>	<i>6,277</i>	<i>166,820</i>	<i>19,257</i>	<i>15,406</i>	<i>156,505</i>	<i>6,609</i>
Outer Harbor Zone1 (vessels bound to outer harbor)	Diesel Engines	1,620	2,209	736	19,630.9	2,209	1,768	16,939	776
Outer Harbor Zone1 (vessels bound to outer harbor)	Boiler	27	-	14	287.2	109	88	2,257	14
<i>Total Outer Harbor Zone1</i>		<i>1,648</i>	<i>2,209</i>	<i>750</i>	<i>19,918</i>	<i>2,318</i>	<i>1,856</i>	<i>19,196</i>	<i>790</i>
Outer Harbor Zone2 (vessels bound to inner harbor)	Diesel Engines	2,025	2,762	921	24,538.6	2,762	2,209	21,174	969
Outer Harbor Zone2 (vessels bound to inner harbor)	Boiler	34	-	17	359.0	137	109	2,821	18
<i>Total Outer Harbor Zone2</i>		<i>2,060</i>	<i>2,762</i>	<i>938</i>	<i>24,897.6</i>	<i>2,899</i>	<i>2,318</i>	<i>23,995</i>	<i>987</i>
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	2,357	3,214	1,071	28,554.0	3,214	2,571	24,638	1,128
Inner Harbor Zone (maneuvering through main channel)	Boiler	40	-	20	417.8	159	127	3,283	21
<i>Total Inner Harbor Zone</i>		<i>2,397</i>	<i>3,214</i>	<i>1,091</i>	<i>28,971.8</i>	<i>3,373</i>	<i>2,698</i>	<i>27,921</i>	<i>1,149</i>
Hotelling	Diesel Engines	60,521	82,528	27,509	733,265	82,528	66,022	632,715	28,967
Hotelling	Boiler	1,492	-	746	15,667	5,968	4,775	123,097	786
<i>Total Hotelling</i>		<i>62,013</i>	<i>82,528</i>	<i>28,255</i>	<i>748,932.2</i>	<i>88,496</i>	<i>70,797</i>	<i>755,812</i>	<i>29,753</i>
Total		173,911	234,739	79,131	2,104,244	241,815	193,452	1,945,608	83,325
boilers only						7,076			931
Average Day (lb/day) - Transit		306.6	417.0	139.4	3,713.2	420.1	336.0	3,259.7	146.8
Average Day (lb/day) - Hotelling		169.9	226.1	77.4	2051.9	242.5	194.0	2070.7	81.5

*Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way Trips * Vessels per Year*

*NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way Trips * Vessels per Year*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 67%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2022:	282	Inner Harbor Berths:	2
Percent of North-Bound Vessels:	2.9%	Outer Harbor Berths:	2
Percent of South-Bound Vessels:	97.1%		

Unmitigated Project Criteria Pollutant Emissions

Year: 2037

Year (lb/yr)

Spacial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,652	2,252	751	19,892.6	2,252	1,802	17,266	790
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,652</i>	<i>2,252</i>	<i>751</i>	<i>19,892.6</i>	<i>2,252</i>	<i>1,802</i>	<i>17,266</i>	<i>790</i>
Sea / Fairway - South-Bound	Diesel Engines	69,743	95,104	31,701	840,059.7	95,104	76,083	729,130	33,381
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>69,743</i>	<i>95,104</i>	<i>31,701</i>	<i>840,059.7</i>	<i>95,104</i>	<i>76,083</i>	<i>729,130</i>	<i>33,381</i>
Fairway - North-Bound	Diesel Engines	1,224	1,670	557	14,748.0	1,670	1,336	12,801	586
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,224</i>	<i>1,670</i>	<i>557</i>	<i>14,748.0</i>	<i>1,670</i>	<i>1,336</i>	<i>12,801</i>	<i>586</i>
Fairway - South-Bound	Diesel Engines	20,645	28,153	9,384	248,674.9	26,976	21,580	206,813	9,882
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>20,645</i>	<i>28,153</i>	<i>9,384</i>	<i>248,674.9</i>	<i>26,976</i>	<i>21,580</i>	<i>206,813</i>	<i>9,882</i>
Precautionary Zone - North-Bound	Diesel Engines	366	499	166	4,408.7	499	399	3,827	175
Precautionary Zone - North-Bound	Boiler	5	-	2	48.3	18	15	379	2
<i>Total Precautionary Zone - North-Bound</i>		<i>371</i>	<i>499</i>	<i>169</i>	<i>4,457.0</i>	<i>517</i>	<i>414</i>	<i>4,206</i>	<i>178</i>
Precautionary Zone - South-Bound	Diesel Engines	13,862	18,903	6,301	166,968.0	18,903	15,122	144,920	6,635
Precautionary Zone - South-Bound	Boiler	174	-	87	1,827.7	696	557	14,360	92
<i>Total Precautionary Zone - South-Bound</i>		<i>14,036</i>	<i>18,903</i>	<i>6,388</i>	<i>168,796</i>	<i>19,599</i>	<i>15,679</i>	<i>159,280</i>	<i>6,726</i>
Outer Harbor Zone1 (vessels bound to outer	Diesel Engines	1,649	2,249	750	19,862.1	2,249	1,799	17,239	789
Outer Harbor Zone1 (vessels bound to outer	Boiler	28	-	14	292.3	111	89	2,297	15
<i>Total Outer Harbor Zone1</i>		<i>1,677</i>	<i>2,249</i>	<i>763</i>	<i>20,154</i>	<i>2,360</i>	<i>1,888</i>	<i>19,536</i>	<i>804</i>
Outer Harbor Zone2 (vessels bound to inner	Diesel Engines	2,061	2,811	937	24,827.6	2,811	2,249	21,549	987
Outer Harbor Zone2 (vessels bound to inner	Boiler	35	-	17	365.4	139	111	2,871	18
<i>Total Outer Harbor Zone2</i>		<i>2,096</i>	<i>2,811</i>	<i>954</i>	<i>25,193.0</i>	<i>2,950</i>	<i>2,360</i>	<i>24,420</i>	<i>1,005</i>
Inner Harbor Zone (maneuvering through ma	Diesel Engines	2,399	3,271	1,090	28,890.3	3,271	2,617	25,075	1,148
Inner Harbor Zone (maneuvering through ma	Boiler	40	-	20	425.2	162	130	3,341	21
<i>Total Inner Harbor Zone</i>		<i>2,439</i>	<i>3,271</i>	<i>1,110</i>	<i>29,315.5</i>	<i>3,433</i>	<i>2,746</i>	<i>28,416</i>	<i>1,169</i>
Hoteling	Diesel Engines	61,594	83,991	27,997	741,901.1	83,991	67,193	643,933	29,481
Hoteling	Boiler	1,519	-	759	15,944.7	6,074	4,859	125,280	800
<i>Total Hotelling</i>		<i>63,112</i>	<i>83,991</i>	<i>28,756</i>	<i>757,845.8</i>	<i>90,065</i>	<i>72,052</i>	<i>769,213</i>	<i>30,280</i>
Total		176,995	238,901	80,534	2,129,136	244,926	195,940	1,971,080	84,802
	boilers only					7,201			948
Average Day (lb/day) - Transit		312.0	424.4	141.9	3,757.0	424.3	339.4	3,292.8	149.4
Average Day (lb/day) - Hotelling		172.9	230.1	78.8	2076.3	246.8	197.4	2107.4	83.0

*Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year*

*NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year*

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.

1 lb = 453.59 grams

Assumptions

1. Maximum of 1 ship per day per berth.

2. All berths occupied.

3. Annual emissions are based on residual fuel with 2.7% sulfur content.

4. Maximum of 2 one-way trips per vessel.

5. IMO compliance rate for NOx = 75%

6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.

7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2037:	287	Inner Harbor Berths:	2
Percent of North-Bound Vessels:	2.9%	Outer Harbor Berths:	2
Percent of South-Bound Vessels:	97.1%		

Unmitigated Project Toxic Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spacial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	
Sea / Fairway - North-Bound	Diesel Engines	3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083		0.00299	0.00664	0.00415	0.00697	0.00664	0.00498	0.00316
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083		0.00299	0.00664	0.00415	0.00697	0.00664	0.00498	0.00316
Sea / Fairway - South-Bound	Diesel Engines	4.36897	1.18080	8.85402	0.59040	0.05018	0.09446	1.53504	0.88540	0.66700	0.00998		0.00353	0.00785	0.00490	0.00824	0.00785	0.00589	0.00373
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		4.36897	1.18080	8.85402	0.59040	0.05018	0.09446	1.53504	0.88540	0.66700	0.00998		0.00353	0.00785	0.00490	0.00824	0.00785	0.00589	0.00373
Fairway - North-Bound	Diesel Engines	2.84938	0.77010	5.77577	0.38505	0.03273	0.06161	1.00113	0.57758	0.43501	0.00064		0.00230	0.00512	0.00320	0.00537	0.00512	0.00384	0.00243
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.84938	0.77010	5.77577	0.38505	0.03273	0.06161	1.00113	0.57758	0.43501	0.00064		0.00230	0.00512	0.00320	0.00537	0.00512	0.00384	0.00243
Fairway - South-Bound	Diesel Engines	1.74129	0.47062	3.52964	0.23531	0.02000	0.03765	0.61180	0.35296	0.26584	0.00039		0.00141	0.00313	0.00195	0.00328	0.00313	0.00235	0.00149
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.74129	0.47062	3.52964	0.23531	0.02000	0.03765	0.61180	0.35296	0.26584	0.00039		0.00141	0.00313	0.00195	0.00328	0.00313	0.00235	0.00149
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.12697	0.00019		0.00067	0.00149	0.00093	0.00157	0.00149	0.00112	0.00071
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	-	0.00961	-	0.00089	-	0.00979	-	-	-	0.00089
Total Precautionary Zone - North-Bound		0.83167	0.22808	1.68596	0.11407	0.00966	0.02042	0.29916	0.17188	0.12697	0.00980		0.00067	0.00238	0.00093	0.01136	0.00149	0.00112	0.00160
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.14390	0.00021		0.00076	0.00169	0.00106	0.00178	0.00169	0.00127	0.00080
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	-	0.01089	-	0.00101	-	0.01109	-	-	-	0.00101
Total Precautionary Zone - South-Bound		0.94255	0.25849	1.91076	0.12928	0.01095	0.02314	0.33905	0.19480	0.14390	0.01110		0.00076	0.00270	0.00106	0.01287	0.00169	0.00127	0.00181
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.03371	0.00005		0.00018	0.00040	0.00025	0.00042	0.00040	0.00030	0.00019
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	-	0.00338	-	0.00031	-	0.00344	-	-	-	0.00031
Total Outer Harbor Zone1		0.22079	0.06084	0.44760	0.03043	0.00257	0.00563	0.08002	0.04592	0.03371	0.00343		0.00018	0.00071	0.00025	0.00386	0.00040	0.00030	0.00050
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.04213	0.00006		0.00022	0.00050	0.00031	0.00052	0.00050	0.00037	0.00024
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	-	0.00423	-	0.00039	-	0.00431	-	-	-	0.00039
Total Outer Harbor Zone2		0.27599	0.07604	0.55950	0.03804	0.00322	0.00704	0.10003	0.05740	0.04213	0.00429		0.00022	0.00089	0.00031	0.00483	0.00050	0.00037	0.00063
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65997	0.04340	0.00369	0.00694	0.11284	0.06510	0.04903	0.00007		0.00026	0.00058	0.00036	0.00061	0.00058	0.00043	0.00027
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	-	0.00492	-	0.00046	-	0.00501	-	-	-	0.00046
Total Inner Harbor Zone		0.32115	0.08849	0.65105	0.04426	0.00374	0.00819	0.11640	0.06679	0.04903	0.00499		0.00026	0.00103	0.00036	0.00562	0.00058	0.00043	0.00073
Hotelling	Diesel Engines	0.69121	0.18681	1.40109	0.09341	0.00794	0.01494	0.24286	0.14011	0.10553	0.00016		0.00056	0.00124	0.00078	0.00124	0.00093	0.00093	0.00059
Hotelling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	-	0.01537	-	0.00142	-	0.01566	-	-	-	0.0142
Total Hotelling		0.69121	0.19209	1.40134	0.09610	0.00811	0.01883	0.25400	0.14539	0.10553	0.01553		0.00056	0.00266	0.00078	0.01690	0.00093	0.00093	0.00073
First Peak Hour Scenario (per vessel)		1.760	0.484	3.569	0.242	0.020	0.044	0.635	0.365	0.269	0.024		0.001	0.005	0.002	0.027	0.003	0.002	0.004
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.106	0.016		0.001	0.003	0.001	0.017	0.001	0.001	0.002
Second Peak Hour Scenario (per vessel)		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.106	0.016		0.001	0.003	0.001	0.017	0.001	0.001	0.002
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.106	0.016		0.001	0.003	0.001	0.017	0.001	0.001	0.002

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3 Year 2011 only
1 All other years

Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
-	-	-	-	-	-	-
2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
-	-	-	-	-	-	-
3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
2.22623	0.00371	0.00461	-	0.00008	0.01625	0.05604
-	-	-	-	-	-	-
2.22623	0.00371	0.00461	-	0.00008	0.01625	0.05604
1.36047	0.00227	0.00281	-	0.00005	0.00993	0.03425
-	-	-	-	-	-	-
1.36047	0.00227	0.00281	-	0.00005	0.00993	0.03425
0.64978	0.00108	0.00134	-	0.00002	0.00474	0.01636
0.44405	-	-	-	0.00048	-	0.00979
1.09463	0.00108	0.00134	-	0.00050	0.00474	0.02614
0.73642	0.00123	0.00152	-	0.00003	0.00538	0.01854
0.50417	-	-	-	0.00054	-	0.01109
1.24059	0.00123	0.00152	-	0.00057	0.00538	0.02963
0.17250	0.00029	0.00036	-	0.00001	0.00126	0.00434
0.15659	-	-	-	0.00017	-	0.00344
0.32909	0.00029	0.00036	-	0.00018	0.00126	0.00779
0.21563	0.00036	0.00045	-	0.00001	0.00157	0.00543
0.19573	-	-	-	0.00021	-	0.00431
0.41136	0.00036	0.00045	-	0.00022	0.00157	0.00973
0.25091	0.00042	0.00052	-	0.00001	0.00183	0.00632
0.22776	-	-	-	0.00025	-	0.00501
0.47888	0.00042	0.00052	-	0.00025	0.00183	0.01133
0.54004	0.00090	0.00112	-	0.00002	0.00394	0.01359
0.71176	-	-	-	0.00077	-	0.01565
1.25180	0.00090	0.00112	-	0.00078	0.00394	0.02920
2.460	0.002	0.003	-	0.001	0.010	0.058
1.252	0.001	0.001	-	0.001	0.004	0.029

Unmitigated Project Toxic Pollutant Emissions

Year: 2011

Year (lb/yr)

Spacial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,111										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,111</i>	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	89,139										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>89,139</i>	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	1,565										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,565</i>	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	26,387										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>26,387</i>	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	468										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>468</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	17,717										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.4	4.1	2.0	-	3.5
<i>Total Precautionary Zone - South-Bound</i>		<i>17,717</i>	-	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>4.1</i>	<i>2.0</i>	-	<i>3.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>			-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,269										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.6	0.8	-	1.4
<i>Total Outer Harbor Zone2</i>		<i>5,269</i>	-	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.8</i>	-	<i>1.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	6,131										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	1.9	0.9	-	1.6
<i>Total Inner Harbor Zone</i>		<i>6,131</i>	-	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>1.9</i>	<i>0.9</i>	-	<i>1.6</i>
Hoteling	Diesel Engines	78,724										
Hoteling	Boiler		-	17.1	0.8	8.7	0.6	12.6	35.9	17.1	-	30.7
<i>Total Hoteling</i>		<i>78,724</i>	-	<i>17.1</i>	<i>0.8</i>	<i>8.7</i>	<i>0.6</i>	<i>12.6</i>	<i>35.9</i>	<i>17.1</i>	-	<i>30.7</i>

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.3	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.3	-	-	-	0.0	-	0.1
-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	0.2	-	3.6
-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	0.2	-	3.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	0.1	-	1.4
-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	0.1	-	1.4
-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	0.1	-	1.7
-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	0.1	-	1.7
-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	1.5	-	31.3
-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	1.5	-	31.3

Unmitigated Project Toxic Pollutant Emissions

Year: 2015

Year (lb/yr)

Spacial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,158										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,158</i>	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	91,127										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>91,127</i>	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	1,600										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,600</i>	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	26,976										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>26,976</i>	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	478										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>478</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	18,112										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>18,112</i>	-	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	-	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	2,155										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.6
<i>Total Outer Harbor Zone1</i>		<i>2,155</i>	-	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	-	<i>0.6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,693										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.8	0.4	-	0.7
<i>Total Outer Harbor Zone2</i>		<i>2,693</i>	-	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.8</i>	<i>0.4</i>	-	<i>0.7</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	3,134										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.2	0.0	0.3	1.0	0.5	-	0.8
<i>Total Inner Harbor Zone</i>		<i>3,134</i>	-	<i>0.5</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>1.0</i>	<i>0.5</i>	-	<i>0.8</i>
Hoteling	Diesel Engines	80,479										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hoteling</i>		<i>80,479</i>	-	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	-	<i>31.4</i>

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	0.0	-	0.1	-	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.3	-	3.7	-	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.3	-	3.7	-	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.1	-	0.6	-	-	-	0.1	26.7	-	-	-	0.0	-	0.6
-	0.1	-	0.6	-	-	-	0.1	26.7	-	-	-	0.0	-	0.6
-	0.1	-	0.7	-	-	-	0.1	33.3	-	-	-	0.0	-	0.7
-	0.1	-	0.7	-	-	-	0.1	33.3	-	-	-	0.0	-	0.7
-	0.1	-	0.9	-	-	-	0.1	38.8	-	-	-	0.0	-	0.9
-	0.1	-	0.9	-	-	-	0.1	38.8	-	-	-	0.0	-	0.9
-	2.9	-	32.0	-	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	2.9	-	32.0	-	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0

Unmitigated Project Toxic Pollutant Emissions

Year: 2022

Year (lb/yr)

Spacial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,213										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,213</i>	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	93,447										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>93,447</i>	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	1,641										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,641</i>	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	27,662										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>27,662</i>	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	490										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>490</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	18,573										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.3	2.0	-	3.7
<i>Total Precautionary Zone - South-Bound</i>		<i>18,573</i>	-	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.3</i>	<i>2.0</i>	-	<i>3.7</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	2,209										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.6
<i>Total Outer Harbor Zone1</i>		<i>2,209</i>	-	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	-	<i>0.6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,762										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.9	0.4	-	0.7
<i>Total Outer Harbor Zone2</i>		<i>2,762</i>	-	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.9</i>	<i>0.4</i>	-	<i>0.7</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	3,214										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.2	0.0	0.4	1.0	0.5	-	0.9
<i>Total Inner Harbor Zone</i>		<i>3,214</i>	-	<i>0.5</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.4</i>	<i>1.0</i>	<i>0.5</i>	-	<i>0.9</i>
Hoteling	Diesel Engines	82,528										
Hoteling	Boiler		-	17.9	0.8	9.1	0.6	13.2	37.6	17.9	-	32.2
<i>Total Hoteling</i>		<i>82,528</i>	-	<i>17.9</i>	<i>0.8</i>	<i>9.1</i>	<i>0.6</i>	<i>13.2</i>	<i>37.6</i>	<i>17.9</i>	-	<i>32.2</i>

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.5	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.5	-	-	-	0.0	-	0.1
-	0.3	-	3.8	-	-	0.3	171.0	-	-	-	0.2	-	3.8
-	0.3	-	3.8	-	-	0.3	171.0	-	-	-	0.2	-	3.8
-	0.1	-	0.6	-	-	0.1	27.4	-	-	-	0.0	-	0.6
-	0.1	-	0.6	-	-	0.1	27.4	-	-	-	0.0	-	0.6
-	0.1	-	0.8	-	-	0.1	34.2	-	-	-	0.0	-	0.8
-	0.1	-	0.8	-	-	0.1	34.2	-	-	-	0.0	-	0.8
-	0.1	-	0.9	-	-	0.1	39.8	-	-	-	0.0	-	0.9
-	0.1	-	0.9	-	-	0.1	39.8	-	-	-	0.0	-	0.9
-	3.0	-	32.8	-	-	3.0	1,492.1	-	-	-	1.6	-	32.8
-	3.0	-	32.8	-	-	3.0	1,492.1	-	-	-	1.6	-	32.8

Unmitigated Project Toxic Pollutant Emissions

Year: 2037

Year (lb/yr)

Spacial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,252										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,252</i>	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	95,104										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>95,104</i>	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	1,670										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,670</i>	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	28,153										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>28,153</i>	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	499										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>499</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	18,903										
Precautionary Zone - South-Bound	Boiler		-	2.1	0.1	1.1	0.1	1.5	4.4	2.1	-	3.8
<i>Total Precautionary Zone - South-Bound</i>		<i>18,903</i>	-	<i>2.1</i>	<i>0.1</i>	<i>1.1</i>	<i>0.1</i>	<i>1.5</i>	<i>4.4</i>	<i>2.1</i>	-	<i>3.8</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	2,249										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.6
<i>Total Outer Harbor Zone1</i>		<i>2,249</i>	-	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	-	<i>0.6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,811										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.9	0.4	-	0.8
<i>Total Outer Harbor Zone2</i>		<i>2,811</i>	-	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.9</i>	<i>0.4</i>	-	<i>0.8</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	3,271										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.2	0.0	0.4	1.0	0.5	-	0.9
<i>Total Inner Harbor Zone</i>		<i>3,271</i>	-	<i>0.5</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.4</i>	<i>1.0</i>	<i>0.5</i>	-	<i>0.9</i>
Hoteling	Diesel Engines	83,991										
Hoteling	Boiler		-	18.2	0.8	9.3	0.6	13.4	38.3	18.2	-	32.8
<i>Total Hoteling</i>		<i>83,991</i>	-	<i>18.2</i>	<i>0.8</i>	<i>9.3</i>	<i>0.6</i>	<i>13.4</i>	<i>38.3</i>	<i>18.2</i>	-	<i>32.8</i>

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.6	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.6	-	-	-	0.0	-	0.1
-	0.3	-	3.8	-	-	0.3	174.1	-	-	-	0.2	-	3.8
-	0.3	-	3.8	-	-	0.3	174.1	-	-	-	0.2	-	3.8
-	0.1	-	0.6	-	-	0.1	27.8	-	-	-	0.0	-	0.6
-	0.1	-	0.6	-	-	0.1	27.8	-	-	-	0.0	-	0.6
-	0.1	-	0.8	-	-	0.1	34.8	-	-	-	0.0	-	0.8
-	0.1	-	0.8	-	-	0.1	34.8	-	-	-	0.0	-	0.8
-	0.1	-	0.9	-	-	0.1	40.5	-	-	-	0.0	-	0.9
-	0.1	-	0.9	-	-	0.1	40.5	-	-	-	0.0	-	0.9
-	3.0	-	33.4	-	-	3.0	1,518.5	-	-	-	1.6	-	33.4
-	3.0	-	33.4	-	-	3.0	1,518.5	-	-	-	1.6	-	33.4

70-Year Average Calculations		Unmitigated Proposed Project														
		70-year average	Project Start Year	Evaluation Year				Evaluation Year								
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
DPM																
Sea / Fairway - North-Bound	Diesel Engines	2,220	2,024	2,024	2,111	2,111	2,111	2,111	2,158	2,158	2,158	2,158	2,158	2,158	2,158	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>																
Sea / Fairway - South-Bound	Diesel Engines	93,736	85,494	85,494	89,139	89,139	89,139	89,139	91,127	91,127	91,127	91,127	91,127	91,127	91,127	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>																
Fairway - North-Bound	Diesel Engines	1,646	1,501	1,501	1,565	1,565	1,565	1,565	1,600	1,600	1,600	1,600	1,600	1,600	1,600	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>																
Fairway - South-Bound	Diesel Engines	27,748	25,308	25,308	26,387	26,387	26,387	26,387	26,976	26,976	26,976	26,976	26,976	26,976	26,976	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>																
Precautionary Zone - North-Bound	Diesel Engines	492	449	449	468	468	468	468	478	478	478	478	478	478	478	
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - North-Bound</i>																
Precautionary Zone - South-Bound	Diesel Engines	18,631	16,993	16,993	17,717	17,717	17,717	17,717	18,112	18,112	18,112	18,112	18,112	18,112	18,112	
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - South-Bound</i>																
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁰	Diesel Engines	2,100	-	-	-	-	2,155	2,155	2,155	2,155	2,155	2,155	2,155	2,155	2,155	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁰	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone1</i>																
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹²	Diesel Engines	2,993	5,053	5,053	5,269	5,269	5,269	5,269	2,693	2,693	2,693	2,693	2,693	2,693	2,693	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹²	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone2</i>																
Inner Harbor Zone (maneuvering through main channel: inni)	Diesel Engines	3,483	5,880	5,880	6,131	6,131	6,131	6,131	3,134	3,134	3,134	3,134	3,134	3,134	3,134	
Inner Harbor Zone (maneuvering through main channel: inni)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Inner Harbor Zone</i>																
Hoteling	Diesel Engines	82,783	75,504	75,504	78,724	78,724	78,724	78,724	80,479	80,479	80,479	80,479	80,479	80,479	80,479	
Hoteling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Hoteling</i>																

2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,252
93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	95,104
1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,670
27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	28,153
490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	499
18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,903
2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,249
2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,811
3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,271
82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	83,991

2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058
2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991

2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	End of 70 years	
																		2077	2078
2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991

70-Year Average Calculations		Unmitigated Proposed Project													
		Project Start Year		Evaluation Year					Evaluation Year						
70-year average		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
PM from OGV boilers															
Sea / Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	
Sea / Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	
Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	
Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	
Precautionary Zone - North-Bound	Diesel Engines	18	17	17	17	17	17	18	18	18	18	18	18	18	
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - North-Bound</i>		18	17	17	17	17	17	18	18	18	18	18	18	18	
Precautionary Zone - South-Bound	Diesel Engines	686	626	626	653	653	653	667	667	667	667	667	667	667	
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - South-Bound</i>		686	626	626	653	653	653	667	667	667	667	667	667	667	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁸	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁸	Boiler	104	-	-	-	107	107	107	107	107	107	107	107	107	
<i>Total Outer Harbor Zone1</i>		104	-	-	-	107	107	107	107	107	107	107	107	107	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹²	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹²	Boiler	148	250	250	261	261	261	133	133	133	133	133	133	133	
<i>Total Outer Harbor Zone2</i>		148	250	250	261	261	261	133	133	133	133	133	133	133	
Inner Harbor Zone (maneuvering through main channel: inni)	Diesel Engines	172	291	291	304	304	304	155	155	155	155	155	155	155	
Inner Harbor Zone (maneuvering through main channel: inni)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Inner Harbor Zone</i>		172	291	291	304	304	304	155	155	155	155	155	155	155	
Hoteling	Diesel Engines	5,987	5,460	5,460	5,693	5,693	5,693	5,820	5,820	5,820	5,820	5,820	5,820	5,820	
Hoteling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Hoteling</i>		5,987	5,460	5,460	5,693	5,693	5,693	5,820	5,820	5,820	5,820	5,820	5,820	5,820	

Evaluation Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
684	684	684	684	684	684	684	684	684	684	684	684	684	684	684	684	696
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	111
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	139
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	162
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	6,074

2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
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696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696
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111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
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139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074

2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	End of 70 years	
																		2077	2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
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139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074

70-Year Average Calculations		Unmitigated Proposed Project																
		70-year average	Project Start Year	Evaluation Year					Evaluation Year									
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021			
VOC from OGV boilers																		
Sea / Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Total in Sea / Fairway - North-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Sea / Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Total in Sea / Fairway - South-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Total in Fairway - North-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Total in Fairway - South-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Precautionary Zone - North-Bound	Diesel Engines	2	2	2	2	2	2	2	2	2	2	2	2	2	2			
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Total Precautionary Zone - North-Bound</i>		2	2	2	2	2	2	2	2	2	2	2	2	2	2			
Precautionary Zone - South-Bound	Diesel Engines	90	82	82	86	86	86	86	88	88	88	88	88	88	88			
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Total Precautionary Zone - South-Bound</i>		90	82	82	86	86	86	86	88	88	88	88	88	88	88			
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁸	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁸	Boiler	14	-	-	-	-	14	14	14	14	14	14	14	14	14			
<i>Total Outer Harbor Zone1</i>		14	-	-	-	-	14	14	14	14	14	14	14	14	14			
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹²	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹²	Boiler	20	33	33	34	34	34	34	18	18	18	18	18	18	18			
<i>Total Outer Harbor Zone2</i>		20	33	33	34	34	34	34	18	18	18	18	18	18	18			
Inner Harbor Zone (maneuvering through main channel: inni)	Diesel Engines	23	38	38	40	40	40	40	20	20	20	20	20	20	20			
Inner Harbor Zone (maneuvering through main channel: inni)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<i>Total Inner Harbor Zone</i>		23	38	38	40	40	40	40	20	20	20	20	20	20	20			
Hoteling	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Hoteling	Boiler	788	719	719	749	749	749	749	766	766	766	766	766	766	766			
<i>Total Hoteling</i>		788	719	719	749	749	749	749	766	766	766	766	766	766	766			

Evaluation Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	Evaluation Year	2037
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	92
14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	15
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	800

2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800

2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	End of 70 years	
																		2077	2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800

Unmitigated Project Toxic Pollutant Emissions
70-Year Average

Year (lb/yr)	Spatial Allocation	Power Type	DPM	VOC							PM						
				Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium		
	Sea / Fairway - North-Bound	Diesel Engines	2,220														
	Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - North-Bound</i>		<i>2,220</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sea / Fairway - South-Bound	Diesel Engines	93,736														
	Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - South-Bound</i>		<i>93,736</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fairway - North-Bound	Diesel Engines	1,646														
	Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - North-Bound</i>		<i>1,646</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fairway - South-Bound	Diesel Engines	27,748														
	Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - South-Bound</i>		<i>27,748</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Precautionary Zone - North-Bound	Diesel Engines	492														
	Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1	-	0.0	-	0.0
	<i>Total Precautionary Zone - North-Bound</i>		<i>492</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.1</i>	-	<i>0.0</i>	-	<i>0.0</i>
	Precautionary Zone - South-Bound	Diesel Engines	18,631														
	Precautionary Zone - South-Bound	Boiler		-	2.1	0.1	1.0	0.1	1.5	4.3	2.1	-	3.7	-	0.3	-	0.3
	<i>Total Precautionary Zone - South-Bound</i>		<i>18,631</i>	-	<i>2.1</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.3</i>	<i>2.1</i>	-	<i>3.7</i>	-	<i>0.3</i>	-	<i>0.3</i>
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	2,100														
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.6	-	0.1	-	0.1
	<i>Total Outer Harbor Zone1</i>		<i>2,100</i>	-	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	-	<i>0.6</i>	-	<i>0.1</i>	-	<i>0.1</i>
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,993														
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.9	0.4	-	0.8	-	0.1	-	0.1
	<i>Total Outer Harbor Zone2</i>		<i>2,993</i>	-	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.9</i>	<i>0.4</i>	-	<i>0.8</i>	-	<i>0.1</i>	-	<i>0.1</i>
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	3,483														
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	0.9	-	0.1	-	0.1
	<i>Total Inner Harbor Zone</i>		<i>3,483</i>	-	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	-	<i>0.9</i>	-	<i>0.1</i>	-	<i>0.1</i>
	Hoteling	Diesel Engines	82,783														
	Hoteling	Boiler		-	17.9	0.8	9.2	0.6	13.2	37.8	17.9	-	32.3	-	3.0	-	3.0
	<i>Total Hoteling</i>		<i>82,783</i>	-	<i>17.9</i>	<i>0.8</i>	<i>9.2</i>	<i>0.6</i>	<i>13.2</i>	<i>37.8</i>	<i>17.9</i>	-	<i>32.3</i>	-	<i>3.0</i>	-	<i>3.0</i>

Mitigated Project Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 2 Vessel with No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		23.7	42.3	10.8	300.8	44.3	35.5	450.3	11.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.8	2.7	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	135.9	3.3	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.3	158.2	3.9	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		17.6	31.0	8.0	222.8	33.9	27.1	359.3	8.4	

First Peak Hour Scenario (per vessel)

44 79 20 563 83 67 853 21

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel)

18 31 8 223 34 27 359 8

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Assumptions

1. Residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.
5. No VSRP

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 Divide by 2 = Half of 2011 Type 2 vessels

Mitigated Project Criteria Pollutant Emissions										Transit Time (hr)
Year: 2011 Peak Hourly (lb/hr) for Single Type 3 Vessel with No Applied Mitigations										
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	0.63
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	0.32
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	12
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
Emissions = Engine Power * Load Factor * Emission Factor * Time										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.										
VOC/HC = 1.053										
1 lb = 453.59										
Assumptions										
1. Residual fuel with 4.5% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.										
4. Half of all Type 3 vessels will have this unmitigated profile for the peak scenario.										
5. No VSRP										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:										0.0
										Divide by 2 = Half of 2011 Type 3 vessels

Mitigated Project Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 2 Vessel with Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	
Fairway - North-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	
Fairway - South-Bound	Diesel Engines	30.3	54.8	13.8	385.1	54.8	43.8	527.2	14.5	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		30.3	54.8	13.8	385.1	54.8	43.8	527.2	14.5	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		23.7	42.3	10.8	300.8	44.3	35.5	450.3	11.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.8	2.7	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	136.0	3.3	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.2	158.2	3.9	
Hotelling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		17.6	31.0	8.0	222.8	33.9	27.1	359.3	8.4	

First Peak Hour Scenario (per vessel)

44 79 20 563 83 67 853 21

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel)

18 31 8 223 34 27 359 8

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Assumptions

- 4.5% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 2 vessels will have this mitigated profile for the peak scenario.
- VSRP = 100% within 20 nm

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 Divide by 2 = Half of 2011 Type 2 vessels

Mitigated Project Criteria Pollutant Emissions										Transit Time (hr)
Year: 2011										
Peak Hourly (lb/hr) for Single Type 3 Vessel with Applied Mitigations										
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Fairway - North-Bound	Diesel Engines	37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	1.82
Fairway - South-Bound	Diesel Engines	34.1	61.8	15.5	434.3	61.8	49.4	594.5	16.3	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		34.1	61.8	15.5	434.3	61.8	49.4	594.5	16.3	0.92
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	0.63
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	0.32
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	12
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
Emissions = Engine Power * Load Factor * Emission Factor * Time										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.										
VOC/HC = 1.053										
1 lb = 453.59										
Assumptions										
1. 2.7% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.										
4. Half of all Type 3 vessels will have this mitigated profile for the peak scenario.										
5. VSRP = 100% within 20 nm										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels: 0.0										
Divide by 2 = Half of 2011 Type 3 vessels										

Mitigated Project Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 2 Vessel No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		23.7	42.3	10.8	300.8	44.3	35.5	450.3	11.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.8	2.7	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	135.9	3.3	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.3	158.2	3.9	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	1.2
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		17.6	31.0	8.0	222.8	33.9	27.1	359.3	8.4	

First Peak Hour Scenario (per vessel) 44 79 20 563 83 67 853 21
 First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.
 Second Peak Hour Scenario (per vessel) 18 31 8 223 34 27 359 8

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
 1 lb = 453.59

Assumptions

- 1. Residual fuel with 4.5% sulfur content.
- 2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- 3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- 4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

1.0 Divide by 2 = Half of 2015+ Type 2 vessels

Mitigated Project Criteria Pollutant Emissions										Transit Time (hr)
Year: 2015+ Peak Hourly (lb/hr) for Single Type 3 Vessel No Applied Mitigations										
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	0.63
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	0.32
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	12.00
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
Emissions = Engine Power * Load Factor * Emission Factor * Time										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.										
VOC/HC = 1.053										
1 lb = 453.59										
Assumptions										
1. Residual fuel with 4.5% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.										
4. Half of all Type 3 vessels will have this unmitigated profile for the peak scenario.										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:										3.0
										Divide by 2 = Half of 2015+ Type 3 vessels

Mitigated Project Criteria Pollutant Emissions										Transit Time (hr)
Year: 2015+ Peak Hourly (lb/hr) for Single Type 2 Vessel With Applied Mitigations										
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Sea / Fairway - North-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.52
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	
Sea / Fairway - South-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.92
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	
Fairway - North-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	
Fairway - South-Bound	Diesel Engines	30.3	17.5	13.8	350.4	17.5	14.0	52.7	14.5	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		30.3	17.5	13.8	350.4	17.5	14.0	52.7	14.5	
Precautionary Zone - North-Bound	Diesel Engines	20.6	11.9	9.4	238.9	11.9	9.5	35.9	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.6	0.5	0.4	3.8	0.1	
Total Precautionary Zone - North-Bound		20.9	11.9	9.5	241.5	12.4	9.9	39.7	10.0	
Precautionary Zone - South-Bound	Diesel Engines	23.4	13.5	10.6	270.8	13.5	10.8	40.7	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.0	0.5	0.4	4.3	0.2	
Total Precautionary Zone - South-Bound		23.7	13.5	10.8	273.7	14.0	11.2	45.0	11.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Diesel Engines	5.5	3.2	2.5	63.4	3.2	2.5	9.5	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Boiler	0.1	-	0.0	0.9	0.2	0.1	1.3	0.05	
Total Outer Harbor Zone1		5.6	3.2	2.5	64.4	3.3	2.7	10.9	2.7	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	4.0	3.1	79.3	4.0	3.2	11.9	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.2	0.2	1.7	0.06	
Total Outer Harbor Zone2		7.0	4.0	3.2	80.4	4.2	3.3	13.6	3.3	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	4.6	3.6	92.3	4.6	3.7	13.9	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.3	0.2	0.2	1.9	0.07	
Total Inner Harbor Zone		8.7	4.6	3.7	93.6	4.8	3.9	15.8	3.9	
Hoteling	Diesel Engines	1.4	0.8	0.6	16.5	0.8	0.7	2.5	0.7	12
Hoteling	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
Total Hoteling		1.9	0.8	0.9	20.8	1.6	1.3	8.6	0.9	
First Peak Hour Scenario (per vessel)		44	25	20	512	26	21	85	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors										
Second Peak Hour Scenario (per vessel)		2	1	1	21	2	1	9	1	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
Emissions = Engine Power * Load Factor * Emission Factor * Time										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor										
VOC/HC = 1.053										
1 lb = 453.59										
<u>Assumptions</u>										
1. Residual fuel with 2.7% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.										
4. Half of all Type 2 vessels will have this mitigated profile for the peak scenario.										
5. AMP applied to hoteling: 80% to inner harbor; 90% to outer harbor										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:						1.0	Divide by 2 = Half of 2015+ Type 2 vessels			

Mitigated Project Criteria Pollutant Emissions										Transit Time (hr)
Year: 2015+ Peak Hourly (lb/hr) for Single Type 3 Vessel With Applied Mitigations										
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Sea / Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.52
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>37.2</i>	<i>21.5</i>	<i>16.9</i>	<i>431.1</i>	<i>21.5</i>	<i>17.2</i>	<i>64.9</i>	<i>17.8</i>	
Sea / Fairway - South-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.92
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>37.2</i>	<i>21.5</i>	<i>16.9</i>	<i>431.1</i>	<i>21.5</i>	<i>17.2</i>	<i>64.9</i>	<i>17.8</i>	
Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>37.2</i>	<i>21.5</i>	<i>16.9</i>	<i>431.1</i>	<i>21.5</i>	<i>17.2</i>	<i>64.9</i>	<i>17.8</i>	
Fairway - South-Bound	Diesel Engines	34.1	19.7	15.5	395.2	19.7	15.8	59.5	16.3	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>34.1</i>	<i>19.7</i>	<i>15.5</i>	<i>395.2</i>	<i>19.7</i>	<i>15.8</i>	<i>59.5</i>	<i>16.3</i>	
Precautionary Zone - North-Bound	Diesel Engines	23.3	13.5	10.6	269.4	13.5	10.8	40.5	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.6	0.5	0.4	3.8	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>23.5</i>	<i>13.5</i>	<i>10.7</i>	<i>272.1</i>	<i>13.9</i>	<i>11.1</i>	<i>44.3</i>	<i>11.3</i>	
Precautionary Zone - South-Bound	Diesel Engines	26.4	15.2	12.0	305.4	15.2	12.2	45.9	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.0	0.5	0.4	4.3	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>26.7</i>	<i>15.2</i>	<i>12.1</i>	<i>308.4</i>	<i>15.8</i>	<i>12.6</i>	<i>50.2</i>	<i>12.8</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	3.5	2.7	69.7	3.5	2.8	10.5	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	0.9	0.2	0.1	1.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>6.1</i>	<i>3.5</i>	<i>2.8</i>	<i>70.6</i>	<i>3.6</i>	<i>2.9</i>	<i>11.8</i>	<i>2.9</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	4.3	3.4	87.1	4.3	3.5	13.1	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.2	0.2	1.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.6</i>	<i>4.3</i>	<i>3.5</i>	<i>88.2</i>	<i>4.6</i>	<i>3.6</i>	<i>14.8</i>	<i>3.7</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	5.1	4.0	101.3	5.1	4.0	15.2	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.3	0.2	0.2	1.9	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.9</i>	<i>5.1</i>	<i>4.0</i>	<i>102.7</i>	<i>5.3</i>	<i>4.2</i>	<i>17.2</i>	<i>4.3</i>	
Hoteling	Diesel Engines	1.6	0.9	0.7	18.0	0.9	0.7	2.7	0.7	12.00
Hoteling	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
<i>Total Hoteling</i>		<i>2.0</i>	<i>0.9</i>	<i>0.9</i>	<i>22.2</i>	<i>1.6</i>	<i>1.3</i>	<i>8.8</i>	<i>1.0</i>	
First Peak Hour Scenario (per vessel)		49	28	22	570	29	23	94	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		2	1	1	22	2	1	9	1	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity. <i>Emissions = Engine Power * Load Factor * Emission Factor * Time</i>										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths. (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor										
VOC/HC = 1.053 1 lb = 453.59										
<u>Assumptions</u>										
1. Residual fuel with 2.7% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.										
4. Half of all Type 3 vessels will have this mitigated profile for the peak scenario.										
5. AMP applied to hoteling: 80% to inner harbor; 90% to outer harbor.										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:										3.0
										Divide by 2 = Half of 2015+ Type 3 vessels

Mitigated Project Criteria Pollutant Emissions

Year: 2011

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>
Sea / Fairway - South-Bound	Diesel Engines	115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>115.9</i>	<i>209.9</i>	<i>52.7</i>	<i>1,475.4</i>	<i>209.9</i>	<i>167.9</i>	<i>2,019.9</i>	<i>55.5</i>
Fairway - North-Bound	Diesel Engines	62.8	113.7	28.5	799.1	113.7	90.9	1,093.9	30.1
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>62.8</i>	<i>113.7</i>	<i>28.5</i>	<i>799.1</i>	<i>113.7</i>	<i>90.9</i>	<i>1,093.9</i>	<i>30.1</i>
Fairway - South-Bound	Diesel Engines	31.7	57.4	14.4	403.2	57.4	45.9	552.0	15.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>31.7</i>	<i>57.4</i>	<i>14.4</i>	<i>403.2</i>	<i>57.4</i>	<i>45.9</i>	<i>552.0</i>	<i>15.2</i>
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9
Precautionary Zone - North-Bound	Boiler	0.2	-	0.1	2.4	1.4	1.2	30.8	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>264.9</i>	<i>38.8</i>	<i>31.0</i>	<i>390.2</i>	<i>10.0</i>
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.1
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.7</i>	<i>2.7</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.1
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>136.0</i>	<i>3.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.1
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>
Hotelling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.5
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hotelling</i>		<i>211.0</i>	<i>372.4</i>	<i>96.2</i>	<i>2,673.9</i>	<i>406.6</i>	<i>325.3</i>	<i>4,312.2</i>	<i>101.3</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		627	1,124	285	7,966	1,163	931	11,658	300
Inner Harbor Berths per Vessel - Peak Day (lb/day)		646	1,158	294	8,207	1,199	959	12,029	309
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		1,938	3,473	882	24,621	3,598	2,878	36,086	928
2011 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,305	2,356	593	16,599	2,378	1,903	23,150	625
2011 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	3	0

Mitigated Project Criteria Pollutant Emissions										Transit Time
Year: 2011										
Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 3 Vessel, One-Way Trip										
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>106.3</i>	<i>192.5</i>	<i>48.3</i>	<i>1,353.1</i>	<i>192.5</i>	<i>154.0</i>	<i>1,852.5</i>	<i>50.9</i>	0.85
Sea / Fairway - South-Bound	Diesel Engines	134.4	243.2	61.1	1,710.0	243.2	194.6	2,341.0	64.3	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>134.4</i>	<i>243.2</i>	<i>61.1</i>	<i>1,710.0</i>	<i>243.2</i>	<i>194.6</i>	<i>2,341.0</i>	<i>64.3</i>	1.07
Fairway - North-Bound	Diesel Engines	71.8	130.0	32.6	914.2	130.0	104.0	1,251.6	34.4	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>71.8</i>	<i>130.0</i>	<i>32.6</i>	<i>914.2</i>	<i>130.0</i>	<i>104.0</i>	<i>1,251.6</i>	<i>34.4</i>	1.21
Fairway - South-Bound	Diesel Engines	36.2	65.6	16.5	461.3	65.6	52.5	631.5	17.3	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>36.2</i>	<i>65.6</i>	<i>16.5</i>	<i>461.3</i>	<i>65.6</i>	<i>52.5</i>	<i>631.5</i>	<i>17.3</i>	0.61
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>23.5</i>	<i>42.1</i>	<i>10.7</i>	<i>299.0</i>	<i>43.9</i>	<i>35.1</i>	<i>443.3</i>	<i>11.3</i>	0.63
Precautionary Zone - South-Bound	Diesel Engines	22.5	40.8	10.2	286.6	40.8	32.6	392.4	10.8	
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>22.8</i>	<i>40.8</i>	<i>10.4</i>	<i>289.9</i>	<i>42.8</i>	<i>34.2</i>	<i>435.4</i>	<i>10.9</i>	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.1	
<i>Total Outer Harbor Zone1</i>		<i>6.1</i>	<i>10.9</i>	<i>2.8</i>	<i>77.6</i>	<i>11.5</i>	<i>9.2</i>	<i>118.1</i>	<i>3.0</i>	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.1	
<i>Total Outer Harbor Zone2</i>		<i>7.6</i>	<i>13.6</i>	<i>3.5</i>	<i>97.0</i>	<i>14.4</i>	<i>11.5</i>	<i>147.7</i>	<i>3.7</i>	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.1	
<i>Total Inner Harbor Zone</i>		<i>8.9</i>	<i>15.8</i>	<i>4.0</i>	<i>112.8</i>	<i>16.7</i>	<i>13.4</i>	<i>171.8</i>	<i>4.3</i>	0.32
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	107.0	
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8	
<i>Total Hotelling</i>		<i>228.8</i>	<i>404.6</i>	<i>104.2</i>	<i>2,900.0</i>	<i>438.8</i>	<i>351.0</i>	<i>4,621.8</i>	<i>109.8</i>	1.2
Outer Harbor Berths per Vessel - Peak Day (lb/day)		700	1,257	319	8,902	1,296	1,037	12,930	336	
Inner Harbor Berths per Vessel - Peak Day (lb/day)		721	1,294	328	9,166	1,335	1,068	13,333	346	
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2011 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2011 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2011 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-	

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = 1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}$$

$$1 \text{ lb} = 453.59 \text{ grams}$$

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	0	0

Mitigated Project Criteria Pollutant Emissions

Year: 2015+

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	59.8	91.1	27.2	745.5	91.1	72.9	823.5	28.6
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>59.8</i>	<i>91.1</i>	<i>27.2</i>	<i>745.5</i>	<i>91.1</i>	<i>72.9</i>	<i>823.5</i>	<i>28.6</i>
Sea / Fairway - South-Bound	Diesel Engines	75.6	115.1	34.4	942.2	115.1	92.1	1,040.7	36.2
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>75.6</i>	<i>115.1</i>	<i>34.4</i>	<i>942.2</i>	<i>115.1</i>	<i>92.1</i>	<i>1,040.7</i>	<i>36.2</i>
Fairway - North-Bound	Diesel Engines	62.8	89.0	28.5	776.2	89.0	71.2	780.5	30.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>62.8</i>	<i>89.0</i>	<i>28.5</i>	<i>776.2</i>	<i>89.0</i>	<i>71.2</i>	<i>780.5</i>	<i>30.1</i>
Fairway - South-Bound	Diesel Engines	31.7	44.9	14.4	391.6	44.9	35.9	393.8	15.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>31.7</i>	<i>44.9</i>	<i>14.4</i>	<i>391.6</i>	<i>44.9</i>	<i>35.9</i>	<i>393.8</i>	<i>15.2</i>
Precautionary Zone - North-Bound	Diesel Engines	20.6	24.6	9.4	250.7	24.6	19.7	197.7	9.9
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.8	1.1	0.9	20.8	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>24.6</i>	<i>9.5</i>	<i>253.5</i>	<i>25.8</i>	<i>20.6</i>	<i>218.5</i>	<i>10.0</i>
Precautionary Zone - South-Bound	Diesel Engines	23.4	27.9	10.6	284.2	27.9	22.3	224.0	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.1	1.3	1.0	23.6	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>27.9</i>	<i>10.8</i>	<i>287.3</i>	<i>29.2</i>	<i>23.4</i>	<i>247.7</i>	<i>11.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	6.5	2.5	66.6	6.5	5.2	52.5	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.4	0.3	7.3	0.1
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>6.5</i>	<i>2.5</i>	<i>67.5</i>	<i>6.9</i>	<i>5.5</i>	<i>59.8</i>	<i>2.7</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	8.2	3.1	83.2	8.2	6.5	65.6	3.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.5	0.4	9.2	0.1
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>8.2</i>	<i>3.2</i>	<i>84.4</i>	<i>8.7</i>	<i>6.9</i>	<i>74.8</i>	<i>3.3</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	9.5	3.6	96.8	9.5	7.6	76.3	3.8
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.4	0.6	0.5	10.7	0.1
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>9.5</i>	<i>3.7</i>	<i>98.2</i>	<i>10.1</i>	<i>8.1</i>	<i>87.0</i>	<i>3.9</i>
Hotelling	Diesel Engines	111.4	191.2	50.7	1,408.5	191.2	152.9	1,807.3	53.3
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hotelling</i>		<i>116.7</i>	<i>191.2</i>	<i>53.3</i>	<i>1,461.5</i>	<i>212.7</i>	<i>170.2</i>	<i>2,207.4</i>	<i>56.1</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		452	668	206	5,608	693	555	6,465	217
Inner Harbor Berths per Vessel - Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2015 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		354	500	161	4,376	504	403	4,461	170
2015 Vessel Type 2 Hotelling Peak Day (lb/day)		117	191	53	1,462	213	170	2,207	56
2022 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		354	500	161	4,376	504	403	4,461	170
2022 Vessel Type 2 Hotelling Peak Day (lb/day)		117	191	53	1,462	213	170	2,207	56
2037 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		354	500	161	4,376	504	403	4,461	170
2037 Vessel Type 2 Hotelling Peak Day (lb/day)		117	191	53	1,462	213	170	2,207	56

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006}}{453.59 \text{ grams}} \times 1 \text{ lb} =$$

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels	
	bound to Inner Harbor	bound to Outer Harbor
2011	3	0
2015	1	0
2022	1	0
2037	1	0

Mitigated Project Criteria Pollutant Emissions

Year: 2015+

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	68.9	105.3	31.3	859.0	105.3	84.3	953.7	33.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		68.9	105.3	31.3	859.0	105.3	84.3	953.7	33.0
Sea / Fairway - South-Bound	Diesel Engines	87.1	133.1	39.6	1,085.6	133.1	106.5	1,205.2	41.7
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		87.1	133.1	39.6	1,085.6	133.1	106.5	1,205.2	41.7
Fairway - North-Bound	Diesel Engines	71.8	102.3	32.6	888.4	102.3	81.8	898.1	34.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		71.8	102.3	32.6	888.4	102.3	81.8	898.1	34.4
Fairway - South-Bound	Diesel Engines	36.2	51.6	16.5	448.3	51.6	41.3	453.2	17.3
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		36.2	51.6	16.5	448.3	51.6	41.3	453.2	17.3
Precautionary Zone - North-Bound	Diesel Engines	23.3	27.8	10.6	282.8	27.8	22.2	223.0	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.8	1.1	0.9	20.8	0.1
Total Precautionary Zone - North-Bound		23.5	27.8	10.7	285.5	28.9	23.1	243.8	11.3
Precautionary Zone - South-Bound	Diesel Engines	26.4	31.5	12.0	320.5	31.5	25.2	252.7	12.6
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.1	1.3	1.0	23.6	0.2
Total Precautionary Zone - South-Bound		26.7	31.5	12.2	323.6	32.8	26.2	276.3	12.8
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	7.2	2.7	73.1	7.2	5.7	57.6	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.4	0.3	7.3	0.1
Total Outer Harbor Zone1		6.1	7.2	2.8	74.1	7.6	6.1	65.0	2.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	9.0	3.4	91.4	9.0	7.2	72.1	3.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.5	0.4	9.2	0.1
Total Outer Harbor Zone2		7.6	9.0	3.5	92.6	9.5	7.6	81.2	3.7
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	10.4	4.0	106.3	10.4	8.4	83.8	4.2
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.4	0.6	0.5	10.7	0.1
Total Inner Harbor Zone		8.9	10.4	4.0	107.8	11.0	8.8	94.5	4.3
Hotelling	Diesel Engines	121.1	207.7	55.0	1,530.1	207.7	166.2	1,963.3	57.9
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
Total Hotelling		126.4	207.7	57.7	1,583.2	229.3	183.4	2,363.5	60.7
Outer Harbor Berths per Vessel - Peak Day (lb/day)		510	756	232	6,326	781	625	7,253	244
Inner Harbor Berths per Vessel - Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2015 Total Outer Harbor Berths Peak Day (lb/day)		1,020	1,512	464	12,653	1,561	1,249	14,505	489
2015 Total Inner Harbor Berths Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2022 Total Outer Harbor Berths Peak Day (lb/day)		1,020	1,512	464	12,653	1,561	1,249	14,505	489
2022 Total Inner Harbor Berths Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2037 Total Outer Harbor Berths Peak Day (lb/day)		1,020	1,512	464	12,653	1,561	1,249	14,505	489
2037 Total Inner Harbor Berths Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2015 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,171	1,669	532	14,482	1,680	1,344	14,889	561
2015 Vessel Type 3 Hotelling Peak Day (lb/day)		379	623	173	4,749	688	550	7,090	182
2022 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,171	1,669	532	14,482	1,680	1,344	14,889	561
2022 Vessel Type 3 Hotelling Peak Day (lb/day)		379	623	173	4,749	688	550	7,090	182
2037 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,171	1,669	532	14,482	1,680	1,344	14,889	561
2037 Vessel Type 3 Hotelling Peak Day (lb/day)		379	623	173	4,749	688	550	7,090	182

Emissions = Engine Power * Load Factor * Emission Factor * Time

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = 1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}$$

$$1 \text{ lb} = 453.59 \text{ grams}$$

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	0	0
2015	1	2
2022	1	2
2037	1	2

Mitigated Project Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Total Peak Day (lb/day) for all Vessels

	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
2011 Transit & Maneuvering Peak Day (lb/day)	1,305	2,356	593	16,599	2,378	1,903	23,150	625
2011 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2015 Transit & Maneuvering Peak Day (lb/day)	1,525	2,168	694	18,859	2,184	1,748	19,350	730
2015 Hotelling Peak Day (lb/day)	496	814	226	6,211	901	720	9,298	238
2022 Transit & Maneuvering Peak Day (lb/day)	1,525	2,168	694	18,859	2,184	1,748	19,350	730
2022 Hotelling Peak Day (lb/day)	496	814	226	6,211	901	720	9,298	238
2037 Transit & Maneuvering Peak Day (lb/day)	1,525	2,168	694	18,859	2,184	1,748	19,350	730
2037 Hotelling Peak Day (lb/day)	496	814	226	6,211	901	720	9,298	238

Proposed Project Mitigated Criteria Pollutant Emissions

Year: 2011

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	11.5	20.8	5.2	145.9	20.8	16.6	199.8	5.5
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>11.5</i>	<i>20.8</i>	<i>5.2</i>	<i>145.9</i>	<i>20.8</i>	<i>16.6</i>	<i>199.8</i>	<i>5.5</i>
Sea / Fairway - South-Bound	Diesel Engines	14.5	26.2	6.6	184.4	26.2	21.0	252.5	6.9
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>14.5</i>	<i>26.2</i>	<i>6.6</i>	<i>184.4</i>	<i>26.2</i>	<i>21.0</i>	<i>252.5</i>	<i>6.9</i>
Fairway - North-Bound	Diesel Engines	7.8	14.2	3.6	99.9	14.2	11.4	136.7	3.8
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>7.8</i>	<i>14.2</i>	<i>3.6</i>	<i>99.9</i>	<i>14.2</i>	<i>11.4</i>	<i>136.7</i>	<i>3.8</i>
Fairway - South-Bound	Diesel Engines	4.0	7.2	1.8	50.4	7.2	5.7	69.0	1.9
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>4.0</i>	<i>7.2</i>	<i>1.8</i>	<i>50.4</i>	<i>7.2</i>	<i>5.7</i>	<i>69.0</i>	<i>1.9</i>
Precautionary Zone - North-Bound	Diesel Engines	2.6	4.7	1.2	32.8	4.7	3.7	44.9	1.2
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.2	0.1	3.8	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>4.7</i>	<i>1.2</i>	<i>33.1</i>	<i>4.8</i>	<i>3.9</i>	<i>48.8</i>	<i>1.2</i>
Precautionary Zone - South-Bound	Diesel Engines	2.9	5.3	1.3	37.2	5.3	4.2	50.9	1.4
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.3	0.2	5.4	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>5.3</i>	<i>1.3</i>	<i>37.6</i>	<i>5.5</i>	<i>4.4</i>	<i>56.3</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.7	1.2	0.3	8.7	1.2	1.0	11.9	0.3
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.0	-	0.0	0.1	0.1	0.1	1.7	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>8.8</i>	<i>1.3</i>	<i>1.1</i>	<i>13.6</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.5	0.4	10.9	1.5	1.2	14.9	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.5</i>	<i>0.4</i>	<i>11.0</i>	<i>1.6</i>	<i>1.3</i>	<i>17.0</i>	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.8	0.5	12.7	1.8	1.4	17.3	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.4	0.0
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.5</i>	<i>12.9</i>	<i>1.9</i>	<i>1.5</i>	<i>19.8</i>	<i>0.5</i>
Hoteling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hoteling</i>		<i>211.0</i>	<i>372.4</i>	<i>96.2</i>	<i>2,673.9</i>	<i>406.6</i>	<i>325.3</i>	<i>4,312.2</i>	<i>101.3</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Proposed Project Mitigated Criteria Pollutant Emissions

Year: 2011

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>13.3</i>	<i>24.1</i>	<i>6.0</i>	<i>169.1</i>	<i>24.1</i>	<i>19.2</i>	<i>231.6</i>	<i>6.4</i>
Sea / Fairway - South-Bound	Diesel Engines	16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>16.8</i>	<i>30.4</i>	<i>7.6</i>	<i>213.7</i>	<i>30.4</i>	<i>24.3</i>	<i>292.6</i>	<i>8.0</i>
Fairway - North-Bound	Diesel Engines	9.0	16.3	4.1	114.3	16.3	13.0	156.4	4.3
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>9.0</i>	<i>16.3</i>	<i>4.1</i>	<i>114.3</i>	<i>16.3</i>	<i>13.0</i>	<i>156.4</i>	<i>4.3</i>
Fairway - South-Bound	Diesel Engines	4.5	8.2	2.1	57.7	8.2	6.6	78.9	2.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>4.5</i>	<i>8.2</i>	<i>2.1</i>	<i>57.7</i>	<i>8.2</i>	<i>6.6</i>	<i>78.9</i>	<i>2.2</i>
Precautionary Zone - North-Bound	Diesel Engines	2.9	5.3	1.3	37.0	5.3	4.2	50.7	1.4
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.2	4.7	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.94</i>	<i>5.26</i>	<i>1.34</i>	<i>37.4</i>	<i>5.5</i>	<i>4.4</i>	<i>55.4</i>	<i>1.4</i>
Precautionary Zone - South-Bound	Diesel Engines	2.8	5.1	1.3	35.8	5.1	4.1	49.1	1.3
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.3	0.2	5.4	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>2.9</i>	<i>5.1</i>	<i>1.3</i>	<i>36.2</i>	<i>5.3</i>	<i>4.3</i>	<i>54.4</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.8	1.4	0.3	9.6	1.4	1.1	13.1	0.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.0	-	0.0	0.1	0.1	0.1	1.7	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>1.4</i>	<i>0.3</i>	<i>9.7</i>	<i>1.4</i>	<i>1.2</i>	<i>14.8</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.7	0.4	12.0	1.7	1.4	16.4	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.7</i>	<i>0.4</i>	<i>12.1</i>	<i>1.8</i>	<i>1.4</i>	<i>18.5</i>	<i>0.5</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	2.0	0.5	13.9	2.0	1.6	19.1	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.4	0.0
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>2.0</i>	<i>0.5</i>	<i>14.1</i>	<i>2.1</i>	<i>1.7</i>	<i>21.5</i>	<i>0.5</i>
Hoteling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	107.0
Hoteling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hoteling</i>		<i>228.8</i>	<i>404.6</i>	<i>104.2</i>	<i>2,900.0</i>	<i>438.8</i>	<i>351.0</i>	<i>4,621.8</i>	<i>109.8</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except hoteling)

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Proposed Project Mitigated Criteria Pollutant Emissions

Year: 2015+

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	7.5	11.4	3.4	93.2	11.4	9.1	102.9	3.6
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>7.5</i>	<i>11.4</i>	<i>3.4</i>	<i>93.2</i>	<i>11.4</i>	<i>9.1</i>	<i>102.9</i>	<i>3.6</i>
Sea / Fairway - South-Bound	Diesel Engines	9.5	14.4	4.3	117.8	14.4	11.5	130.1	4.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>9.5</i>	<i>14.4</i>	<i>4.3</i>	<i>117.8</i>	<i>14.4</i>	<i>11.5</i>	<i>130.1</i>	<i>4.5</i>
Fairway - North-Bound	Diesel Engines	7.8	11.1	3.6	97.0	11.1	8.9	97.6	3.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>7.8</i>	<i>11.1</i>	<i>3.6</i>	<i>97.0</i>	<i>11.1</i>	<i>8.9</i>	<i>97.6</i>	<i>3.8</i>
Fairway - South-Bound	Diesel Engines	4.0	5.6	1.8	49.0	5.6	4.5	49.2	1.9
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>4.0</i>	<i>5.6</i>	<i>1.8</i>	<i>49.0</i>	<i>5.6</i>	<i>4.5</i>	<i>49.2</i>	<i>1.9</i>
Precautionary Zone - North-Bound	Diesel Engines	2.6	3.1	1.2	31.3	3.1	2.5	24.7	1.2
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.1	0.1	2.6	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>3.1</i>	<i>1.2</i>	<i>31.7</i>	<i>3.2</i>	<i>2.6</i>	<i>27.3</i>	<i>1.3</i>
Precautionary Zone - South-Bound	Diesel Engines	2.9	3.5	1.3	35.5	3.5	2.8	28.0	1.4
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.1	3.0	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>3.5</i>	<i>1.3</i>	<i>35.9</i>	<i>3.6</i>	<i>2.9</i>	<i>31.0</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.7	0.8	0.3	8.3	0.8	0.7	6.6	0.3
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.0	-	0.0	0.1	0.0	0.0	0.9	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>0.8</i>	<i>0.3</i>	<i>8.4</i>	<i>0.9</i>	<i>0.7</i>	<i>7.5</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.0	0.4	10.4	1.0	0.8	8.2	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.0	1.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.0</i>	<i>0.4</i>	<i>10.6</i>	<i>1.1</i>	<i>0.9</i>	<i>9.3</i>	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.2	0.5	12.1	1.2	1.0	9.5	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	1.3	0.0
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.2</i>	<i>0.5</i>	<i>12.3</i>	<i>1.3</i>	<i>1.0</i>	<i>10.9</i>	<i>0.5</i>
Hoteling	Diesel Engines	111.4	191.2	50.7	1,408.5	191.2	152.9	1,807.3	53.3
Hoteling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hoteling</i>		<i>116.7</i>	<i>191.2</i>	<i>53.3</i>	<i>1,461.5</i>	<i>212.7</i>	<i>170.2</i>	<i>2,207.4</i>	<i>56.1</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except for hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Proposed Project Mitigated Criteria Pollutant Emissions

Year: 2015+

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	8.6	13.2	3.9	107.4	13.2	10.5	119.2	4.1
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>8.6</i>	<i>13.2</i>	<i>3.9</i>	<i>107.4</i>	<i>13.2</i>	<i>10.5</i>	<i>119.2</i>	<i>4.1</i>
Sea / Fairway - South-Bound	Diesel Engines	10.9	16.6	4.9	135.7	16.6	13.3	150.7	5.2
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>10.9</i>	<i>16.6</i>	<i>4.9</i>	<i>135.7</i>	<i>16.6</i>	<i>13.3</i>	<i>150.7</i>	<i>5.2</i>
Fairway - North-Bound	Diesel Engines	9.0	12.8	4.1	111.0	12.8	10.2	112.3	4.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>9.0</i>	<i>12.8</i>	<i>4.1</i>	<i>111.0</i>	<i>12.8</i>	<i>10.2</i>	<i>112.3</i>	<i>4.3</i>
Fairway - South-Bound	Diesel Engines	4.5	6.5	2.1	56.0	6.5	5.2	56.6	2.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>4.5</i>	<i>6.5</i>	<i>2.1</i>	<i>56.0</i>	<i>6.5</i>	<i>5.2</i>	<i>56.6</i>	<i>2.2</i>
Precautionary Zone - North-Bound	Diesel Engines	2.9	3.5	1.3	35.3	3.5	2.8	27.9	1.4
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.1	0.1	2.6	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.94</i>	<i>3.47</i>	<i>1.34</i>	<i>35.7</i>	<i>3.6</i>	<i>2.9</i>	<i>30.5</i>	<i>1.4</i>
Precautionary Zone - South-Bound	Diesel Engines	3.3	3.9	1.5	40.1	3.9	3.1	31.6	1.6
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.1	3.0	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.3</i>	<i>3.9</i>	<i>1.5</i>	<i>40.5</i>	<i>4.1</i>	<i>3.3</i>	<i>34.5</i>	<i>1.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.8	0.9	0.3	9.1	0.9	0.7	7.2	0.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.0	-	0.0	0.1	0.0	0.0	0.9	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>0.9</i>	<i>0.3</i>	<i>9.3</i>	<i>0.9</i>	<i>0.8</i>	<i>8.1</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.1	0.4	11.4	1.1	0.9	9.0	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.0	1.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.1</i>	<i>0.4</i>	<i>11.6</i>	<i>1.2</i>	<i>0.9</i>	<i>10.2</i>	<i>0.5</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	1.3	0.5	13.3	1.3	1.0	10.5	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	1.3	0.0
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>1.3</i>	<i>0.5</i>	<i>13.5</i>	<i>1.4</i>	<i>1.1</i>	<i>11.8</i>	<i>0.5</i>
Hoteling	Diesel Engines	121.1	207.7	55.0	1,530.1	207.7	166.2	1,963.3	57.9
Hoteling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hoteling</i>		<i>126.4</i>	<i>207.7</i>	<i>57.7</i>	<i>1,583.2</i>	<i>229.3</i>	<i>183.4</i>	<i>2,363.5</i>	<i>60.7</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except for hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Mitigated Project Criteria Pollutant Emissions
Year: 2011

Average Day (b/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	193.6	213.3	88.0	2,300.1	213.3	170.7	1,462.0	92.7
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		193.6	213.3	88.0	2,300.1	213.3	170.7	1,462.0	92.7
Sea / Fairway - South-Bound	Diesel Engines	244.7	269.6	111.2	2,906.7	269.6	215.7	1,847.6	117.1
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		244.7	269.6	111.2	2,906.7	269.6	215.7	1,847.6	117.1
Fairway - North-Bound	Diesel Engines	127.6	140.6	58.0	1,515.5	140.6	112.5	963.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		127.6	140.6	58.0	1,515.5	140.6	112.5	963.3	61.1
Fairway - South-Bound	Diesel Engines	64.4	70.9	29.3	764.7	70.9	56.7	486.1	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		64.4	70.9	29.3	764.7	70.9	56.7	486.1	30.8
Precautionary Zone - North-Bound	Diesel Engines	43.9	48.4	20.0	521.4	48.4	38.7	331.4	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.6	1.8	1.4	32.8	0.3
Total Precautionary Zone - North-Bound		44.4	48.4	20.2	527.0	50.1	40.1	364.2	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	54.8	22.6	590.9	54.8	43.8	375.6	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.4	2.0	1.6	37.2	0.3
Total Precautionary Zone - South-Bound		50	55	23	597	57	45	413	24
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	12.7	5.2	136.5	12.7	10.1	86.8	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.0	0.6	0.5	11.6	0.1
Total Outer Harbor Zone1		11.7	12.7	5.3	138.5	13.3	10.6	98.4	5.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽¹⁾	Diesel Engines	14.4	15.8	6.5	170.6	15.8	12.7	108.5	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.5	0.8	0.6	14.4	0.1
Total Outer Harbor Zone2		14.6	15.8	6.7	173.1	16.6	13.3	122.9	7.0
Inner Harbor Zone (maneuvering through main channel: Inner harbor to inner harbor berths):	Diesel Engines	16.7	18.4	7.6	198.5	18.4	14.7	126.2	8.0
Inner Harbor Zone (maneuvering through main channel: Inner harbor to inner harbor berths):	Boiler	0.3	-	0.1	2.9	0.9	0.7	16.8	0.1
Total Inner Harbor Zone		17.0	18.4	7.7	201.4	19.3	15.5	143.0	8.1
Hotelling	Diesel Engines	155.6	171.4	70.7	1,848.3	171.4	137.1	1,174.8	74.5
Hotelling	Boiler	5.3	-	2.6	53.9	17.1	13.7	315.3	2.8
Total Hotelling		160.9	171.4	73.4	1,902.2	188.5	150.8	1,490.1	77.3

Mitigated Project Criteria Pollutant Emissions

Year: 2011

Average Annual (b/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (b/day)								
Inner Harbor Berths per Vessel - Average Day (b/day)	56.7	61.7	25.8	6,721	630	511	4,622	272
North-Bound Single Vessel Average Day (b/day)	0.28	0.31	0.13	3.98	0.37	0.28	2.31	0.14
South-Bound Single Vessel Average Day (b/day)	0.28	0.31	0.13	3.98	0.37	0.28	2.31	0.14
Temporal Allocation								
2011 Total Annual Emissions (b/yr)	160.9	171.4	73.4	1,902.2	188.5	150.8	1,490.1	77.3

Emissions (b/yr) = Average Engine Power * Load Factor_{0.952 compliance} * Fuel Corrected Emission Factor * Time_{0.952 compliance} * 2_(1-way) Trips * Vessels per Year
 NO_x Emissions (b/yr) = Average Engine Power * Load Factor * (IMO NO_x Emission Factor * % IMO vessels) + (non-IMO NO_x Emission Factor * % non-IMO vessels) * Time * 2_(1-way) Trips * Vessels per Year
 Hotelling Emissions (b/yr) = Emissions (b/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOCHC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

1. Maximum of 1 ship per day per berth.
2. All berths occupied.
3. Annual emissions are based on 30% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm.
4. Maximum of 2 one-way trips per vessel.
5. IMO compliance rate for NO_x = 53%
6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions: 4% annual fleet turnover rate was assumed.
7. Annual emissions assume 30% compliance with VSRP to 40 nm.
8. Inner Harbor AMP compliance in 2011 assumed to be 30%

Mitigated Project Criteria Pollutant Emissions
Year: 2015

Average Day (b/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.5	61.6	48.4	1,181.9	61.6	49.3	185.6	51.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.5	61.6	48.4	1,181.9	61.6	49.3	185.6	51.0
Sea / Fairway - South-Bound	Diesel Engines	134.6	77.8	61.2	1,493.6	77.8	62.3	234.5	64.4
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.6	77.8	61.2	1,493.6	77.8	62.3	234.5	64.4
Fairway - North-Bound	Diesel Engines	127.6	73.8	58.0	1,415.7	73.8	59.0	222.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		127.6	73.8	58.0	1,415.7	73.8	59.0	222.3	61.1
Fairway - South-Bound	Diesel Engines	64.4	37.2	29.3	714.3	37.2	29.8	112.2	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		64.4	37.2	29.3	714.3	37.2	29.8	112.2	30.8
Precautionary Zone - North-Bound	Diesel Engines	43.9	25.4	20.0	487.0	25.4	20.3	76.5	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		44.4	25.4	20.2	492.3	26.3	21.1	84.1	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	28.8	22.6	552.0	28.8	23.0	86.7	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		50	29	23	558	30	24	95	24
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	6.6	5.2	127.5	6.6	5.3	20.0	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		12	7	5	129	7	6	23	6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽¹⁾	Diesel Engines	14.4	8.3	6.5	159.4	8.3	6.6	25.0	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		14.6	8.3	6.7	161.7	8.7	7.0	28.4	7.0
Inner Harbor Zone (maneuvering through main channel- Inner harbor to inner harbor berths):	Diesel Engines	16.7	9.7	7.6	185.5	9.7	7.7	29.1	8.0
Inner Harbor Zone (maneuvering through main channel- Inner harbor to inner harbor berths):	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		17.0	9.7	7.7	188.2	10.1	8.1	33.0	8.1
Hollering	Diesel Engines	40.5	23.4	18.4	449.5	23.4	18.7	70.6	19.4
Hollering	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
Total Hollering		45.8	23.4	21.1	500.0	32.4	25.9	143.3	22.2

Mitigated Project Criteria Pollutant Emissions
Year: 2015

Average Annual (b/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (b/day)	221	182	146	3,657	193	154	633	164
Inner Harbor Berths per Vessel - Average Day (b/day)	353	200	161	3,907	211	169	694	164
North-Bound Single Vessel Average Day (b/day)	0.18	0.10	0.08	1.99	0.11	0.09	0.36	0.09
South-Bound Single Vessel Average Day (b/day)	0.16	0.09	0.08	1.83	0.10	0.08	0.33	0.08
Temporal Allocation								
2015 Total Annual Emissions (b/yr)	45	26	21	500	32	26	143	22

Emissions (b/yr) = Average Engine Power * Load Factor_{0.95t.compld} * Fuel Corrected Emission Factor * Time_{0.95t.compld} * 2_(1-way) Trips * Vessels per Year
 NO_x Emissions (b/yr) = Average Engine Power * Load Factor * (IMO NO_x Emission Factor * % IMO vessels) + (non-IMO NO_x Emission Factor * % non-IMO vessels) * Time * 2_(1-way) Trips * Vessels per Year
 Hollering Emissions (b/yr) = Emissions (b/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOCHC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

1. Maximum of 1 ship per day per berth.
2. All berths occupied.
3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals.
4. Maximum of 2 one-way trips per vessel.
5. IMO compliance rate for NO_x = 59%.
6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions: 4% annual fleet turnover rate was assumed.
7. Annual emissions assume 100% compliance with VSRP to 40 nm.
8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

Mitigated Project Criteria Pollutant Emissions

Year: 2022

Average Day (b/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.5	61.6	48.4	1,174.4	61.6	49.3	185.6	51.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.5	61.6	48.4	1,174.4	61.6	49.3	185.6	51.0
Sea / Fairway - South-Bound	Diesel Engines	134.6	77.8	61.2	1,484.1	77.8	62.3	234.5	64.4
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.6	77.8	61.2	1,484.1	77.8	62.3	234.5	64.4
Fairway - North-Bound	Diesel Engines	127.6	73.8	58.0	1,406.6	73.8	59.0	222.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		127.6	73.8	58.0	1,406.6	73.8	59.0	222.3	61.1
Fairway - South-Bound	Diesel Engines	64.4	37.2	29.3	709.8	37.2	29.8	112.2	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		64.4	37.2	29.3	709.8	37.2	29.8	112.2	30.8
Precautionary Zone - North-Bound	Diesel Engines	43.9	25.4	20.0	483.9	25.4	20.3	76.5	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		44.4	25.4	20.2	489.2	26.3	21.1	84.1	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	28.8	22.6	548.5	28.8	23.0	86.7	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		50	29	23	554	30	24	95	24
Outer Harbor Zone1 (vessels bound to outer harbor)	Diesel Engines	11.5	6.6	5.2	126.7	6.6	5.3	20.0	5.5
Outer Harbor Zone1 (vessels bound to outer harbor)	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		12	7	5	129	7	6	23	6
Outer Harbor Zone2 (vessels bound to inner harbor)	Diesel Engines	14.4	8.3	6.5	158.4	8.3	6.6	25.0	6.9
Outer Harbor Zone2 (vessels bound to inner harbor)	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		14.6	8.3	6.7	160.7	8.7	7.0	28.4	7.0
Inner Harbor Zone (maneuvering through narrow channel)	Diesel Engines	16.7	9.7	7.6	184.3	9.7	7.7	29.1	8.0
Inner Harbor Zone (maneuvering through narrow channel)	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		17.0	9.7	7.7	187.0	10.2	8.1	33.0	8.1
Hotelling	Diesel Engines	40.5	23.4	18.4	446.6	23.4	18.7	70.6	19.4
Hotelling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
Total Hotelling		45.8	23.4	21.1	497.2	32.4	25.9	143.3	22.2

Mitigated Project Criteria Pollutant Emissions

Year: 2022

Average Annual (b/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (b/day)	321	182	146	3,535	193	154	633	154
Inner Harbor Berths per Vessel - Average Day (b/day)	353	200	161	3,862	211	169	694	169
North-Bound Single Vessel Average Day (b/day)	0.10	0.10	0.08	1.98	0.13	0.09	0.36	0.09
South-Bound Single Vessel Average Day (b/day)	0.16	0.09	0.08	1.81	0.10	0.08	0.33	0.08
Temporal Allocation								
2022 Total Annual Emissions (b/yr)	26	21	17	519	28	22	87	22

Emissions (b/yr) = Average Engine Power * Load Factor_{0.952 (assumed)} * Fuel Corrected Emission Factor * Time_{0.952 (assumed)} * 2_(1-way) Trips * Vessels per Year
 NO_x Emissions (b/yr) = Average Engine Power * Load Factor * (IMO NO_x Emission Factor * % IMO vessels) + (non-IMO NO_x Emission Factor * % non-IMO vessels) * Time * 2_(1-way) Trips * Vessels per Year
 Hotelling Emissions (b/yr) = Emissions (b/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006}}{453.59 \text{ grams}}$$

Assumptions

1. Maximum of 1 ship per day per berth.
2. All berths occupied.
3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals.
4. Maximum of 2 one-way trips per vessel.
5. IMO compliance rate for NO_x = 67%
6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions. 4% annual fleet turnover rate was assumed.
7. Annual emissions assume 100% compliance with VSRP to 40 nm.
8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

Mitigated Project Criteria Pollutant Emissions
Year: 2037

Average Day (b/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.5	61.6	48.4	1,167.5	61.6	49.3	185.6	51.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.5	61.6	48.4	1,167.5	61.6	49.3	185.6	51.0
Sea / Fairway - South-Bound	Diesel Engines	134.6	77.8	61.2	1,475.4	77.8	62.3	234.5	64.4
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.6	77.8	61.2	1,475.4	77.8	62.3	234.5	64.4
Fairway - North-Bound	Diesel Engines	127.6	73.8	58.0	1,398.4	73.8	59.0	222.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		127.6	73.8	58.0	1,398.4	73.8	59.0	222.3	61.1
Fairway - South-Bound	Diesel Engines	64.4	37.2	29.3	705.6	37.2	29.8	112.2	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		64.4	37.2	29.3	705.6	37.2	29.8	112.2	30.8
Precautionary Zone - North-Bound	Diesel Engines	43.9	25.4	20.0	481.1	25.4	20.3	76.5	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		44.4	25.4	20.2	486.4	26.3	21.1	84.1	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	28.8	22.6	545.3	28.8	23.0	86.7	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		50	29	23	551	30	24	95	24
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	11.5	6.6	5.2	126.0	6.6	5.3	20.0	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		12	7	5	128	7	6	23	6
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	14.4	8.3	6.5	157.4	8.3	6.6	25.0	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		14.6	8.3	6.7	159.8	8.7	7.0	28.4	7.0
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	16.7	9.7	7.6	183.2	9.7	7.7	29.1	8.0
Inner Harbor Zone (maneuvering through main channel)	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		17.0	9.7	7.7	185.9	10.1	8.1	33.0	8.1
Hotelling	Diesel Engines	40.5	23.4	18.4	444.0	23.4	18.7	70.6	19.4
Hotelling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
Total Hotelling		45.8	23.4	21.1	494.6	32.4	25.9	143.3	22.2

Mitigated Project Criteria Pollutant Emissions
Year: 2037

Average Annual (b/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (b/day)	521	18.2	14.6	3,515	193	15.4	633	154
Inner Harbor Berths per Vessel - Average Day (b/day)	353	200	161	3,850	211	169	694	169
North-Bound Single Vessel Average Day (b/day)	0.38	0.10	0.08	1.38	0.11	0.09	0.35	0.09
South-Bound Single Vessel Average Day (b/day)	0.34	0.09	0.08	1.20	0.10	0.08	0.33	0.08
Temporal Allocation								
2037 Total Annual Emissions (b/yr)	8	91	67	631	304	243	927	233

Emissions (b/yr) = Average Engine Power * Load Factor_{0.95 (assumed)} * Fuel Corrected Emission Factor * Time_{0.95 (assumed)} * 2_(1-way) Trips * Vessels per Year
 NO_x Emissions (b/yr) = Average Engine Power * Load Factor * (IMO NO_x Emission Factor * % IMO vessels) + (non-IMO NO_x Emission Factor * % non-IMO vessels) * Time * 2_(1-way) Trips * Vessels per Year
 Hotelling Emissions (b/yr) = Emissions (b/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOCHC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

1. Maximum of 1 ship per day per berth.
2. All berths occupied.
3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals.
4. Maximum of 2 one-way trips per vessel.
5. IMO compliance rate for NO_x = 75%.
6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions: 4% annual fleet turnover rate was assumed.
7. Annual emissions assume 100% compliance with VSRP to 40 nm.
8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

Mitigated Project Criteria Pollutant Emissions

Year: 2011

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,513	1,667	688	17,978	1,667	1,334	11,427	724
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		1,513	1,667	688	17,978	1,667	1,334	11,427	724
Sea / Fairway - South-Bound	Diesel Engines	63,910	70,418	29,050	759,190	70,418	56,334	482,556	30,590
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		63,910	70,418	29,050	759,190	70,418	56,334	482,556	30,590
Fairway - North-Bound	Diesel Engines	997	1,099	453	11,845	1,099	879	7,529	477
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		997	1,099	453	11,845	1,099	879	7,529	477
Fairway - South-Bound	Diesel Engines	16,814	18,526	7,643	199,731	18,526	14,821	126,953	8,048
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		16,814	18,526	7,643	199,731	18,526	14,821	126,953	8,048
Precautionary Zone - North-Bound	Diesel Engines	343	378	156	4,075	378	302	2,590	164
Precautionary Zone - North-Bound	Boiler	4	-	2	44	14	11	257	2
Total Precautionary Zone - North-Bound		347	378	158	4,119	392	314	2,847	166
Precautionary Zone - South-Bound	Diesel Engines	12,993	14,315	5,906	154,338	14,315	11,452	98,100	6,219
Precautionary Zone - South-Bound	Boiler	163	-	82	1,662	527	422	9,721	86
Total Precautionary Zone - South-Bound		13,156	14,315	5,987	155,999	14,843	11,874	107,821	6,305
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	-	-	-	-	-	-	-	-
Total Outer Harbor Zone1		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,864	4,257	1,756	45,899	4,257	3,406	29,174	1,849
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	65	-	33	664	211	169	3,887	34
Total Outer Harbor Zone2		3,929	4,257	1,789	46,563	4,468	3,575	33,061	1,884
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Diesel Engines	4,496	4,954	2,044	53,410	4,954	3,963	33,948	2,152
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Boiler	76	-	38	773	245	196	4,523	40
Total Inner Harbor Zone		4,572	4,954	2,082	54,183	5,199	4,159	38,471	2,192
Hotelling	Diesel Engines	41,855	46,116	19,025	497,191	46,116	36,893	316,024	20,033
Hotelling	Boiler	1,423	-	712	14,496	4,600	3,680	84,805	749
Total Hotelling		43,278	46,116	19,737	511,687	50,716	40,573	400,829	20,783
Total (lb/yr)		148,517	161,730	67,586	1,761,296	167,328	133,862	1,211,494	71,169
boilers only						5,598			912
Average Day (lb/day) - Transit		288.3	316.8	131.1	3,423.6	319.5	255.6	2,221.0	138.0
Average Day (lb/day) - Hotelling		118.6	126.3	54.1	1,401.9	138.9	111.2	1,098.2	56.9

$Emissions (lb/yr) = Average\ Engine\ Power * Load\ Factor_{(VSR\ corrected)} * Fuel\ Corrected\ Emission\ Factor * Time_{(VSR\ corrected)} * 2_{(1-Way)} * Trips * Vessels\ per\ Year$

$NOx\ Emissions (lb/yr) = Average\ Engine\ Power * Load\ Factor * (IMO\ NOx\ Emission\ Factor * \%IMO\ vessels) + (non-IMO\ NOx\ Emission\ Factor * \%non-IMO\ vessels) * Time * 2_{(1-Way)} * Trips * Vessels\ per\ Year$

$Hotelling\ Emissions (lb/yr) = Emissions (lb/yr)\ for\ 1-way\ trip * AMP\ reduction * Vessels\ per\ Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053\ Conversion\ Factors\ for\ Hydrocarbon\ Emission\ Components, EPA\ December\ 2006.$
 $1\ lb = 453.59\ grams$

Assumptions

- | | | | | |
|--|---------------------------------|-------|----------------------|---|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2011: | 269 | Inner Harbor Berths: | 3 |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Outer Harbor Berths: | 0 |
| 3. Annual emissions are based on 30% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm. | Percent of South-Bound Vessels: | 97.1% | | |
| 4. Maximum of 2 one-way trips per vessel. | | | | |
| 5. IMO compliance rate for NOx = | | 53% | | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | | |
| 7. Annual emissions assume 30% compliance with VSRP to 40 nm. | | | | |
| 8. Inner Harbor AMP compliance in 2011 assumed to be 30% | | | | |

Mitigated Project Criteria Pollutant Emissions

Year: 2015

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	851	492	387	9,444	492	394	1,483	407
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		851	492	387	9,444	492	394	1,483	407
Sea / Fairway - South-Bound	Diesel Engines	35,940	20,780	16,337	398,806	20,780	16,624	62,623	17,202
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		35,940	20,780	16,337	398,806	20,780	16,624	62,623	17,202
Fairway - North-Bound	Diesel Engines	1,019	589	463	11,312	589	472	1,776	488
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,019	589	463	11,312	589	472	1,776	488
Fairway - South-Bound	Diesel Engines	17,189	9,938	7,813	190,733	9,938	7,951	29,950	8,227
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		17,189	9,938	7,813	190,733	9,938	7,951	29,950	8,227
Precautionary Zone - North-Bound	Diesel Engines	351	203	159	3,892	203	162	611	168
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
Total Precautionary Zone - North-Bound		355	203	162	3,934	210	168	672	170
Precautionary Zone - South-Bound	Diesel Engines	13,282	7,680	6,037	147,385	7,680	6,144	23,143	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
Total Precautionary Zone - South-Bound		13,449	7,680	6,121	148,979	7,962	6,370	25,437	6,445
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	1,580	914	718	17,533	914	731	2,753	756
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	27	-	13	255	45	36	367	14
Total Outer Harbor Zone1		1,607	914	732	17,787	959	767	3,120	770
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,975	1,142	898	21,916	1,142	914	3,441	945
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	33	-	17	319	57	45	458	18
Total Outer Harbor Zone2		2,008	1,142	914	22,234	1,198	959	3,900	963
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Diesel Engines	2,298	1,329	1,045	25,502	1,329	1,063	4,004	1,100
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Boiler	39	-	19	371	66	53	534	20
Total Inner Harbor Zone		2,337	1,329	1,064	25,873	1,395	1,116	4,538	1,120
Hotelling	Diesel Engines	11,140	6,441	5,063	123,610	6,441	5,153	19,410	5,332
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
Total Hotelling		12,595	6,441	5,791	137,513	8,909	7,127	39,417	6,098
Total (lb/yr)		87,351	49,507	39,783	966,614	52,433	41,946	172,916	41,892
boilers only						2,926			908
Average Day (lb/day) - Transit		204.8	118.0	93.1	2,271.5	119.2	95.4	365.8	98.1
Average Day (lb/day) - Hotelling		34.5	17.6	15.9	376.7	24.4	19.5	108.0	16.7

$Emissions (lb/yr) = Average\ Engine\ Power * Load\ Factor_{(VSR\ corrected)} * Fuel\ Corrected\ Emission\ Factor * Time_{(VSR\ corrected)} * 2_{(1-Way)} * Trips * Vessels\ per\ Year$

$NOx\ Emissions (lb/yr) = Average\ Engine\ Power * Load\ Factor * (IMO\ NOx\ Emission\ Factor * \% IMO\ vessels) + (non-IMO\ NOx\ Emission\ Factor * \% non-IMO\ vessels) * Time * 2_{(1-Way)} * Trips * Vessels\ per\ Year$

$Hotelling\ Emissions (lb/yr) = Emissions (lb/yr) for\ 1-way\ trip * AMP\ reduction * Vessels\ per\ Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053\ Conversion\ Factors\ for\ Hydrocarbon\ Emission\ Components, EPA\ December\ 2006.$
 $1\ lb = 453.59\ grams$

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 59%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

Total Vessels in 2015:	275	Inner Harbor Berths:	2
Percent of North-Bound Vessels:	2.9%	Outer Harbor Berths:	2
Percent of South-Bound Vessels:	97.1%		

Mitigated Project Criteria Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	873	505	397	9,622	505	404	1,521	418
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		873	505	397	9,622	505	404	1,521	418
Sea / Fairway - South-Bound	Diesel Engines	36,855	21,309	16,752	406,348	21,309	17,047	64,217	17,640
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		36,855	21,309	16,752	406,348	21,309	17,047	64,217	17,640
Fairway - North-Bound	Diesel Engines	1,045	604	475	11,526	604	484	1,821	500
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,045	604	475	11,526	604	484	1,821	500
Fairway - South-Bound	Diesel Engines	17,626	10,191	8,012	194,341	10,191	8,153	30,713	8,437
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		17,626	10,191	8,012	194,341	10,191	8,153	30,713	8,437
Precautionary Zone - North-Bound	Diesel Engines	360	208	163	3,965	208	166	627	172
Precautionary Zone - North-Bound	Boiler	5	-	2	43	8	6	62	2
Total Precautionary Zone - North-Bound		364	208	166	4,008	216	172	689	175
Precautionary Zone - South-Bound	Diesel Engines	13,620	7,875	6,191	150,172	7,875	6,300	23,733	6,519
Precautionary Zone - South-Bound	Boiler	171	-	86	1,634	290	232	2,352	90
Total Precautionary Zone - South-Bound		13,791	7,875	6,277	151,806	8,165	6,532	26,084	6,609
Outer Harbor Zone1 (vessels bound to out)	Diesel Engines	1,620	937	736	17,864	937	749	2,823	776
Outer Harbor Zone1 (vessels bound to out)	Boiler	27	-	14	261	46	37	376	14
Total Outer Harbor Zone1		1,648	937	750	18,125	983	787	3,199	790
Outer Harbor Zone2 (vessels bound to inn)	Diesel Engines	2,025	1,171	921	22,330	1,171	937	3,529	969
Outer Harbor Zone2 (vessels bound to inn)	Boiler	34	-	17	327	58	46	470	18
Total Outer Harbor Zone2		2,060	1,171	938	22,657	1,229	983	3,999	987
Inner Harbor Zone (maneuvering through r)	Diesel Engines	2,357	1,363	1,071	25,984	1,363	1,090	4,106	1,128
Inner Harbor Zone (maneuvering through r)	Boiler	40	-	20	380	67	54	547	21
Total Inner Harbor Zone		2,397	1,363	1,091	26,364	1,430	1,144	4,654	1,149
Hoteling	Diesel Engines	11,423	6,605	5,192	125,947	6,605	5,284	19,904	5,468
Hoteling	Boiler	1,492	-	746	14,257	2,531	2,024	20,516	786
Total Hoteling		12,915	6,605	5,938	140,204	9,135	7,308	40,420	6,253
Total (lb/yr)		89,574	50,767	40,796	985,003	53,768	43,014	177,317	42,958
boilers only						3,000			931
Average Day (lb/day) - Transit		210.0	121.0	95.5	2,314.5	122.3	97.8	375.1	100.6
Average Day (lb/day) - Hotelling		35.4	18.1	16.3	384.1	25.0	20.0	110.7	17.1

$Emissions (lb/yr) = Average Engine Power * Load Factor_{(VSR corrected)} * Fuel Corrected Emission Factor * Time_{(VSR corrected)} * 2_{(1-Way)} Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels) * Time * 2_{(1-Way)} Trips * Vessels per Year$

$Hoteling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006}$
 $1 \text{ lb} = 453.59 \text{ grams}$

Assumptions

- | | | | | |
|---|---------------------------------|-------|----------------------|---|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2022: | 282 | Inner Harbor Berths: | 2 |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Outer Harbor Berths: | 2 |
| 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals. | Percent of South-Bound Vessels: | 97.1% | | |
| 4. Maximum of 2 one-way trips per vessel. | | | | |
| 5. IMO compliance rate for NOx = | 67% | | | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | | |
| 7. Annual emissions assume 100% compliance with VSRP to 40 nm. | | | | |
| 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%. | | | | |

Mitigated Project Criteria Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	888	514	404	9,736	514	411	1,548	425
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		888	514	404	9,736	514	411	1,548	425
Sea / Fairway - South-Bound	Diesel Engines	37,509	21,687	17,049	411,134	21,687	17,349	65,356	17,953
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		37,509	21,687	17,049	411,134	21,687	17,349	65,356	17,953
Fairway - North-Bound	Diesel Engines	1,064	615	484	11,661	615	492	1,854	509
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,064	615	484	11,661	615	492	1,854	509
Fairway - South-Bound	Diesel Engines	17,939	10,372	8,154	196,629	10,372	8,298	31,257	8,586
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		17,939	10,372	8,154	196,629	10,372	8,298	31,257	8,586
Precautionary Zone - North-Bound	Diesel Engines	366	212	166	4,012	212	169	638	175
Precautionary Zone - North-Bound	Boiler	5	-	2	44	8	6	63	2
Total Precautionary Zone - North-Bound		371	212	169	4,056	219	176	701	178
Precautionary Zone - South-Bound	Diesel Engines	13,862	8,015	6,301	151,941	8,015	6,412	24,153	6,635
Precautionary Zone - South-Bound	Boiler	174	-	87	1,663	295	236	2,393	92
Total Precautionary Zone - South-Bound		14,036	8,015	6,388	153,604	8,310	6,648	26,547	6,726
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	1,649	953	750	18,074	953	763	2,873	789
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	28	-	14	266	47	38	383	15
Total Outer Harbor Zone1		1,677	953	763	18,340	1,001	800	3,256	804
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	2,061	1,192	937	22,593	1,192	953	3,592	987
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	35	-	17	333	59	47	478	18
Total Outer Harbor Zone2		2,096	1,192	954	22,926	1,251	1,001	4,070	1,005
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	2,399	1,387	1,090	26,290	1,387	1,109	4,179	1,148
Inner Harbor Zone (maneuvering through main channel)	Boiler	40	-	20	387	69	55	557	21
Total Inner Harbor Zone		2,439	1,387	1,110	26,677	1,455	1,164	4,736	1,169
Hotelling	Diesel Engines	11,626	6,722	5,284	127,431	6,722	5,377	20,257	5,565
Hotelling	Boiler	1,519	-	759	14,510	2,575	2,060	20,880	800
Total Hotelling		13,144	6,722	6,044	141,940	9,297	7,438	41,137	6,364
Total (lb/yr)		91,162	51,668	41,519	996,704	54,721	43,777	180,461	43,720
boilers only						3,053			948
Average Day (lb/day) - Transit		213.7	123.1	97.2	2,341.8	124.4	99.6	381.7	102.3
Average Day (lb/day) - Hotelling		36.0	18.4	16.6	388.9	25.5	20.4	112.7	17.4

$Emissions (lb/yr) = Average\ Engine\ Power * Load\ Factor_{(VSR\ corrected)} * Fuel\ Corrected\ Emission\ Factor * Time_{(VSR\ corrected)} * 2_{(1-Way)} * Trips * Vessels\ per\ Year$

$NOx\ Emissions (lb/yr) = Average\ Engine\ Power * Load\ Factor * (IMO\ NOx\ Emission\ Factor * \%IMO\ vessels) + (non-IMO\ NOx\ Emission\ Factor * \%non-IMO\ vessels) * Time * 2_{(1-Way)} * Trips * Vessels\ per\ Year$

$Hotelling\ Emissions (lb/yr) = Emissions (lb/yr)\ for\ 1-way\ trip * AMP\ reduction * Vessels\ per\ Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 75%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

Total Vessels in 2037:	287	Inner Harbor Berths:	2
Percent of North-Bound Vessels:	2.9%	Outer Harbor Berths:	2
Percent of South-Bound Vessels:	97.1%		

Mitigated Project Toxic Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>3.69839</i>	<i>0.99956</i>	<i>7.49673</i>	<i>0.49978</i>	<i>0.04248</i>	<i>0.07997</i>	<i>1.29943</i>	<i>0.74967</i>	<i>0.56463</i>	<i>0.00083</i>
Sea / Fairway - South-Bound	Diesel Engines	4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>4.36897</i>	<i>1.18080</i>	<i>8.85602</i>	<i>0.59040</i>	<i>0.05018</i>	<i>0.09446</i>	<i>1.53504</i>	<i>0.88560</i>	<i>0.66700</i>	<i>0.00098</i>
Fairway - North-Bound	Diesel Engines	2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.31908	0.00047
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.09002</i>	<i>0.56487</i>	<i>4.23653</i>	<i>0.28244</i>	<i>0.02401</i>	<i>0.04519</i>	<i>0.73433</i>	<i>0.42365</i>	<i>0.31908</i>	<i>0.00047</i>
Fairway - South-Bound	Diesel Engines	1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.22603	0.00033
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.48053</i>	<i>0.40014</i>	<i>3.00108</i>	<i>0.20007</i>	<i>0.01701</i>	<i>0.03201</i>	<i>0.52019</i>	<i>0.30011</i>	<i>0.22603</i>	<i>0.00033</i>
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68591	0.11239	0.00955	0.01798	0.29221	0.16858	0.12697	0.00019
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	0.00605	0.00001
<i>Total Precautionary Zone - North-Bound</i>		<i>0.83167</i>	<i>0.22808</i>	<i>1.68596</i>	<i>0.11407</i>	<i>0.00966</i>	<i>0.02042</i>	<i>0.29916</i>	<i>0.17188</i>	<i>0.13302</i>	<i>0.00020</i>
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.14390	0.00021
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	0.00686	0.00001
<i>Total Precautionary Zone - South-Bound</i>		<i>0.94255</i>	<i>0.25849</i>	<i>1.91076</i>	<i>0.12928</i>	<i>0.01095</i>	<i>0.02314</i>	<i>0.33905</i>	<i>0.19480</i>	<i>0.15075</i>	<i>0.00022</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Diesel Engines	0.22070	0.05967	0.44710	0.02984	0.00254	0.00477	0.07757	0.04475	0.03371	0.00005
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	0.00213	0.00000
<i>Total Outer Harbor Zone1</i>		<i>0.22070</i>	<i>0.06083</i>	<i>0.44715</i>	<i>0.03043</i>	<i>0.00258</i>	<i>0.00563</i>	<i>0.08002</i>	<i>0.04591</i>	<i>0.03584</i>	<i>0.00005</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.04213	0.00006
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	0.00266	0.00000
<i>Total Outer Harbor Zone2</i>		<i>0.27599</i>	<i>0.07604</i>	<i>0.55950</i>	<i>0.03804</i>	<i>0.00322</i>	<i>0.00704</i>	<i>0.10003</i>	<i>0.05740</i>	<i>0.04480</i>	<i>0.00007</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.04903	0.00007
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	0.00310	0.00000
<i>Total Inner Harbor Zone</i>		<i>0.32115</i>	<i>0.08849</i>	<i>0.65105</i>	<i>0.04426</i>	<i>0.00374</i>	<i>0.00819</i>	<i>0.11640</i>	<i>0.06679</i>	<i>0.05213</i>	<i>0.00008</i>
Hotelling	Diesel Engines	0.69121	0.18681	1.40139	0.09341	0.00794	0.01494	0.24286	0.14011	0.10553	0.00016
Hotelling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	0.00968	0.00001
<i>Total Hotelling</i>		<i>0.69121</i>	<i>0.19210</i>	<i>1.40134</i>	<i>0.09610</i>	<i>0.00811</i>	<i>0.01883</i>	<i>0.25398</i>	<i>0.14539</i>	<i>0.11521</i>	<i>0.00017</i>
First Peak Hour Scenario (per vessel)		1.760	0.484	3.569	0.242	0.020	0.044	0.635	0.365	0.284	0.000
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors											
Second Peak Hour Scenario (per vessel)		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.115	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity											

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 2011 year

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00299	0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00299	0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
0.00353	0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00353	0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
0.00169	0.00375	0.00235	0.00394	0.00375	0.00282	0.00178	1.63294	0.00272	0.00338	-	0.00006	0.01192	0.04111
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00169	0.00375	0.00235	0.00394	0.00375	0.00282	0.00178	1.63294	0.00272	0.00338	-	0.00006	0.01192	0.04111
0.00120	0.00266	0.00166	0.00279	0.00266	0.00199	0.00126	1.15674	0.00193	0.00239	-	0.00004	0.00844	0.02912
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00120	0.00266	0.00166	0.00279	0.00266	0.00199	0.00126	1.15674	0.00193	0.00239	-	0.00004	0.00844	0.02912
0.00067	0.00149	0.00093	0.00157	0.00149	0.00112	0.00071	0.64978	0.00108	0.00134	-	0.00002	0.00474	0.01636
0.00003	0.00007	0.00004	0.00007	0.00007	0.00005	0.00003	0.03096	0.00005	0.00006	-	0.00000	0.00023	0.00078
0.00070	0.00156	0.00098	0.00164	0.00156	0.00117	0.00074	0.68074	0.00113	0.00141	-	0.00002	0.00497	0.01714
0.00076	0.00169	0.00106	0.00178	0.00169	0.00127	0.00080	0.73642	0.00123	0.00152	-	0.00003	0.00538	0.01854
0.00004	0.00008	0.00005	0.00008	0.00008	0.00006	0.00004	0.03509	0.00006	0.00007	-	0.00000	0.00026	0.00088
0.00080	0.00177	0.00111	0.00186	0.00177	0.00133	0.00084	0.77151	0.00129	0.00160	-	0.00003	0.00563	0.01942
0.00018	0.00040	0.00025	0.00042	0.00040	0.00030	0.00019	0.17250	0.00025	0.00036	-	0.00001	0.00126	0.00434
0.00001	0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01099	0.00002	0.00002	-	0.00000	0.00008	0.00027
0.00019	0.00042	0.00026	0.00044	0.00042	0.00032	0.00020	0.18309	0.00031	0.00038	-	0.00001	0.00134	0.00466
0.00022	0.00050	0.00031	0.00052	0.00050	0.00037	0.00024	0.21563	0.00036	0.00045	-	0.00001	0.00157	0.00543
0.00001	0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01362	0.00002	0.00003	-	0.00000	0.00010	0.00034
0.00024	0.00053	0.00033	0.00055	0.00053	0.00040	0.00025	0.22925	0.00038	0.00047	-	0.00001	0.00167	0.00577
0.00026	0.00058	0.00036	0.00061	0.00058	0.00043	0.00027	0.25091	0.00042	0.00052	-	0.00001	0.00183	0.00632
0.00002	0.00004	0.00002	0.00004	0.00004	0.00003	0.00002	0.01585	0.00003	0.00003	-	0.00000	0.00012	0.00040
0.00028	0.00061	0.00038	0.00064	0.00061	0.00046	0.00029	0.26677	0.00044	0.00055	-	0.00001	0.00195	0.00672
0.00056	0.00124	0.00078	0.00130	0.00124	0.00093	0.00059	0.54004	0.00090	0.00112	-	0.00002	0.00394	0.01359
0.00005	0.00011	0.00007	0.00012	0.00011	0.00009	0.00005	0.04954	0.00008	0.00010	-	0.00000	0.00036	0.00125
0.00061	0.00136	0.00085	0.00142	0.00136	0.00102	0.00064	0.58958	0.00098	0.00122	-	0.00002	0.00430	0.01460
0.002	0.003	0.002	0.004	0.003	0.003	0.002	1.451	0.002	0.003	-	0.000	0.011	0.037
0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.590	0.001	0.001	-	0.000	0.004	0.015

Mitigated Project Toxic Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	
Sea / Fairway - North-Bound	Diesel Engines	4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603		0.86886	0.65440	0.00096	0.00346
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603		0.86886	0.65440	0.00096	0.00346
Sea / Fairway - South-Bound	Diesel Engines	5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910		1.02640	0.77305	0.00114	0.00409
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910		1.02640	0.77305	0.00114	0.00409
Fairway - North-Bound	Diesel Engines	2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015		0.48470	0.36506	0.00054	0.00193
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015		0.48470	0.36506	0.00054	0.00193
Fairway - South-Bound	Diesel Engines	1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399		0.34268	0.25810	0.00038	0.00137
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399		0.34268	0.25810	0.00038	0.00137
Precautionary Zone North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956		0.19013	0.14320	0.00021	0.00076
Precautionary Zone North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429		0.00248	0.00065	0.00001	0.00003
Total Precautionary Zone - North-Bound		0.95019	0.25681	1.92607	0.12840	0.01091	0.02054	0.33385		0.19261	0.14925	0.00022	0.00079
Precautionary Zone South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350		0.21548	0.16229	0.00024	0.00086
Precautionary Zone South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487		0.00281	0.00086	0.00001	0.00004
Total Precautionary Zone - South-Bound		1.07689	0.29105	2.18288	0.14553	0.01237	0.02328	0.37837		0.21829	0.16915	0.00025	0.00090
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00273	0.00524	0.08520		0.04916	0.03702	0.00005	0.00020
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151		0.00087	0.00213	0.00000	0.00001
Total Outer Harbor Zone1		0.24681	0.06670	0.50029	0.03335	0.00278	0.00533	0.08671		0.05003	0.03915	0.00005	0.00021
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651		0.06145	0.04628	0.00007	0.00025
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189		0.00109	0.00266	0.00000	0.00001
Total Outer Harbor Zone2		0.30851	0.08338	0.62536	0.04169	0.00354	0.00667	0.10840		0.06254	0.04894	0.00007	0.00026
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393		0.07150	0.05385	0.00008	0.00029
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220		0.00127	0.00310	0.00000	0.00002
Total Inner Harbor Zone		0.35900	0.09702	0.72769	0.04852	0.00412	0.00776	0.12613		0.07277	0.05695	0.00008	0.00030
Hotelling	Diesel Engines	0.15090	0.20295	1.52210	0.10147	0.00863	0.01624	0.26383		0.15221	0.11464	0.00017	0.00051
Hotelling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687		0.00396	0.00968	0.00001	0.00005
Total Hotelling		0.17045	0.20824	1.56174	0.10412	0.00885	0.01666	0.27070		0.15617	0.12432	0.00018	0.00056
First Peak Hour Scenario (per vessel)		1.991	0.538	4.036	0.269	0.023	0.043	0.700		0.404	0.314	0.000	0.002
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors		0.770	0.208	1.562	0.104	0.009	0.017	0.271		0.156	0.124	0.000	0.001
Second Peak Hour Scenario (per vessel)		0.770	0.208	1.562	0.104	0.009	0.017	0.271		0.156	0.124	0.000	0.001
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity		0.770	0.208	1.562	0.104	0.009	0.017	0.271		0.156	0.124	0.000	0.001

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0 2011 year

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc	
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558		0.00693	-	0.00012	0.02444	0.08430
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558		0.00693	-	0.00012	0.02444	0.08430
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659		0.00819	-	0.00014	0.02888	0.09959
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659		0.00819	-	0.00014	0.02888	0.09959
0.00429	0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311		0.00387	-	0.00006	0.01364	0.04703
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00429	0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311		0.00387	-	0.00006	0.01364	0.04703
0.00304	0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220		0.00273	-	0.00005	0.00964	0.03325
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00304	0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220		0.00273	-	0.00005	0.00964	0.03325
0.00168	0.00105	0.00177	0.00168	0.00126	0.00080	0.73284	0.00122		0.00152	-	0.00003	0.00535	0.01845
0.00007	0.00004	0.00007	0.00007	0.00005	0.00003	0.03096	0.00005		0.00006	-	0.00000	0.00023	0.00078
0.00176	0.00110	0.00184	0.00176	0.00132	0.00083	0.76380	0.00127		0.00158	-	0.00003	0.00557	0.01923
0.00191	0.00119	0.00200	0.00191	0.00143	0.00091	0.83055	0.00138		0.00172	-	0.00003	0.00606	0.02091
0.00008	0.00005	0.00008	0.00008	0.00006	0.00004	0.03509	0.00006		0.00007	-	0.00000	0.00026	0.00088
0.00199	0.00124	0.00209	0.00199	0.00149	0.00095	0.86564	0.00144		0.00179	-	0.00003	0.00632	0.02179
0.00044	0.00027	0.00046	0.00044	0.00033	0.00021	0.18947	0.00032		0.00039	-	0.00001	0.00138	0.00477
0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01090	0.00002		0.00002	-	0.00000	0.00008	0.00027
0.00044	0.00027	0.00046	0.00044	0.00033	0.00022	0.20213	0.00033		0.00041	-	0.00001	0.00146	0.00504
0.00054	0.00034	0.00057	0.00054	0.00041	0.00026	0.23684	0.00039		0.00049	-	0.00001	0.00173	0.00596
0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01362	0.00002		0.00003	-	0.00000	0.00010	0.00034
0.00058	0.00036	0.00060	0.00058	0.00043	0.00027	0.25046	0.00042		0.00052	-	0.00001	0.00183	0.00630
0.00063	0.00040	0.00067	0.00063	0.00048	0.00030	0.27559	0.00046		0.00057	-	0.00001	0.00201	0.00694
0.00004	0.00002	0.00004	0.00004	0.00003	0.00002	0.01585	0.00003		0.00003	-	0.00000	0.00012	0.00040
0.00067	0.00042	0.00070	0.00067	0.00050	0.00032	0.29745	0.00049		0.00060	-	0.00001	0.00213	0.00734
0.00135	0.00084	0.00142	0.00135	0.00101	0.00064	0.58688	0.00098		0.00121	-	0.00002	0.00428	0.01477
0.00011	0.00007	0.00012	0.00011	0.00009	0.00005	0.04954	0.00008		0.00010	-	0.00000	0.00036	0.00125
0.00146	0.00097	0.00154	0.00146	0.00110	0.00069	0.43622	0.00106		0.00132	-	0.00002	0.00464	0.01602
0.004	0.002	0.004	0.004	0.003	0.002	1.608	0.003		0.003	-	0.000	0.012	0.040
0.001	0.001	0.002	0.001	0.001	0.001	0.636	0.001		0.001	-	0.000	0.005	0.016

Mitigated Project Toxic Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium
Sea / Fairway - North-Bound	Diesel Engines	4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346	0.00770
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346	0.00770
Sea / Fairway - South-Bound	Diesel Engines	5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409	0.00909
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409	0.00909
Fairway - North-Bound	Diesel Engines	2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.36506	0.00054	0.00193	0.00429
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.36506	0.00054	0.00193	0.00429
Fairway - South-Bound	Diesel Engines	1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.25810	0.00038	0.00137	0.00304
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.25810	0.00038	0.00137	0.00304
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.14320	0.00021	0.00076	0.00168
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00605	0.00001	0.00003	0.00007
Total Precautionary Zone - North-Bound		0.95019	0.25681	1.92607	0.12840	0.01091	0.02054	0.33385	0.19261	0.14925	0.00022	0.00079	0.00176
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.16229	0.00024	0.00086	0.00191
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00686	0.00001	0.00004	0.00008
Total Precautionary Zone - South-Bound		1.07689	0.29105	2.18288	0.14553	0.01237	0.02328	0.37837	0.21829	0.16915	0.00025	0.00090	0.00199
Outer Harbor Zone1 (vessels bound to outer harbor berths) ²⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.03702	0.00005	0.00020	0.00044
Outer Harbor Zone1 (vessels bound to outer harbor berths) ²⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00213	0.00000	0.00001	0.00003
Total Outer Harbor Zone1		0.24681	0.06670	0.50029	0.03335	0.00284	0.00533	0.08671	0.05003	0.03915	0.00005	0.00021	0.00047
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.04628	0.00007	0.00025	0.00054
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00266	0.00000	0.00001	0.00003
Total Outer Harbor Zone2		0.30851	0.08338	0.62536	0.04169	0.00354	0.00667	0.10840	0.06254	0.04894	0.00007	0.00026	0.00058
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.05385	0.00008	0.00029	0.00063
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00310	0.00000	0.00002	0.00004
Total Inner Harbor Zone		0.35900	0.09703	0.72769	0.04852	0.00412	0.00777	0.12613	0.07277	0.05695	0.00008	0.00031	0.00067
Hotelling	Diesel Engines	0.75090	0.20295	1.52210	0.10147	0.00863	0.01624	0.26383	0.15221	0.11464	0.00017	0.00061	0.00135
Hotelling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00968	0.00001	0.00005	0.00011
Total Hotelling		0.77045	0.20824	1.56174	0.10412	0.00885	0.01666	0.27070	0.15617	0.12432	0.00018	0.00066	0.00146

First Peak Hour Scenario (per vessel) 1.991 0.538 4.036 0.269 0.023 0.043 0.700 0.404 0.314 0.000 0.002 0.004
 First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors
 Second Peak Hour Scenario (per vessel) 0.770 0.208 1.562 0.104 0.009 0.017 0.271 0.156 0.124 0.000 0.001 0.001
 Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels: 0.0 2011 year

Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
-	-	-	-	-	-	-	-	-	-	-	-
0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
-	-	-	-	-	-	-	-	-	-	-	-
0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311	0.00387	-	0.00006	0.01364	0.04703
-	-	-	-	-	-	-	-	-	-	-	-
0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311	0.00387	-	0.00006	0.01364	0.04703
0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220	0.00273	-	0.00005	0.00964	0.03325
-	-	-	-	-	-	-	-	-	-	-	-
0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220	0.00273	-	0.00005	0.00964	0.03325
0.00105	0.00177	0.00168	0.00126	0.00080	0.73284	0.00122	0.00152	-	0.00003	0.00535	0.01845
0.00004	0.00007	0.00007	0.00005	0.00003	0.03096	0.00005	0.00006	-	0.00000	0.00023	0.00078
0.00110	0.00184	0.00176	0.00132	0.00083	0.76380	0.00127	0.00158	-	0.00003	0.00557	0.01923
0.00119	0.00200	0.00191	0.00143	0.00091	0.83055	0.00138	0.00172	-	0.00003	0.00606	0.02091
0.00005	0.00008	0.00008	0.00006	0.00004	0.03509	0.00006	0.00007	-	0.00000	0.00026	0.00088
0.00124	0.00209	0.00199	0.00149	0.00095	0.86564	0.00144	0.00179	-	0.00003	0.00632	0.02179
0.00027	0.00046	0.00044	0.00033	0.00021	0.18947	0.00032	0.00039	-	0.00001	0.00138	0.00477
0.00002	0.00003	0.00003	0.00002	0.00001	0.01090	0.00002	0.00002	-	0.00000	0.00008	0.00027
0.00028	0.00048	0.00046	0.00035	0.00023	0.20032	0.00033	0.00041	-	0.00001	0.00146	0.00504
0.00034	0.00057	0.00054	0.00041	0.00026	0.23684	0.00039	0.00049	-	0.00001	0.00173	0.00596
0.00002	0.00003	0.00003	0.00002	0.00001	0.01362	0.00002	0.00003	-	0.00000	0.00010	0.00034
0.00036	0.00060	0.00058	0.00043	0.00027	0.25046	0.00042	0.00052	-	0.00001	0.00183	0.00630
0.00040	0.00067	0.00063	0.00048	0.00030	0.27559	0.00046	0.00057	-	0.00001	0.00201	0.00694
0.00002	0.00004	0.00004	0.00003	0.00002	0.01585	0.00003	0.00003	-	0.00000	0.00012	0.00040
0.00042	0.00070	0.00067	0.00050	0.00032	0.29745	0.00049	0.00060	-	0.00001	0.00213	0.00734
0.00084	0.00142	0.00135	0.00101	0.00064	0.58648	0.00098	0.00121	-	0.00002	0.00428	0.01477
0.00007	0.00012	0.00011	0.00009	0.00005	0.04954	0.00008	0.00010	-	0.00000	0.00036	0.00125
0.00097	0.00154	0.00146	0.00116	0.00069	0.63622	0.00106	0.00132	-	0.00002	0.00464	0.01602
0.002	0.004	0.004	0.003	0.002	1.608	0.003	0.003	-	0.000	0.012	0.040
0.001	0.002	0.001	0.001	0.001	0.636	0.001	0.001	-	0.000	0.005	0.016

Mitigated Project Toxic Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2.51453	0.67960	5.09701	0.33980	0.02888	0.05437	0.88348	0.50970	0.31475	0.00046
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2.51453</i>	<i>0.67960</i>	<i>5.09701</i>	<i>0.33980</i>	<i>0.02888</i>	<i>0.05437</i>	<i>0.88348</i>	<i>0.50970</i>	<i>0.31475</i>	<i>0.00046</i>
Sea / Fairway - South-Bound	Diesel Engines	2.84982	0.77022	5.77666	0.38511	0.03273	0.06162	1.00129	0.57767	0.36594	0.00054
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>2.84982</i>	<i>0.77022</i>	<i>5.77666</i>	<i>0.38511</i>	<i>0.03273</i>	<i>0.06162</i>	<i>1.00129</i>	<i>0.57767</i>	<i>0.36594</i>	<i>0.00054</i>
Fairway - North-Bound	Diesel Engines	2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.24995	0.00037
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.09002</i>	<i>0.56487</i>	<i>4.23653</i>	<i>0.28244</i>	<i>0.02401</i>	<i>0.04519</i>	<i>0.73433</i>	<i>0.42365</i>	<i>0.24995</i>	<i>0.00037</i>
Fairway - South-Bound	Diesel Engines	1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.16266	0.00024
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.48053</i>	<i>0.40014</i>	<i>3.00108</i>	<i>0.20007</i>	<i>0.01701</i>	<i>0.03201</i>	<i>0.52019</i>	<i>0.30011</i>	<i>0.16266</i>	<i>0.00024</i>
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.08376	0.00012
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00382	0.00001
<i>Total Precautionary Zone - North-Bound</i>		<i>0.84389</i>	<i>0.22808</i>	<i>1.71058</i>	<i>0.11404</i>	<i>0.00969</i>	<i>0.01825</i>	<i>0.29650</i>	<i>0.17106</i>	<i>0.08758</i>	<i>0.00013</i>
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.09493	0.00014
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00433	0.00001
<i>Total Precautionary Zone - South-Bound</i>		<i>0.95641</i>	<i>0.25849</i>	<i>1.93866</i>	<i>0.12924</i>	<i>0.01099</i>	<i>0.02068</i>	<i>0.33603</i>	<i>0.19387</i>	<i>0.09926</i>	<i>0.00015</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.02224	0.00003
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00134	0.00000
<i>Total Outer Harbor Zone1</i>		<i>0.22509</i>	<i>0.06084</i>	<i>0.45626</i>	<i>0.03042</i>	<i>0.00259</i>	<i>0.00487</i>	<i>0.07909</i>	<i>0.04563</i>	<i>0.02358</i>	<i>0.00003</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.02780	0.00004
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00168	0.00000
<i>Total Outer Harbor Zone2</i>		<i>0.28136</i>	<i>0.07604</i>	<i>0.57033</i>	<i>0.03802</i>	<i>0.00323</i>	<i>0.00609</i>	<i>0.09886</i>	<i>0.05703</i>	<i>0.02948</i>	<i>0.00004</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.03234	0.00005
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00196	0.00000
<i>Total Inner Harbor Zone</i>		<i>0.32740</i>	<i>0.08849</i>	<i>0.66366</i>	<i>0.04424</i>	<i>0.00376</i>	<i>0.00708</i>	<i>0.11503</i>	<i>0.06637</i>	<i>0.03430</i>	<i>0.00005</i>
Hotelling	Diesel Engines	0.37440	0.10119	0.75893	0.05060	0.00430	0.00810	0.13155	0.07589	0.05417	0.00008
Hotelling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00611	0.00001
<i>Total Hotelling</i>		<i>0.39395</i>	<i>0.10648</i>	<i>0.79856</i>	<i>0.05324</i>	<i>0.00452</i>	<i>0.00852</i>	<i>0.13842</i>	<i>0.07985</i>	<i>0.06028</i>	<i>0.00009</i>
First Peak Hour Scenario (per vessel)		1.790	0.484	3.629	0.242	0.021	0.039	0.629	0.363	0.187	0.000
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors											
Second Peak Hour Scenario (per vessel)		0.394	0.106	0.799	0.053	0.005	0.009	0.138	0.080	0.060	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity											
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:							1.0	2015+ years			

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00167	0.00370	0.00231	0.00389	0.00370	0.00278	0.00176	1.61080	0.00268	0.00333	-	0.00006	0.01176	0.04055
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00167	0.00370	0.00231	0.00389	0.00370	0.00278	0.00176	1.61080	0.00268	0.00333	-	0.00006	0.01176	0.04055
0.00194	0.00431	0.00269	0.00452	0.00431	0.00323	0.00204	1.87276	0.00312	0.00387	-	0.00006	0.01367	0.04714
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00194	0.00431	0.00269	0.00452	0.00431	0.00323	0.00204	1.87276	0.00312	0.00387	-	0.00006	0.01367	0.04714
0.00132	0.00294	0.00184	0.00309	0.00294	0.00221	0.00140	1.27913	0.00213	0.00265	-	0.00004	0.00934	0.03220
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00132	0.00294	0.00184	0.00309	0.00294	0.00221	0.00140	1.27913	0.00213	0.00265	-	0.00004	0.00934	0.03220
0.00086	0.00191	0.00120	0.00201	0.00191	0.00144	0.00091	0.83242	0.00139	0.00172	-	0.00003	0.00608	0.02095
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00086	0.00191	0.00120	0.00201	0.00191	0.00144	0.00091	0.83242	0.00139	0.00172	-	0.00003	0.00608	0.02095
0.00044	0.00099	0.00062	0.00103	0.00099	0.00074	0.00047	0.42865	0.00071	0.00089	-	0.00001	0.00313	0.01079
0.00002	0.00004	0.00003	0.00005	0.00004	0.00003	0.00002	0.01955	0.00003	0.00004	-	0.00000	0.00014	0.00049
0.00046	0.00103	0.00064	0.00108	0.00103	0.00077	0.00049	0.44820	0.00075	0.00093	-	0.00002	0.00327	0.01128
0.00050	0.00112	0.00070	0.00117	0.00112	0.00084	0.00053	0.48581	0.00081	0.00101	-	0.00002	0.00355	0.01223
0.00002	0.00005	0.00003	0.00005	0.00005	0.00004	0.00002	0.02215	0.00004	0.00005	-	0.00000	0.00016	0.00056
0.00053	0.00117	0.00073	0.00123	0.00117	0.00088	0.00055	0.50796	0.00085	0.00105	-	0.00002	0.00371	0.01272
0.00012	0.00026	0.00016	0.00027	0.00026	0.00020	0.00012	0.11380	0.00019	0.00024	-	0.00000	0.00083	0.00286
0.00001	0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00688	0.00001	0.00001	-	0.00000	0.00005	0.00017
0.00012	0.00028	0.00017	0.00029	0.00028	0.00021	0.00013	0.12068	0.00020	0.00025	-	0.00000	0.00088	0.00304
0.00015	0.00033	0.00020	0.00034	0.00033	0.00025	0.00016	0.14225	0.00024	0.00029	-	0.00000	0.00104	0.00358
0.00001	0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00860	0.00001	0.00002	-	0.00000	0.00006	0.00022
0.00016	0.00035	0.00022	0.00036	0.00035	0.00026	0.00016	0.15085	0.00025	0.00031	-	0.00001	0.00110	0.00380
0.00017	0.00038	0.00024	0.00040	0.00038	0.00029	0.00018	0.16552	0.00028	0.00034	-	0.00001	0.00121	0.00417
0.00001	0.00002	0.00001	0.00002	0.00002	0.00002	0.00001	0.01001	0.00002	0.00002	-	0.00000	0.00007	0.00025
0.00018	0.00040	0.00025	0.00042	0.00040	0.00030	0.00019	0.17553	0.00029	0.00036	-	0.00001	0.00128	0.00442
0.00029	0.00064	0.00040	0.00067	0.00064	0.00048	0.00030	0.21721	0.00046	0.00057	-	0.00001	0.00202	0.00698
0.00003	0.00007	0.00004	0.00008	0.00007	0.00005	0.00003	0.03128	0.00005	0.00006	-	0.00000	0.00023	0.00079
0.00022	0.00071	0.00044	0.00074	0.00071	0.00053	0.00034	0.30648	0.00051	0.00064	-	0.00001	0.00225	0.00772
0.001	0.002	0.001	0.002	0.002	0.002	0.001	0.955	0.002	0.002	-	0.000	0.007	0.024
0.000	0.001	0.000	0.001	0.001	0.001	0.000	0.308	0.001	0.001	-	0.000	0.002	0.008

Mitigated Project Toxic Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	2.89357	0.78205	5.86535	0.39102	0.03324	0.06256	1.01666	0.58654	0.36379	0.00053	0.00193
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		2.89357	0.78205	5.86535	0.39102	0.03324	0.06256	1.01666	0.58654	0.36379	0.00053	0.00193
Sea / Fairway - South-Bound	Diesel Engines	3.28217	0.88707	6.65306	0.44354	0.03770	0.07097	1.15320	0.66531	0.42311	0.00062	0.00224
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		3.28217	0.88707	6.65306	0.44354	0.03770	0.07097	1.15320	0.66531	0.42311	0.00062	0.00224
Fairway - North-Bound	Diesel Engines	2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.28709	0.00042	0.00152
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.28709	0.00042	0.00152
Fairway - South-Bound	Diesel Engines	1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.18662	0.00027	0.00099
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.18662	0.00027	0.00099
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.09447	0.00014	0.00050
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00382	0.00001	0.00002
Total Precautionary Zone - North-Bound		0.95019	0.25681	1.92607	0.12840	0.01091	0.02054	0.33385	0.19261	0.09829	0.00014	0.00052
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.10706	0.00016	0.00057
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00433	0.00001	0.00002
Total Precautionary Zone - South-Bound		1.07689	0.29105	2.18288	0.14553	0.01237	0.02328	0.37837	0.21829	0.11139	0.00016	0.00059
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.02442	0.00004	0.00013
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00134	0.00000	0.00001
Total Outer Harbor Zone1		0.24681	0.06671	0.50029	0.03335	0.00283	0.00534	0.08672	0.05003	0.02577	0.00004	0.00014
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.03053	0.00004	0.00016
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00168	0.00000	0.00001
Total Outer Harbor Zone2		0.30851	0.08338	0.62536	0.04169	0.00354	0.00667	0.10840	0.06254	0.03221	0.00005	0.00017
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.03553	0.00005	0.00019
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00196	0.00000	0.00001
Total Inner Harbor Zone		0.35899	0.09703	0.72769	0.04851	0.00412	0.00776	0.12613	0.07277	0.03748	0.00006	0.00020
Hotelling	Diesel Engines	0.40674	0.10993	0.82447	0.05496	0.00467	0.00879	0.14291	0.08245	0.05885	0.00009	0.00031
Hotelling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00611	0.00001	0.00003
Total Hotelling		0.42629	0.11522	0.86411	0.05761	0.00489	0.00922	0.14978	0.08641	0.06496	0.00010	0.00034
First Peak Hour Scenario (per vessel)		1.991	0.538	4.036	0.269	0.023	0.043	0.700	0.404	0.207	0.000	0.001
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors												
Second Peak Hour Scenario (per vessel)		0.426	0.115	0.864	0.058	0.005	0.009	0.150	0.086	0.065	0.000	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity												

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

3.0 2015+ years

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00428	0.00267	0.00449	0.00428	0.00321	0.00203	1.86172	0.00310	0.00385	-	0.00006	0.01359	0.04686
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00428	0.00267	0.00449	0.00428	0.00321	0.00203	1.86172	0.00310	0.00385	-	0.00006	0.01359	0.04686
0.00498	0.00311	0.00523	0.00498	0.00373	0.00236	2.16534	0.00361	0.00448	-	0.00007	0.01580	0.05451
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00498	0.00311	0.00523	0.00498	0.00373	0.00236	2.16534	0.00361	0.00448	-	0.00007	0.01580	0.05451
0.00338	0.00211	0.00355	0.00338	0.00253	0.00160	1.46922	0.00245	0.00304	-	0.00005	0.01072	0.03698
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00338	0.00211	0.00355	0.00338	0.00253	0.00160	1.46922	0.00245	0.00304	-	0.00005	0.01072	0.03698
0.00220	0.00137	0.00231	0.00220	0.00165	0.00104	0.95507	0.00159	0.00198	-	0.00003	0.00697	0.02404
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00220	0.00137	0.00231	0.00220	0.00165	0.00104	0.95507	0.00159	0.00198	-	0.00003	0.00697	0.02404
0.00111	0.00069	0.00117	0.00111	0.00083	0.00053	0.48345	0.00081	0.00100	-	0.00002	0.00353	0.01217
0.00004	0.00003	0.00005	0.00004	0.00003	0.00002	0.01955	0.00003	0.00004	-	0.00000	0.00014	0.00049
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00116	0.00072	0.00121	0.00116	0.00087	0.00055	0.50299	0.00084	0.00104	-	0.00002	0.00367	0.01266
0.00126	0.00079	0.00132	0.00126	0.00094	0.00060	0.54790	0.00091	0.00113	-	0.00002	0.00400	0.01379
0.00005	0.00003	0.00005	0.00005	0.00004	0.00002	0.02215	0.00004	0.00005	-	0.00000	0.00016	0.00056
0.00131	0.00082	0.00138	0.00131	0.00098	0.00062	0.57006	0.00095	0.00118	-	0.00002	0.00416	0.01435
0.00029	0.00018	0.00030	0.00029	0.00022	0.00014	0.12499	0.00021	0.00026	-	0.00000	0.00091	0.00315
0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00688	0.00001	0.00001	-	0.00000	0.00005	0.00017
0.00230	0.00019	0.00032	0.00230	0.00023	0.00014	0.13187	0.00022	0.00027	-	0.00002	0.00096	0.00332
0.00036	0.00022	0.00038	0.00036	0.00027	0.00017	0.15624	0.00026	0.00032	-	0.00001	0.00114	0.00393
0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00860	0.00001	0.00002	-	0.00000	0.00006	0.00022
0.00038	0.00024	0.00040	0.00038	0.00028	0.00018	0.16494	0.00027	0.00034	-	0.00001	0.00120	0.00415
0.00042	0.00026	0.00044	0.00042	0.00031	0.00020	0.18181	0.00030	0.00038	-	0.00001	0.00133	0.00458
0.00002	0.00001	0.00002	0.00002	0.00002	0.00001	0.01001	0.00002	0.00002	-	0.00000	0.00007	0.00025
0.00044	0.00028	0.00046	0.00044	0.00033	0.00021	0.19181	0.00032	0.00040	-	0.00001	0.00140	0.00483
0.00069	0.00043	0.00073	0.00069	0.00052	0.00033	0.30115	0.00050	0.00062	-	0.00001	0.00220	0.00758
0.00007	0.00004	0.00008	0.00007	0.00005	0.00003	0.03128	0.00005	0.00006	-	0.00000	0.00023	0.00079
0.00076	0.00048	0.00080	0.00076	0.00057	0.00038	0.33242	0.00055	0.00069	-	0.00001	0.00243	0.00837
0.002	0.002	0.003	0.002	0.002	0.001	1.059	0.002	0.002	-	0.000	0.008	0.027
0.001	0.000	0.001	0.001	0.001	0.000	0.332	0.001	0.001	-	0.000	0.002	0.008

Mitigated Project Toxic Pollutant Emissions
Year: 2011

Year (lb/yr)													
Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	1,667											
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,667</i>	-	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	70,418											
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>70,418</i>	-	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	1,099											
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,099</i>	-	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	18,526											
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>18,526</i>	-	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	378											
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1	-
<i>Total Precautionary Zone - North-Bound</i>		<i>378</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.1</i>	-
Precautionary Zone - South-Bound	Diesel Engines	14,315											
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.4	4.1	2.0	-	2.8	-
<i>Total Precautionary Zone - South-Bound</i>		<i>14,315</i>	-	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>4.1</i>	<i>2.0</i>	-	<i>2.8</i>	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-											
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	-	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	4,257											
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.6	0.8	-	1.1	-
<i>Total Outer Harbor Zone2</i>		<i>4,257</i>	-	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.8</i>	-	<i>1.1</i>	-
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,954											
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	1.9	0.9	-	1.3	-
<i>Total Inner Harbor Zone</i>		<i>4,954</i>	-	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>1.9</i>	<i>0.9</i>	-	<i>1.3</i>	-
Hoteling	Diesel Engines	46,116											
Hoteling	Boiler		-	17.1	0.8	8.7	0.6	12.6	35.9	17.1	-	24.8	-
<i>Total Hoteling</i>		<i>46,116</i>	-	<i>17.1</i>	<i>0.8</i>	<i>8.7</i>	<i>0.6</i>	<i>12.6</i>	<i>35.9</i>	<i>17.1</i>	-	<i>24.8</i>	-
		161,730	-	21	1	11	1	15	44	21	-	30	-

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
0.0	-	0.1	-	-	0.0	3.5	-	-	-	0.0	-	0.1
0.0	-	0.1	-	-	0.0	3.5	-	-	-	0.0	-	0.1
0.3	-	2.9	-	-	0.3	131.8	-	-	-	0.1	-	2.9
0.3	-	2.9	-	-	0.3	131.8	-	-	-	0.1	-	2.9
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
0.1	-	1.2	-	-	0.1	52.7	-	-	-	0.1	-	1.2
0.1	-	1.2	-	-	0.1	52.7	-	-	-	0.1	-	1.2
0.1	-	1.3	-	-	0.1	61.3	-	-	-	0.1	-	1.3
0.1	-	1.3	-	-	0.1	61.3	-	-	-	0.1	-	1.3
2.3	-	25.3	-	-	2.3	1,150.0	-	-	-	1.2	-	25.3
2.3	-	25.3	-	-	2.3	1,150.0	-	-	-	1.2	-	25.3
3	-	31	-	-	3	1,399	-	-	-	2	-	31

Mitigated Project Toxic Pollutant Emissions
Year: 2015

Year (lb/yr)													
Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	492											
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>492</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	20,780											
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>20,780</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	589											
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>589</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	9,938											
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>9,938</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	203											
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0	-
<i>Total Precautionary Zone - North-Bound</i>		<i>203</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>	<i>-</i>
Precautionary Zone - South-Bound	Diesel Engines	7,680											
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5	-
<i>Total Precautionary Zone - South-Bound</i>		<i>7,680</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>1.5</i>	<i>-</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	914											
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.2	-
<i>Total Outer Harbor Zone1</i>		<i>914</i>	<i>-</i>	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	<i>-</i>	<i>0.2</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,142											
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.8	0.4	-	0.3	-
<i>Total Outer Harbor Zone2</i>		<i>1,142</i>	<i>-</i>	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.8</i>	<i>0.4</i>	<i>-</i>	<i>0.3</i>	<i>-</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,329											
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.2	0.0	0.3	1.0	0.5	-	0.4	-
<i>Total Inner Harbor Zone</i>		<i>1,329</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>1.0</i>	<i>0.5</i>	<i>-</i>	<i>0.4</i>	<i>-</i>
Hoteling	Diesel Engines	6,441											
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3	-
<i>Total Hoteling</i>		<i>6,441</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>13.3</i>	<i>-</i>
		49,507	-	21	1	11	1	15	44	21	-	16	-

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
0.0	-	0.2	-	-	0.0	11.3	-	-	-	0.0	-	0.2
0.0	-	0.2	-	-	0.0	11.3	-	-	-	0.0	-	0.2
0.0	-	0.3	-	-	0.0	14.1	-	-	-	0.0	-	0.3
0.0	-	0.3	-	-	0.0	14.1	-	-	-	0.0	-	0.3
0.0	-	0.4	-	-	0.0	16.5	-	-	-	0.0	-	0.4
0.0	-	0.4	-	-	0.0	16.5	-	-	-	0.0	-	0.4
1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
1	-	16	-	-	1	731	-	-	-	1	-	16

Mitigated Project Toxic Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	505											
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>505</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	21,309											
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>21,309</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	604											
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>604</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	10,191											
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>10,191</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	208											
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0	-
<i>Total Precautionary Zone - North Bound</i>		<i>208</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>	<i>-</i>
Precautionary Zone - South-Bound	Diesel Engines	7,875											
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.3	2.0	-	1.6	-
<i>Total Precautionary Zone - South-Bound</i>		<i>7,875</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.3</i>	<i>2.0</i>	<i>-</i>	<i>1.6</i>	<i>-</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	937											
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.3	-
<i>Total Outer Harbor Zone1</i>		<i>937</i>	<i>-</i>	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	<i>-</i>	<i>0.3</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,171											
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.9	0.4	-	0.3	-
<i>Total Outer Harbor Zone2</i>		<i>1,171</i>	<i>-</i>	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.9</i>	<i>0.4</i>	<i>-</i>	<i>0.3</i>	<i>-</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,363											
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.2	0.0	0.4	1.0	0.5	-	0.4	-
<i>Total Inner Harbor Zone</i>		<i>1,363</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.4</i>	<i>1.0</i>	<i>0.5</i>	<i>-</i>	<i>0.4</i>	<i>-</i>
Hoteling	Diesel Engines	6,605											
Hoteling	Boiler		-	17.9	0.8	9.1	0.6	13.2	37.6	17.9	-	13.7	-
<i>Total Hoteling</i>		<i>6,605</i>	<i>-</i>	<i>17.9</i>	<i>0.8</i>	<i>9.1</i>	<i>0.6</i>	<i>13.2</i>	<i>37.6</i>	<i>17.9</i>	<i>-</i>	<i>13.7</i>	<i>-</i>
		50,767	-	21	1	11	1	16	45	21	-	16	-

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
0.1	-	1.6	-	-	0.1	72.5	-	-	-	0.1	-	1.6
0.1	-	1.6	-	-	0.1	72.5	-	-	-	0.1	-	1.6
0.0	-	0.3	-	-	0.0	11.6	-	-	-	0.0	-	0.3
0.0	-	0.3	-	-	0.0	11.6	-	-	-	0.0	-	0.3
0.0	-	0.3	-	-	0.0	14.5	-	-	-	0.0	-	0.3
0.0	-	0.3	-	-	0.0	14.5	-	-	-	0.0	-	0.3
0.0	-	0.4	-	-	0.0	16.9	-	-	-	0.0	-	0.4
0.0	-	0.4	-	-	0.0	16.9	-	-	-	0.0	-	0.4
1.3	-	13.9	-	-	1.3	632.6	-	-	-	0.7	-	13.9
1.3	-	13.9	-	-	1.3	632.6	-	-	-	0.7	-	13.9
2	-	17	-	-	2	750	-	-	-	1	-	17

Mitigated Project Toxic Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	514											
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>514</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	21,687											
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>21,687</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	615											
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>615</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	10,372											
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>10,372</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	212											
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0	-
<i>Total Precautionary Zone - North Bound</i>		<i>212</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>	<i>-</i>
Precautionary Zone - South-Bound	Diesel Engines	8,015											
Precautionary Zone - South-Bound	Boiler		-	2.1	0.1	1.1	0.1	1.5	4.4	2.1	-	1.6	-
<i>Total Precautionary Zone - South-Bound</i>		<i>8,015</i>	<i>-</i>	<i>2.1</i>	<i>0.1</i>	<i>1.1</i>	<i>0.1</i>	<i>1.5</i>	<i>4.4</i>	<i>2.1</i>	<i>-</i>	<i>1.6</i>	<i>-</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	953											
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.3	-
<i>Total Outer Harbor Zone1</i>		<i>953</i>	<i>-</i>	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	<i>-</i>	<i>0.3</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,192											
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.9	0.4	-	0.3	-
<i>Total Outer Harbor Zone2</i>		<i>1,192</i>	<i>-</i>	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.9</i>	<i>0.4</i>	<i>-</i>	<i>0.3</i>	<i>-</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,387											
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.2	0.0	0.4	1.0	0.5	-	0.4	-
<i>Total Inner Harbor Zone</i>		<i>1,387</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.4</i>	<i>1.0</i>	<i>0.5</i>	<i>-</i>	<i>0.4</i>	<i>-</i>
Hoteling	Diesel Engines	6,722											
Hoteling	Boiler		-	18.2	0.8	9.3	0.6	13.4	38.3	18.2	-	13.9	-
<i>Total Hoteling</i>		<i>6,722</i>	<i>-</i>	<i>18.2</i>	<i>0.8</i>	<i>9.3</i>	<i>0.6</i>	<i>13.4</i>	<i>38.3</i>	<i>18.2</i>	<i>-</i>	<i>13.9</i>	<i>-</i>
		51,668	-	22	1	11	1	16	45	22	-	16	-

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
0.1	-	1.6	-	-	0.1	73.8	-	-	-	0.1	-	1.6
0.1	-	1.6	-	-	0.1	73.8	-	-	-	0.1	-	1.6
0.0	-	0.3	-	-	0.0	11.8	-	-	-	0.0	-	0.3
0.0	-	0.3	-	-	0.0	11.8	-	-	-	0.0	-	0.3
0.0	-	0.3	-	-	0.0	14.8	-	-	-	0.0	-	0.3
0.0	-	0.3	-	-	0.0	14.8	-	-	-	0.0	-	0.3
0.0	-	0.4	-	-	0.0	17.2	-	-	-	0.0	-	0.4
0.0	-	0.4	-	-	0.0	17.2	-	-	-	0.0	-	0.4
1.3	-	14.2	-	-	1.3	643.9	-	-	-	0.7	-	14.2
1.3	-	14.2	-	-	1.3	643.9	-	-	-	0.7	-	14.2
2	-	17	-	-	2	763	-	-	-	1	-	17

70-Year Average Calculations			Mitigated Proposed Project											
			70-year average	Project Start Year 2009	Evaluation Year					Evaluation Year				
				2009	2010	2011	2012	2013	2014	2015	2016	2017		
DPM														
Sea / Fairway - North-Bound		Diesel Engines	585	2,024	2,024	1,667	1,667	492	492	492	492	492		
Sea / Fairway - North-Bound		Boiler			-						-	-		
	<i>Total in Sea / Fairway - North-Bound</i>				-						-	-		
Sea / Fairway - South-Bound		Diesel Engines	24,705	85,494	85,494	70,418	70,418	20,780	20,780	20,780	20,780	20,780		
Sea / Fairway - South-Bound		Boiler			-						-	-		
	<i>Total in Sea / Fairway - South-Bound</i>				-						-	-		
Fairway - North-Bound		Diesel Engines	649	1,501	1,501	1,099	1,099	589	589	589	589	589		
Fairway - North-Bound		Boiler			-						-	-		
	<i>Total in Fairway - North-Bound</i>				-						-	-		
Fairway - South-Bound		Diesel Engines	10,937	25,308	25,308	18,526	18,526	9,938	9,938	9,938	9,938	9,938		
Fairway - South-Bound		Boiler			-						-	-		
	<i>Total in Fairway - South-Bound</i>				-						-	-		
Precautionary Zone - North-Bound		Diesel Engines	221	449	449	378	378	203	203	203	203	203		
Precautionary Zone - North-Bound		Boiler			-						-	-		
	<i>Total Precautionary Zone - North-Bound</i>				-						-	-		
Precautionary Zone - South-Bound		Diesel Engines	8,378	16,993	16,993	14,315	14,315	7,680	7,680	7,680	7,680	7,680		
Precautionary Zone - South-Bound		Boiler			-						-	-		
	<i>Total Precautionary Zone - South-Bound</i>				-						-	-		
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾		Diesel Engines	890	-	-	-	-	914	914	914	914	914		
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾		Boiler			-						-	-		
	<i>Total Outer Harbor Zone1</i>				-						-	-		
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾		Diesel Engines	1,379	5,053	5,053	4,257	4,257	1,142	1,142	1,142	1,142	1,142		
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾		Boiler			-						-	-		
	<i>Total Outer Harbor Zone2</i>				-						-	-		
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):		Diesel Engines	1,604	5,880	5,880	4,954	4,954	1,329	1,329	1,329	1,329	1,329		
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):		Boiler			-						-	-		
	<i>Total Inner Harbor Zone</i>				-						-	-		
Hotelling		Diesel Engines	9,751	75,504	75,504	46,116	46,116	6,441	6,441	6,441	6,441	6,441		
Hotelling		Boiler			-						-	-		
	<i>Total Hotelling</i>				-						-	-		

San Pedro Waterfront

2018	2019	2020	Evaluation Year		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
			2021	2022										
492	492	492	492	505	505	505	505	505	505	505	505	505	505	505
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20,780	20,780	20,780	20,780	21,309	21,309	21,309	21,309	21,309	21,309	21,309	21,309	21,309	21,309	21,309
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
589	589	589	589	604	604	604	604	604	604	604	604	604	604	604
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9,938	9,938	9,938	9,938	10,191	10,191	10,191	10,191	10,191	10,191	10,191	10,191	10,191	10,191	10,191
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
203	203	203	203	208	208	208	208	208	208	208	208	208	208	208
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,680	7,680	7,680	7,680	7,875	7,875	7,875	7,875	7,875	7,875	7,875	7,875	7,875	7,875	7,875
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
914	914	914	914	937	937	937	937	937	937	937	937	937	937	937
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,142	1,142	1,142	1,142	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,329	1,329	1,329	1,329	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,441	6,441	6,441	6,441	6,605	6,605	6,605	6,605	6,605	6,605	6,605	6,605	6,605	6,605	6,605

San Pedro Waterfront

2033	2034	2035	Evaluation Year		2038	2039	2040	2041	2042	2043	2044	2045	2046	2047
			2036	2037										
505	505	505	505	514	514	514	514	514	514	514	514	514	514	514
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21,309	21,309	21,309	21,309	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
604	604	604	604	615	615	615	615	615	615	615	615	615	615	615
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10,191	10,191	10,191	10,191	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
208	208	208	208	212	212	212	212	212	212	212	212	212	212	212
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,875	7,875	7,875	7,875	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
937	937	937	937	953	953	953	953	953	953	953	953	953	953	953
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,171	1,171	1,171	1,171	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,363	1,363	1,363	1,363	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,605	6,605	6,605	6,605	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722

San Pedro Waterfront

2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
615	615	615	615	615	615	615	615	615	615	615	615	615	615	615	615	615	615
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722

San Pedro Waterfront

2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
514	514	514	514	514	514	514	514	514	514	514	514	514
-	-	-	-	-	-	-	-	-	-	-	-	-
21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687
-	-	-	-	-	-	-	-	-	-	-	-	-
615	615	615	615	615	615	615	615	615	615	615	615	615
-	-	-	-	-	-	-	-	-	-	-	-	-
10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372
-	-	-	-	-	-	-	-	-	-	-	-	-
212	212	212	212	212	212	212	212	212	212	212	212	212
-	-	-	-	-	-	-	-	-	-	-	-	-
8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015
-	-	-	-	-	-	-	-	-	-	-	-	-
953	953	953	953	953	953	953	953	953	953	953	953	953
-	-	-	-	-	-	-	-	-	-	-	-	-
1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192
-	-	-	-	-	-	-	-	-	-	-	-	-
1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387
-	-	-	-	-	-	-	-	-	-	-	-	-
6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722

70-Year Average Calculations			Mitigated Proposed Project										
			Project Start Year	Evaluation Year					Evaluation Year				
70-year average			2009	2010	2011	2012	2013	2014	2015	2016	2017		
PM from OGV boilers													
Sea / Fairway - North-Bound	Diesel Engines												
Sea / Fairway - North-Bound	Boiler												
	<i>Total in Sea / Fairway - North-Bound</i>												
Sea / Fairway - South-Bound	Diesel Engines												
Sea / Fairway - South-Bound	Boiler												
	<i>Total in Sea / Fairway - South-Bound</i>												
Fairway - North-Bound	Diesel Engines												
Fairway - North-Bound	Boiler												
	<i>Total in Fairway - North-Bound</i>												
Fairway - South-Bound	Diesel Engines												
Fairway - South-Bound	Boiler												
	<i>Total in Fairway - South-Bound</i>												
Precautionary Zone - North-Bound	Diesel Engines												
Precautionary Zone - North-Bound	Boiler	8	17	17	14	14	7	7	7	7			
	<i>Total Precautionary Zone - North-Bound</i>												
Precautionary Zone - South-Bound	Diesel Engines												
Precautionary Zone - South-Bound	Boiler	309	626	626	527	527	283	283	283	283			
	<i>Total Precautionary Zone - South-Bound</i>												
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines												
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	44	-	-	-	45	45	45	45	45			
	<i>Total Outer Harbor Zone1</i>												
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines												
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	68	250	250	211	211	57	57	57	57			
	<i>Total Outer Harbor Zone2</i>												
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines												
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	79	291	291	245	245	66	66	66	66			
	<i>Total Inner Harbor Zone</i>												
Hotelling	Diesel Engines												
Hotelling	Boiler	2,692	5,460	5,460	4,600	4,600	2,468	2,468	2,468	2,468			
	<i>Total Hotelling</i>												

				Evaluation Year										
2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
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7	7	7	7	8	8	8	8	8	8	8	8	8	8	8
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283	283	283	283	290	290	290	290	290	290	290	290	290	290	290
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45	45	45	45	46	46	46	46	46	46	46	46	46	46	46
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57	57	57	57	58	58	58	58	58	58	58	58	58	58	58
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66	66	66	66	67	67	67	67	67	67	67	67	67	67	67
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2,468	2,468	2,468	2,468	2,531	2,531	2,531	2,531	2,531	2,531	2,531	2,531	2,531	2,531	2,531

														Evaluation Year		
2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047		
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290	290	290	290	295	295	295	295	295	295	295	295	295	295	295	295	295
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46	46	46	46	47	47	47	47	47	47	47	47	47	47	47	47	47
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58	58	58	58	59	59	59	59	59	59	59	59	59	59	59	59	59
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67	67	67	67	69	69	69	69	69	69	69	69	69	69	69	69	69
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2,531	2,531	2,531	2,531	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575

San Pedro Waterfront

2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065
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295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295
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47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
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59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
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69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575

San Pedro Waterfront

2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
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295	295	295	295	295	295	295	295	295	295	295	295	295
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47	47	47	47	47	47	47	47	47	47	47	47	47
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59	59	59	59	59	59	59	59	59	59	59	59	59
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69	69	69	69	69	69	69	69	69	69	69	69	69
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2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575

70-Year Average Calculations			Mitigated Proposed Project										
			Project Start Year	Evaluation Year					Evaluation Year				
70-year average			2009	2010	2011	2012	2013	2014	2015	2016	2017		
VOC from OGV boilers													
Sea / Fairway - North-Bound	Diesel Engines												
Sea / Fairway - North-Bound	Boiler												
	<i>Total in Sea / Fairway - North-Bound</i>												
Sea / Fairway - South-Bound	Diesel Engines												
Sea / Fairway - South-Bound	Boiler												
	<i>Total in Sea / Fairway - South-Bound</i>												
Fairway - North-Bound	Diesel Engines												
Fairway - North-Bound	Boiler												
	<i>Total in Fairway - North-Bound</i>												
Fairway - South-Bound	Diesel Engines												
Fairway - South-Bound	Boiler												
	<i>Total in Fairway - South-Bound</i>												
Precautionary Zone - North-Bound	Diesel Engines												
Precautionary Zone - North-Bound	Boiler	2	2	2	2	2	2	2	2	2	2		
	<i>Total Precautionary Zone - North-Bound</i>												
Precautionary Zone - South-Bound	Diesel Engines												
Precautionary Zone - South-Bound	Boiler	90	82	82	86	86	88	88	88	88	88		
	<i>Total Precautionary Zone - South-Bound</i>												
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines												
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	14	-	-	-	14	14	14	14	14	14		
	<i>Total Outer Harbor Zone1</i>												
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines												
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	19	33	33	34	34	18	18	18	18	18		
	<i>Total Outer Harbor Zone2</i>												
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines												
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	22	38	38	40	40	20	20	20	20	20		
	<i>Total Inner Harbor Zone</i>												
Hotelling	Diesel Engines												
Hotelling	Boiler	788	719	719	749	749	766	766	766	766	766		
	<i>Total Hotelling</i>												

														Evaluation Year	
2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
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88	88	88	88	90	90	90	90	90	90	90	90	90	90	90	
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14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
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20	20	20	20	21	21	21	21	21	21	21	21	21	21	21	
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766	766	766	766	786	786	786	786	786	786	786	786	786	786	786	

														Evaluation Year	
2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	
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90	90	90	90	92	92	92	92	92	92	92	92	92	92	92	
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14	14	14	14	15	15	15	15	15	15	15	15	15	15	15	
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
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21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	
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786	786	786	786	800	800	800	800	800	800	800	800	800	800	800	

2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
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15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
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21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800

San Pedro Waterfront

2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-
92	92	92	92	92	92	92	92	92	92	92	92	92
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
15	15	15	15	15	15	15	15	15	15	15	15	15
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
21	21	21	21	21	21	21	21	21	21	21	21	21
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
800	800	800	800	800	800	800	800	800	800	800	800	800

Mitigated Project Toxic Pollutant Emissions
70-Year Average

Year (lb/yr)	Spatial Allocation	Power Type	VOC								PM		
			DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	
	Sea / Fairway - North-Bound	Diesel Engines	585										
	Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - North-Bound</i>		<i>585</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Sea / Fairway - South-Bound	Diesel Engines	24,705										
	Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - South-Bound</i>		<i>24,705</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - North-Bound	Diesel Engines	649										
	Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - North-Bound</i>		<i>649</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - South-Bound	Diesel Engines	10,937										
	Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - South-Bound</i>		<i>10,937</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Precautionary Zone - North-Bound	Diesel Engines	221										
	Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	-
	<i>Total Precautionary Zone - North-Bound</i>		<i>221</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>-</i>
	Precautionary Zone - South-Bound	Diesel Engines	8,378										
	Precautionary Zone - South-Bound	Boiler		-	2.1	0.1	1.1	0.1	1.5	4.3	2.1	-	-
	<i>Total Precautionary Zone - South-Bound</i>		<i>8,378</i>	<i>-</i>	<i>2.1</i>	<i>0.1</i>	<i>1.1</i>	<i>0.1</i>	<i>1.5</i>	<i>4.3</i>	<i>2.1</i>	<i>-</i>	<i>-</i>
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	890										
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	-
	<i>Total Outer Harbor Zone1</i>		<i>890</i>	<i>-</i>	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	<i>-</i>	<i>-</i>
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,379										
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.9	0.4	-	-
	<i>Total Outer Harbor Zone2</i>		<i>1,379</i>	<i>-</i>	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.9</i>	<i>0.4</i>	<i>-</i>	<i>-</i>
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,604										
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	-
	<i>Total Inner Harbor Zone</i>		<i>1,604</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	<i>-</i>	<i>-</i>
	Hoteling	Diesel Engines	9,751										
	Hoteling	Boiler		-	17.9	0.8	9.2	0.6	13.2	37.8	17.9	-	-
	<i>Total Hoteling</i>		<i>9,751</i>	<i>-</i>	<i>17.9</i>	<i>0.8</i>	<i>9.2</i>	<i>0.6</i>	<i>13.2</i>	<i>37.8</i>	<i>17.9</i>	<i>-</i>	<i>-</i>

Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.0	-	0.0	-	0.0	-	-	0.0	2.0	-	-	-	0.0	-	0.0
0.0	-	0.0	-	0.0	-	-	0.0	2.0	-	-	-	0.0	-	0.0
1.7	-	0.2	-	1.7	-	-	0.2	77.2	-	-	-	0.1	-	1.7
1.7	-	0.2	-	1.7	-	-	0.2	77.2	-	-	-	0.1	-	1.7
0.2	-	0.0	-	0.2	-	-	0.0	11.0	-	-	-	0.0	-	0.2
0.2	-	0.0	-	0.2	-	-	0.0	11.0	-	-	-	0.0	-	0.2
0.4	-	0.0	-	0.4	-	-	0.0	17.1	-	-	-	0.0	-	0.4
0.4	-	0.0	-	0.4	-	-	0.0	17.1	-	-	-	0.0	-	0.4
0.4	-	0.0	-	0.4	-	-	0.0	19.9	-	-	-	0.0	-	0.4
0.4	-	0.0	-	0.4	-	-	0.0	19.9	-	-	-	0.0	-	0.4
14.5	-	1.3	-	14.8	-	-	1.3	673.1	-	-	-	0.7	-	14.8
14.5	-	1.3	-	14.8	-	-	1.3	673.1	-	-	-	0.7	-	14.8

San Pedro Waterfront

Unmitigated Alternative 1 Criteria Pollutant Emissions

Emissions per vessel are same as unmitigated proposed project.

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		23.7	42.3	10.8	300.8	44.3	35.5	450.3	11.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.6	2.7	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	135.9	3.3	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.3	158.2	3.9	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		17.6	31.0	8.0	222.8	33.9	27.1	359.3	8.4	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = 1.053$$

$$1 \text{ lb} = 453.59$$

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3 Year 2011 only
1 All other years

San Pedro Waterfront

Unmitigated Alternative 1 Criteria Pollutant Emissions

Emissions per vessel are same as unmitigated proposed project.

Year: 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway -	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway -	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea /</i>		<i>106.3</i>	<i>192.5</i>	<i>48.3</i>	<i>1,353.1</i>	<i>192.5</i>	<i>154.0</i>	<i>1,852.5</i>	<i>50.9</i>	
Sea / Fairway -	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway -	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea /</i>		<i>125.6</i>	<i>227.4</i>	<i>57.1</i>	<i>1,598.4</i>	<i>227.4</i>	<i>181.9</i>	<i>2,188.4</i>	<i>60.1</i>	
Fairway - North-	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway -</i>		<i>81.4</i>	<i>147.4</i>	<i>37.0</i>	<i>1,035.9</i>	<i>147.4</i>	<i>117.9</i>	<i>1,418.2</i>	<i>39.0</i>	
Fairway - South-	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway -</i>		<i>49.7</i>	<i>90.1</i>	<i>22.6</i>	<i>633.1</i>	<i>90.1</i>	<i>72.0</i>	<i>866.7</i>	<i>23.8</i>	
Precautionary	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total</i>		<i>23.5</i>	<i>42.1</i>	<i>10.7</i>	<i>299.0</i>	<i>43.9</i>	<i>35.1</i>	<i>443.3</i>	<i>11.3</i>	
Precautionary	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total</i>		<i>26.7</i>	<i>47.7</i>	<i>12.1</i>	<i>338.9</i>	<i>49.7</i>	<i>39.8</i>	<i>502.4</i>	<i>12.8</i>	
Zone1 (vessels bound to outer	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Zone1 (vessels bound to outer	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer</i>		<i>6.1</i>	<i>10.9</i>	<i>2.8</i>	<i>77.6</i>	<i>11.5</i>	<i>9.2</i>	<i>118.1</i>	<i>2.9</i>	
Zone2 (vessels bound to inner	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Zone2 (vessels bound to inner	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer</i>		<i>7.6</i>	<i>13.6</i>	<i>3.5</i>	<i>97.0</i>	<i>14.4</i>	<i>11.5</i>	<i>147.7</i>	<i>3.7</i>	
Inner Harbor Zone	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner</i>		<i>8.9</i>	<i>15.8</i>	<i>4.0</i>	<i>112.8</i>	<i>16.7</i>	<i>13.4</i>	<i>171.8</i>	<i>4.3</i>	
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>19.1</i>	<i>33.7</i>	<i>8.7</i>	<i>241.7</i>	<i>36.6</i>	<i>29.3</i>	<i>385.1</i>	<i>9.1</i>	

First Peak Hour Scenario (per vesse	49	88	22	626	92	74	940	24
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.								
Second Peak Hour Scenario (per ve	19	34	9	242	37	29	385	9

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

*Emissions = Engine Power * Load Factor * Emission Factor * Time*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0	Prior to 2013
2	All other years

San Pedro Waterfront

Unmitigated Alternative 1 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Emissions per vessel are same as unmitigated proposed project.

Peak Day (lb/day) for Single Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - South-Bound	Diesel Engines	115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Fairway - North-Bound	Diesel Engines	85.6	155.0	38.9	1,089.4	155.0	124.0	1,491.4	41.0
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		85.6	155.0	38.9	1,089.4	155.0	124.0	1,491.4	41.0
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		24	42	11	301	44	35	450	11
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
Total Outer Harbor Zone1		6	10	3	71	11	8	109	3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	135.9	3.3
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.81
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.3	158.2	3.9
Hotelling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.47
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.79
Total Hotelling		211.0	372.4	96.2	2,674.0	406.6	325.3	4,312.2	101.3
Outer Harbor Berths per Vessel - Peak Day (lb/day)		673	1,207	306	8,547	1,246	997	12,453	322
Inner Harbor Berths per Vessel - Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2011 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304
2015 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		481	868	218	6,114	875	700	8,511	230
2015 Vessel Type 2 Hotelling Peak Day (lb/day)		211	372	96	2,674	407	325	4,312	101
2022 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		481	868	218	6,114	875	700	8,511	230
2022 Vessel Type 2 Hotelling Peak Day (lb/day)		211	372	96	2,674	407	325	4,312	101
2037 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		481	868	218	6,114	875	700	8,511	230
2037 Vessel Type 2 Hotelling Peak Day (lb/day)		211	372	96	2,674	407	325	4,312	101

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = 1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}$$

$$1 \text{ lb} = 453.59 \text{ grams}$$

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	3	0
2015	1	0
2022	1	0
2037	1	0

San Pedro Waterfront

Unmitigated Alternative 1 Criteria Pollutant Emissions

Year: 2015, 2022, 2037

Emissions per vessel are same as unmitigated proposed project.

Peak Day (lb/day) for Single Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - South-Bound	Diesel Engines	134.4	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.4	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Fairway - North-Bound	Diesel Engines	98.6	178.5	44.8	1,254.6	178.5	142.8	1,717.7	47.2
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		98.6	178.5	44.8	1,254.6	178.5	142.8	1,717.7	47.2
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		27	48	12	339	50	40	502	13
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
Total Outer Harbor Zone1		6	11	3	78	12	9	118	3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.60
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.19
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	106.97
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.79
Total Hotelling		228.8	404.6	104.2	2,900.0	438.8	351.0	4,621.8	109.8
Outer Harbor Berths per Vessel - Peak Day (lb/day)		760	1,299	329	9,193	1,338	1,070	13,338	347
Inner Harbor Berths per Vessel - Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Outer Harbor Berths Peak Day (lb/day)		760	1,299	329	9,193	1,338	1,070	13,338	347
2015 Total Inner Harbor Berths Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2022 Total Outer Harbor Berths Peak Day (lb/day)		760	1,299	329	9,193	1,338	1,070	13,338	347
2022 Total Inner Harbor Berths Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2037 Total Outer Harbor Berths Peak Day (lb/day)		760	1,299	329	9,193	1,338	1,070	13,338	347
2037 Total Inner Harbor Berths Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2011 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,084	1,825	459	12,850	1,838	1,470	17,835	484
2015 Vessel Type 3 Hotelling Peak Day (lb/day)		458	809	208	5,800	878	702	9,244	220
2022 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,084	1,825	459	12,850	1,838	1,470	17,835	484
2022 Vessel Type 3 Hotelling Peak Day (lb/day)		458	809	208	5,800	878	702	9,244	220
2037 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,084	1,825	459	12,850	1,838	1,470	17,835	484
2037 Vessel Type 3 Hotelling Peak Day (lb/day)		458	809	208	5,800	878	702	9,244	220

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	0	0
2015	1	1
2022	1	1
2037	1	1

San Pedro Waterfront

Unmitigated Alternative 1 Criteria Pollutant Emissions
 Year: 2011, 2015, 2022, 2037

Total Peak Day (lb/day) for all Vessels

	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
2011 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2015 Transit & Maneuvering Peak Day (lb/day)	1,564	2,693	678	18,964	2,713	2,170	26,346	714
2015 Hotelling Peak Day (lb/day)	669	1,182	305	8,474	1,284	1,027	13,556	321
2022 Transit & Maneuvering Peak Day (lb/day)	1,564	2,693	678	18,964	2,713	2,170	26,346	714
2022 Hotelling Peak Day (lb/day)	669	1,182	305	8,474	1,284	1,027	13,556	321
2037 Transit & Maneuvering Peak Day (lb/day)	1,564	2,693	678	18,964	2,713	2,170	26,346	714
2037 Hotelling Peak Day (lb/day)	669	1,182	305	8,474	1,284	1,027	13,556	321

San Pedro Waterfront

Unmitigated Alternative 1 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

8-Hour (lb/8-hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	11.5	20.8	5.2	145.9	20.8	16.6	199.8	5.5	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>11.5</i>	<i>20.8</i>	<i>5.2</i>	<i>145.9</i>	<i>20.8</i>	<i>16.6</i>	<i>199.8</i>	<i>5.5</i>	
Sea / Fairway - South-Bound	Diesel Engines	14.5	26.2	6.6	184.4	26.2	21.0	252.5	6.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>14.5</i>	<i>26.2</i>	<i>6.6</i>	<i>184.4</i>	<i>26.2</i>	<i>21.0</i>	<i>252.5</i>	<i>6.9</i>	
Fairway - North-Bound	Diesel Engines	10.7	19.4	4.9	136.2	19.4	15.5	186.4	5.1	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>10.7</i>	<i>19.4</i>	<i>4.9</i>	<i>136.2</i>	<i>19.4</i>	<i>15.5</i>	<i>186.4</i>	<i>5.1</i>	
Fairway - South-Bound	Diesel Engines	5.4	9.8	2.5	68.7	9.8	7.8	94.1	2.6	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>5.4</i>	<i>9.8</i>	<i>2.5</i>	<i>68.7</i>	<i>9.8</i>	<i>7.8</i>	<i>94.1</i>	<i>2.6</i>	
Precautionary Zone - North-Bound	Diesel Engines	2.6	4.7	1.2	32.8	4.7	3.7	44.9	1.2	0.63
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.0	
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>4.7</i>	<i>1.2</i>	<i>33.2</i>	<i>4.9</i>	<i>3.9</i>	<i>49.7</i>	<i>1.3</i>	
Precautionary Zone - South-Bound	Diesel Engines	2.9	5.3	1.3	37.2	5.3	4.2	50.9	1.4	0.71
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.3	0.2	5.4	0.0	
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>5.3</i>	<i>1.3</i>	<i>37.6</i>	<i>5.5</i>	<i>4.4</i>	<i>56.3</i>	<i>1.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	1.2	0.3	8.7	1.2	1.0	11.9	0.3	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.01	-	0.006	0.13	0.08	0.06	1.7	0.01	
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>8.8</i>	<i>1.3</i>	<i>1.1</i>	<i>13.6</i>	<i>0.3</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.5	0.4	10.9	1.5	1.2	14.9	0.4	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.5</i>	<i>0.4</i>	<i>11.0</i>	<i>1.6</i>	<i>1.3</i>	<i>17.0</i>	<i>0.4</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.8	0.5	12.7	1.8	1.4	17.3	0.5	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.5</i>	<i>12.9</i>	<i>1.9</i>	<i>1.5</i>	<i>19.8</i>	<i>0.5</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	
First Max 8-Hour Scenario (per vessel)		50	91	23	639	91	73	889	24	
First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Max 8-Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	
Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.										

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = \frac{1.053}{1 \text{ lb} = 453.59}$$

Assumptions

1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.
3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak 8-hour emissions assume no VSRP.

For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 2 vessels:

3 Year 2011 only
1 All other years

San Pedro Waterfront

Unmitigated Alternative 1 Criteria Pollutant Emissions

Year: 2015, 2022, 2037

8-Hour (lb/8-hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4	0.85
Sea / Fairway - South-Bound	Diesel Engines	16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0	1.07
Fairway - North-Bound	Diesel Engines	12.3	22.3	5.6	156.8	22.3	17.8	214.7	5.9	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		12.3	22.3	5.6	156.8	22.3	17.8	214.7	5.9	1.21
Fairway - South-Bound	Diesel Engines	6.2	11.3	2.8	79.1	11.3	9.0	108.3	3.0	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		6.2	11.3	2.8	79.1	11.3	9.0	108.3	3.0	0.61
Precautionary Zone - North-Bound	Diesel Engines	2.9	5.3	1.3	37.0	5.3	4.2	50.7	1.4	
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.0	
Total Precautionary Zone - North-Bound		2.9	5.3	1.3	37.4	5.5	4.4	55.4	1.4	0.63
Precautionary Zone - South-Bound	Diesel Engines	3.3	6.0	1.5	41.9	6.0	4.8	57.4	1.6	
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.4	0.3	0.2	5.4	0.0	
Total Precautionary Zone - South-Bound		3.3	6.0	1.5	42.4	6.2	5.0	62.8	1.6	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	1.4	0.3	9.6	1.4	1.1	13.1	0.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.01	-	0.006	0.13	0.08	0.06	1.7	0.01	
Total Outer Harbor Zone1		0.8	1.4	0.3	9.7	1.4	1.2	14.8	0.4	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.7	0.4	12.0	1.7	1.4	16.4	0.4	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
Total Outer Harbor Zone2		1.0	1.7	0.4	12.2	1.8	1.4	18.5	0.5	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	2.0	0.5	13.9	2.0	1.6	19.1	0.5	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
Total Inner Harbor Zone		1.1	2.0	0.5	14.1	2.1	1.7	21.5	0.5	0.32
Hotelling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	12
First Max 8-Hour Scenario (per vessel)		58	104	26	734	105	84	1,020	28	
First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Max 8-Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.
Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 - (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
 1 lb = 453.59

Assumptions

1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.
3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak 8-hour emissions assume no VSRP.

For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 3 vessels:

0 Prior to 2013
 2 All other years

San Pedro Waterfront

Alternative 1 Unmitigated Criteria Pollutant Emissions
Year: 2011

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,425.4	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>198.0</i>	<i>270.1</i>	<i>90.0</i>	<i>2,425.4</i>	<i>270.1</i>	<i>216.1</i>	<i>2,070.5</i>	<i>94.8</i>
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,065.0	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>250.3</i>	<i>341.3</i>	<i>113.8</i>	<i>3,065.0</i>	<i>341.3</i>	<i>273.0</i>	<i>2,616.5</i>	<i>119.8</i>
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,798.1	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>146.8</i>	<i>200.2</i>	<i>66.7</i>	<i>1,798.1</i>	<i>200.2</i>	<i>160.2</i>	<i>1,535.0</i>	<i>70.3</i>
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	907.3	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>74.1</i>	<i>101.0</i>	<i>33.7</i>	<i>907.3</i>	<i>101.0</i>	<i>80.8</i>	<i>774.6</i>	<i>35.5</i>
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	537.5	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>44.4</i>	<i>59.9</i>	<i>20.2</i>	<i>543.3</i>	<i>62.1</i>	<i>49.6</i>	<i>504.3</i>	<i>21.3</i>
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	609.2	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>50</i>	<i>68</i>	<i>23</i>	<i>616</i>	<i>70</i>	<i>56</i>	<i>572</i>	<i>24</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	15.7	5.2	140.7	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
<i>Total Outer Harbor Zone1</i>		<i>11.7</i>	<i>15.7</i>	<i>5.3</i>	<i>142.7</i>	<i>16.5</i>	<i>13.1</i>	<i>136.1</i>	<i>5.6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	14.4	19.6	6.5	175.9	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
<i>Total Outer Harbor Zone2</i>		<i>14.6</i>	<i>19.6</i>	<i>6.7</i>	<i>178.5</i>	<i>20.6</i>	<i>16.4</i>	<i>170.2</i>	<i>7.0</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Diesel Engines	16.7	22.8	7.6	204.7	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
<i>Total Inner Harbor Zone</i>		<i>17.0</i>	<i>22.8</i>	<i>7.7</i>	<i>207.7</i>	<i>23.9</i>	<i>19.1</i>	<i>198.0</i>	<i>8.1</i>
Hotelling	Diesel Engines	214.6	292.7	97.6	2,628.2	292.7	234.1	2,243.7	102.7
Hotelling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
<i>Total Hotelling</i>		<i>219.9</i>	<i>292.7</i>	<i>100.2</i>	<i>2,683.8</i>	<i>313.8</i>	<i>251.1</i>	<i>2,680.2</i>	<i>105.5</i>

Alternative 1 Unmitigated Criteria Pollutant Emissions
Year: 2011

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,890	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.33	0.44	0.15	3.99	0.45	0.36	3.65	0.16
South-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.90	0.44	0.35	3.57	0.15
Temporal Allocation								
2011 Total Annual Emissions (ton/yr)	86	116	39	1,050	119	96	962	41

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x - 53%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 1 Unmitigated Criteria Pollutant Emissions
Year: 2015

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,414.9	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		198.0	270.1	90.0	2,414.9	270.1	216.1	2,070.5	94.8
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,051.8	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		250.3	341.3	113.8	3,051.8	341.3	273.0	2,616.5	119.8
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,790.4	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		146.8	200.2	66.7	1,790.4	200.2	160.2	1,535.0	70.3
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	903.4	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		74.1	101.0	33.7	903.4	101.0	80.8	774.6	35.5
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	535.2	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		44.4	59.9	20.2	541.0	62.1	49.6	504.3	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	606.6	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		50	68	23	613	70	56	572	24
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.5	15.7	5.2	140.1	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		11.7	15.7	5.3	142.1	16.5	13.1	136.1	5.6
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	14.4	19.6	6.5	175.1	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		14.6	19.6	6.7	177.6	20.6	16.4	170.2	7.0
Inner Harbor Zone (maneuvering through main channel: int)	Diesel Engines	16.7	22.8	7.6	203.8	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel: int)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		17.0	22.8	7.7	206.8	23.9	19.1	198.0	8.1
Hotelling	Diesel Engines	214.6	292.7	97.6	2,616.9	292.7	234.1	2,243.7	102.7
Hotelling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hotelling		219.9	292.7	100.2	2,672.5	313.8	251.1	2,680.2	105.5

Alternative 1 Unmitigated Criteria Pollutant Emissions
Year: 2015

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	614	828	279	7,472	853	682	6,853	294
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,856	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.92	0.45	0.36	3.60	0.15
South-Bound Single Vessel Average Day (ton/day)	0.31	0.42	0.14	3.83	0.44	0.35	3.52	0.15
Temporal Allocation								
2015 Total Annual Emissions (ton/yr)	87	117	39	10,655	1,201	966	9,770	411

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NO_x Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NO_x Emission Factor * % IMO vessels) + (non-IMO NO_x Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

1. Maximum of 1 ship per day per berth.
2. All berths occupied.
3. Annual emissions are based on residual fuel with 2.7% sulfur content.
4. Maximum of 2 one-way trips per vessel.
5. IMO compliance rate for NO_x = 59%
6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
7. Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 1 Unmitigated Criteria Pollutant Emissions

Year: 2022

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,396.4	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		198.0	270.1	90.0	2,396.4	270.1	216.1	2,070.5	94.8
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,028.5	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		250.3	341.3	113.8	3,028.5	341.3	273.0	2,616.5	119.8
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,776.7	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		146.8	200.2	66.7	1,776.7	200.2	160.2	1,535.0	70.3
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	896.5	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		74.1	101.0	33.7	896.5	101.0	80.8	774.6	35.5
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	531.1	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		44.4	59.9	20.2	536.9	62.1	49.6	504.3	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	601.9	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		50	68	23	608	70	56	572	24
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	11.5	15.7	5.2	139.0	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		11.7	15.7	5.3	141	16.5	13.1	136	5.6
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	14.4	19.6	6.5	173.8	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		14.6	19.6	6.7	176.4	20.6	16.4	170.2	7.0
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	16.7	22.8	7.6	202.3	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		17.0	22.8	7.7	205.2	23.9	19.1	198.0	8.1
Hoteling	Diesel Engines	214.6	292.7	97.6	2,596.9	292.7	234.1	2,243.7	102.7
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hoteling		219.9	292.7	100.2	2,652.4	313.8	251.1	2,680.2	105.5

Alternative 1 Unmitigated Criteria Pollutant Emissions

Year: 2022

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	614	828	279	7,415	853	682	6,853	294
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,797	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.89	0.45	0.36	3.60	0.15
South-Bound Single Vessel Average Day (ton/day)	0.31	0.42	0.14	3.80	0.44	0.35	3.52	0.15
Temporal Allocation								
2022 Total Annual Emissions (ton/yr)	87	117	39	1,047	120	96	970	47

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.

1 lb = 453.59 grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x - **69%**
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 1 Unmitigated Criteria Pollutant Emissions

Year: 2037

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,380.9	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		198.0	270.1	90.0	2,380.9	270.1	216.1	2,070.5	94.8
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,008.8	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		250.3	341.3	113.8	3,008.8	341.3	273.0	2,616.5	119.8
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,765.1	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		146.8	200.2	66.7	1,765.1	200.2	160.2	1,535.0	70.3
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	890.7	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		74.1	101.0	33.7	890.7	101.0	80.8	774.6	35.5
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	527.7	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		44.4	59.9	20.2	533.5	62.1	49.6	504.3	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	598.0	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		50	68	23	605	70	56	572	24
Outer Harbor Zone1 (vessels bound to outer harbor)	Diesel Engines	11.5	15.7	5.2	138.1	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		12	16	5	140	16	13	136	6
Outer Harbor Zone2 (vessels bound to inner harbor)	Diesel Engines	14.4	19.6	6.5	172.7	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		14.6	19.6	6.7	175.2	20.6	16.4	170.2	7.0
Inner Harbor Zone (maneuvering through main chan)	Diesel Engines	16.7	22.8	7.6	200.9	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main chan)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		17.0	22.8	7.7	203.9	23.9	19.1	198.0	8.1
Hoteling	Diesel Engines	214.6	292.7	97.6	2,580.0	292.7	234.1	2,243.7	102.7
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hoteling		219.9	292.7	100.2	2,635.6	313.8	251.1	2,680.2	105.5

Alternative 1 Unmitigated Criteria Pollutant Emissions

Year: 2037

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	614	828	279	7,367	853	682	6,853	294
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,747	897	716	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.87	0.45	0.36	3.60	0.15
South-Bound Single Vessel Average Day (ton/day)	0.31	0.42	0.14	3.78	0.44	0.35	3.52	0.15
Temporal Allocation								
2037 Total Annual Emissions (ton/yr)	87	111	39	1,040	120	96	970	41

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NOx = **78%**
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Unmitigated Alternative 1 Criteria Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,548	2,111	704	18,956	2,111	1,689	16,183	741
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,548</i>	<i>2,111</i>	<i>704</i>	<i>18,956</i>	<i>2,111</i>	<i>1,689</i>	<i>16,183</i>	<i>741</i>
Sea / Fairway - South-Bound	Diesel Engines	65,369	89,139	29,713	800,530	89,139	71,311	683,400	31,288
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>65,369</i>	<i>89,139</i>	<i>29,713</i>	<i>800,530</i>	<i>89,139</i>	<i>71,311</i>	<i>683,400</i>	<i>31,288</i>
Fairway - North-Bound	Diesel Engines	1,148	1,565	522	14,054	1,565	1,252	11,998	549
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,148</i>	<i>1,565</i>	<i>522</i>	<i>14,054</i>	<i>1,565</i>	<i>1,252</i>	<i>11,998</i>	<i>549</i>
Fairway - South-Bound	Diesel Engines	19,350	26,387	8,796	236,973	26,387	21,110	202,301	9,262
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>19,350</i>	<i>26,387</i>	<i>8,796</i>	<i>236,973</i>	<i>26,387</i>	<i>21,110</i>	<i>202,301</i>	<i>9,262</i>
Precautionary Zone - North-Bound	Diesel Engines	343	468	156	4,201	468	374	3,587	164
Precautionary Zone - North-Bound	Boiler	4	-	2	45	17	14	355	2
<i>Total Precautionary Zone - North-Bound</i>		<i>347</i>	<i>468</i>	<i>158</i>	<i>4,246</i>	<i>485</i>	<i>388</i>	<i>3,942</i>	<i>166</i>
Precautionary Zone - South-Bound	Diesel Engines	12,993	17,717	5,906	159,111	17,717	14,174	135,831	6,219
Precautionary Zone - South-Bound	Boiler	163	-	82	1,713	653	522	13,460	86
<i>Total Precautionary Zone - South-Bound</i>		<i>13,156</i>	<i>17,717</i>	<i>5,987</i>	<i>160,824</i>	<i>18,370</i>	<i>14,696</i>	<i>149,290</i>	<i>6,305</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,864	5,269	1,756	47,319	5,269	4,215	40,395	1,849
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	65	-	33	685	261	209	5,382	34
<i>Total Outer Harbor Zone2</i>		<i>3,929</i>	<i>5,269</i>	<i>1,789</i>	<i>48,004</i>	<i>5,530</i>	<i>4,424</i>	<i>45,777</i>	<i>1,884</i>
Inner Harbor Zone (maneuvering through main channel: inner h	Diesel Engines	4,496	6,131	2,044	55,062	6,131	4,905	47,005	2,152
Inner Harbor Zone (maneuvering through main channel: inner h	Boiler	76	-	38	797	304	243	6,263	40
<i>Total Inner Harbor Zone</i>		<i>4,572</i>	<i>6,131</i>	<i>2,082</i>	<i>55,859</i>	<i>6,435</i>	<i>5,148</i>	<i>53,268</i>	<i>2,192</i>
Hotelling	Diesel Engines	57,731	78,724	26,241	706,990	78,724	62,979	603,547	27,632
Hotelling	Boiler	1,423	-	712	14,945	5,693	4,555	117,423	749
<i>Total Hotelling</i>		<i>59,154</i>	<i>78,724</i>	<i>26,953</i>	<i>721,935</i>	<i>84,417</i>	<i>67,533</i>	<i>720,970</i>	<i>28,381</i>
<i>Total (lb/yr)</i>		<i>168,573</i>	<i>227,510</i>	<i>76,703</i>	<i>2,061,382</i>	<i>234,438</i>	<i>187,550</i>	<i>1,887,129</i>	<i>80,768</i>
boilers only						6,928			912
Average Day (lb/day) - Transit		300	408	136	3,670	411	329	3,195	144
Average Day (lb/day) - Hotelling		162	216	74	1,978	231	185	1,975	78

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

1. Maximum of 1 ship per day per berth.
2. All berths occupied.
3. Annual emissions are based on residual fuel with 2.7% sulfur content.
4. Maximum of 2 one-way trips per vessel.
5. IMO compliance rate for NOx = 53%
6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2011:	269	Inner Harbor Berths:	3
Percent of North-Bound Vessels:	2.9%	Outer Harbor Berths:	0
Percent of South-Bound Vessels:	97.1%		

San Pedro Waterfront

Unmitigated Alternative 1 Criteria Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,582	2,158	719	19,296.1	2,158	1,726	16,544	757
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		1,582	2,158	719	19,296.1	2,158	1,726	16,544	757
Sea / Fairway - South-Bound	Diesel Engines	66,827	91,127	30,376	814,870.0	91,127	72,902	698,644	31,986
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		66,827	91,127	30,376	814,870.0	91,127	72,902	698,644	31,986
Fairway - North-Bound	Diesel Engines	1,173	1,600	533	14,305.8	1,600	1,280	12,265	562
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,173	1,600	533	14,305.8	1,600	1,280	12,265	562
Fairway - South-Bound	Diesel Engines	19,782	26,976	8,992	241,218.2	26,976	21,580	206,813	9,468
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		19,782	26,976	8,992	241,218.2	26,976	21,580	206,813	9,468
Precautionary Zone - North-Bound	Diesel Engines	351	478	159	4,276.5	478	383	3,667	168
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
Total Precautionary Zone - North-Bound		355	478	162	4,322.8	496	397	4,030	170
Precautionary Zone - South-Bound	Diesel Engines	13,282	18,112	6,037	161,961.3	18,112	14,490	138,861	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
Total Precautionary Zone - South-Bound		13,449	18,112	6,121	163,713	18,779	15,024	152,620	6,445
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	1,053	1,436	479	12,844.3	1,436	1,149	11,012	504
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	18	-	9	373.5	71	57	1,467	9
Total Outer Harbor Zone1		1,071	1,436	488	13,218	1,508	1,206	12,479	514
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	2,633	3,591	1,197	32,110.8	3,591	2,873	27,531	1,260
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	44	-	22	466.8	178	142	3,668	23
Total Outer Harbor Zone2		2,678	3,591	1,219	32,577.6	3,769	3,015	31,199	1,284
Inner Harbor Zone (maneuvering through main channel: int)	Diesel Engines	3,064	4,179	1,393	37,365.3	4,179	3,343	32,036	1,467
Inner Harbor Zone (maneuvering through main channel: int)	Boiler	52	-	26	543.2	207	166	4,268	27
Total Inner Harbor Zone		3,116	4,179	1,419	37,908.5	4,386	3,508	36,304	1,494
Hotelling	Diesel Engines	59,018	80,479	26,826	719,654.7	80,479	64,384	617,009	28,248
Hotelling	Boiler	1,455	-	728	15,278.0	5,820	4,656	120,042	766
Total Hotelling		60,473	80,479	27,554	734,932.8	86,300	69,040	737,051	29,014
Total (lb/yr)		170,507	230,137	77,582	2,076,362	237,097	189,678	1,907,949	81,694
boilers only						6,961			916
Average Day (lb/day) - Transit		301	410	137	3,675	413	331	3,208	144
Average Day (lb/day) - Hotelling		166	220	75	2,014	236	189	2,019	79

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$
 $NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 $1 lb = 453.59$ grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = **59%**
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2015:	275	Inner Harbor Berths:	2
Percent of North-Bound Vessels:	2.9%	Outer Harbor Berths:	1
Percent of South-Bound Vessels:	97.1%		

San Pedro Waterfront

Unmitigated Alternative 1 Criteria Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,582	2,158	719	19,148.3	2,158	1,726	16,544	757
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		1,582	2,158	719	19,148.3	2,158	1,726	16,544	757
Sea / Fairway - South-Bound	Diesel Engines	66,827	91,127	30,376	808,631.6	91,127	72,902	698,644	31,986
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		66,827	91,127	30,376	808,631.6	91,127	72,902	698,644	31,986
Fairway - North-Bound	Diesel Engines	1,173	1,600	533	14,196.2	1,600	1,280	12,265	562
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,173	1,600	533	14,196.2	1,600	1,280	12,265	562
Fairway - South-Bound	Diesel Engines	19,782	26,976	8,992	239,371.5	26,976	21,580	206,813	9,468
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		19,782	26,976	8,992	239,371.5	26,976	21,580	206,813	9,468
Precautionary Zone - North-Bound	Diesel Engines	351	478	159	4,243.8	478	383	3,667	168
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
Total Precautionary Zone - North-Bound		355	478	162	4,290.0	496	397	4,030	170
Precautionary Zone - South-Bound	Diesel Engines	13,282	18,112	6,037	160,721.4	18,112	14,490	138,861	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
Total Precautionary Zone - South-Bound		13,449	18,112	6,121	162,473	18,779	15,024	152,620	6,445
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	1,053	1,436	479	12,746.0	1,436	1,149	11,012	504
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	18	-	9	186.7	71	57	1,467	9
Total Outer Harbor Zone1		1,071	1,436	488	12,933	1,508	1,206	12,479	514
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	2,633	3,591	1,197	31,865.0	3,591	2,873	27,531	1,260
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	44	-	22	466.8	178	142	3,668	23
Total Outer Harbor Zone2		2,678	3,591	1,219	32,331.8	3,769	3,015	31,199	1,284
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	3,064	4,179	1,393	37,079.2	4,179	3,343	32,036	1,467
Inner Harbor Zone (maneuvering through main channel)	Boiler	52	-	26	543.2	207	166	4,268	27
Total Inner Harbor Zone		3,116	4,179	1,419	37,622.5	4,386	3,508	36,304	1,494
Hotelling	Diesel Engines	59,018	80,479	26,826	714,145	80,479	64,384	617,009	28,248
Hotelling	Boiler	1,455	-	728	15,278	5,820	4,656	120,042	766
Total Hotelling		60,473	80,479	27,554	729,423.3	86,300	69,040	737,051	29,014
Total (lb/yr)		170,507	230,137	77,582	2,060,421	237,097	189,678	1,907,949	81,694
boilers only						6,961			916
Average Day (lb/day) - Transit		301.5	410.0	137.1	3,646.6	413.1	330.5	3,207.9	144.3
Average Day (lb/day) - Hotelling		165.7	220.5	75.5	1998.4	236.4	189.1	2019.3	79.5

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

1. Maximum of 1 ship per day per berth.

2. All berths occupied.

3. Annual emissions are based on residual fuel with 2.7% sulfur content.

4. Maximum of 2 one-way trips per vessel.

5. IMO compliance rate for NOx = 69%

6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.

7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2022:

275

Percent of North-Bound Vessels:

2.9%

Percent of South-Bound Vessels:

97.1%

Inner Harbor Berths:

2

Outer Harbor Berths:

1

San Pedro Waterfront

Unmitigated Alternative 1 Criteria Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,582	2,158	719	19,023.9	2,158	1,726	16,544	757
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,582</i>	<i>2,158</i>	<i>719</i>	<i>19,023.9</i>	<i>2,158</i>	<i>1,726</i>	<i>16,544</i>	<i>757</i>
Sea / Fairway - South-Bound	Diesel Engines	66,827	91,127	30,376	803,376.8	91,127	72,902	698,644	31,986
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>66,827</i>	<i>91,127</i>	<i>30,376</i>	<i>803,376.8</i>	<i>91,127</i>	<i>72,902</i>	<i>698,644</i>	<i>31,986</i>
Fairway - North-Bound	Diesel Engines	1,173	1,600	533	14,104.0	1,600	1,280	12,265	562
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,173</i>	<i>1,600</i>	<i>533</i>	<i>14,104.0</i>	<i>1,600</i>	<i>1,280</i>	<i>12,265</i>	<i>562</i>
Fairway - South-Bound	Diesel Engines	19,782	26,976	8,992	237,816.0	26,976	21,580	206,813	9,468
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>19,782</i>	<i>26,976</i>	<i>8,992</i>	<i>237,816.0</i>	<i>26,976</i>	<i>21,580</i>	<i>206,813</i>	<i>9,468</i>
Precautionary Zone - North-Bound	Diesel Engines	351	478	159	4,216.2	478	383	3,667	168
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
<i>Total Precautionary Zone - North-Bound</i>		<i>355</i>	<i>478</i>	<i>162</i>	<i>4,262.4</i>	<i>496</i>	<i>397</i>	<i>4,030</i>	<i>170</i>
Precautionary Zone - South-Bound	Diesel Engines	13,282	18,112	6,037	159,677.0	18,112	14,490	138,861	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
<i>Total Precautionary Zone - South-Bound</i>		<i>13,449</i>	<i>18,112</i>	<i>6,121</i>	<i>161,428</i>	<i>18,779</i>	<i>15,024</i>	<i>152,620</i>	<i>6,445</i>
Outer Harbor Zone1 (vessels bound to outer harbor)	Diesel Engines	1,053	1,436	479	12,663.2	1,436	1,149	11,012	504
Outer Harbor Zone1 (vessels bound to outer harbor)	Boiler	18	-	9	186.7	71	57	1,467	9
<i>Total Outer Harbor Zone1</i>		<i>1,071</i>	<i>1,436</i>	<i>488</i>	<i>12,850</i>	<i>1,508</i>	<i>1,206</i>	<i>12,479</i>	<i>514</i>
Outer Harbor Zone2 (vessels bound to inner harbor)	Diesel Engines	2,633	3,591	1,197	31,657.9	3,591	2,873	27,531	1,260
Outer Harbor Zone2 (vessels bound to inner harbor)	Boiler	44	-	22	466.8	178	142	3,668	23
<i>Total Outer Harbor Zone2</i>		<i>2,678</i>	<i>3,591</i>	<i>1,219</i>	<i>32,124.7</i>	<i>3,769</i>	<i>3,015</i>	<i>31,199</i>	<i>1,284</i>
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	3,064	4,179	1,393	36,838.3	4,179	3,343	32,036	1,467
Inner Harbor Zone (maneuvering through main channel)	Boiler	52	-	26	543.2	207	166	4,268	27
<i>Total Inner Harbor Zone</i>		<i>3,116</i>	<i>4,179</i>	<i>1,419</i>	<i>37,381.5</i>	<i>4,386</i>	<i>3,508</i>	<i>36,304</i>	<i>1,494</i>
Hotelling	Diesel Engines	59,018	80,479	26,826	709,504.5	80,479	64,384	617,009	28,248
Hotelling	Boiler	1,455	-	728	15,278.0	5,820	4,656	120,042	766
<i>Total Hotelling</i>		<i>60,473</i>	<i>80,479</i>	<i>27,554</i>	<i>724,782.6</i>	<i>86,300</i>	<i>69,040</i>	<i>737,051</i>	<i>29,014</i>
Total (lb/yr)		170,507	230,137	77,582	2,047,150	237,097	189,678	1,907,949	81,694
boilers only						6,961			916
Average Day (lb/day) - Transit		301.5	410.0	137.1	3,622.9	413.1	330.5	3,207.9	144.3
Average Day (lb/day) - Hotelling		165.7	220.5	75.5	1,985.7	236.4	189.1	2,019.3	79.5

$Emissions (lb/yr) = Average\ Engine\ Power * Load\ Factor * Emission\ Factor * Time * 2 (1-Way)\ Trips * Vessels\ per\ Year$

$NOx\ Emissions (lb/yr) = Average\ Engine\ Power * Load\ Factor * ((IMO\ NOx\ Emission\ Factor * \% IMO\ vessels) + (non-IMO\ NOx\ Emission\ Factor * \% non-IMO\ vessels)) * Time * 2 (1-Way)\ Trips * Vessels\ per\ Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.

1 lb = 453.59 grams

Assumptions

1. Maximum of 1 ship per day per berth.

2. All berths occupied.

3. Annual emissions are based on residual fuel with 2.7% sulfur content.

4. Maximum of 2 one-way trips per vessel.

5. IMO compliance rate for NO_x = **78%**

6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.

7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2037:

275

Inner Harbor Berths:

2

Percent of North-Bound Vessels:

2.9%

Outer Harbor Berths:

1

Percent of South-Bound Vessels:

97.1%

San Pedro Waterfront

Unmitigated Alternative 1 Toxic Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	
Sea / Fairway - North-Bound	Diesel Engines	3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083		0.00299	0.00664
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total In Sea / Fairway - North-Bound		3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083		0.00299	0.00664
Sea / Fairway - South-Bound	Diesel Engines	4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098		0.00353	0.00785
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total In Sea / Fairway - South-Bound		4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098		0.00353	0.00785
Fairway - North-Bound	Diesel Engines	2.84938	0.77010	5.77577	0.38505	0.03273	0.06161	1.00113	0.57758	0.43501	0.00064		0.00230	0.00512
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total In Fairway - North-Bound		2.84938	0.77010	5.77577	0.38505	0.03273	0.06161	1.00113	0.57758	0.43501	0.00064		0.00230	0.00512
Fairway - South-Bound	Diesel Engines	1.74129	0.47062	3.52964	0.23531	0.02000	0.03765	0.61180	0.35296	0.26584	0.00039		0.00141	0.00313
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total In Fairway - South-Bound		1.74129	0.47062	3.52964	0.23531	0.02000	0.03765	0.61180	0.35296	0.26584	0.00039		0.00141	0.00313
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.12697	0.00019		0.00067	0.00149
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	-	0.00961		-	0.00089
Total Precautionary Zone - North-Bound		0.83167	0.22808	1.68596	0.11407	0.00966	0.02042	0.29916	0.17188	0.12697	0.00980		0.00067	0.00238
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.14390	0.00021		0.00076	0.00169
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	-	0.01089		-	0.00101
Total Precautionary Zone - South-Bound		0.94255	0.25849	1.91076	0.12928	0.01095	0.02314	0.33905	0.19480	0.14390	0.01110		0.00076	0.00270
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.03371	0.00005		0.00018	0.00040
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	-	0.00338		-	0.00031
Total Outer Harbor Zone1		0.22079	0.06084	0.44760	0.03043	0.00257	0.00563	0.08002	0.04592	0.03371	0.00343		0.00018	0.00071
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.04213	0.00006		0.00022	0.00050
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	-	0.00423		-	0.00039
Total Outer Harbor Zone2		0.27599	0.07604	0.55950	0.03804	0.00322	0.00704	0.10003	0.05740	0.04213	0.00429		0.00022	0.00089
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.04903	0.00007		0.00026	0.00058
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	-	0.00492		-	0.00046
Total Inner Harbor Zone		0.32115	0.08849	0.65105	0.04426	0.00374	0.00819	0.11640	0.06779	0.04903	0.00499		0.00026	0.00103
Holding	Diesel Engines	0.69121	0.19681	1.40109	0.09341	0.00794	0.01494	0.24286	0.14011	0.10553	0.00016		0.00056	0.00124
Holding	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	-	0.01537		-	0.00142
Total Holding		0.69121	0.19210	1.40134	0.09610	0.00811	0.01884	0.25398	0.14539	0.10553	0.01552		0.00056	0.00266
First Peak Hour Scenario (per vessel)		1.760	0.484	3.569	0.242	0.020	0.044	0.635	0.365	0.269	0.024		0.001	0.005
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.														
Second Peak Hour Scenario (per vessel)		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.106	0.016		0.001	0.003
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.														
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:														
3 Year 2011 only														
1 All other years														

San Pedro Waterfront

Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc	
0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	-	0.02109	0.07274
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	-	0.02109	0.07274
0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	-	0.02491	0.08593
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	-	0.02491	0.08593
0.00320	0.00537	0.00512	0.00384	0.00243	2.22623	0.00371	0.00461	-	0.00008	-	0.01625	0.05604
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00320	0.00537	0.00512	0.00384	0.00243	2.22623	0.00371	0.00461	-	0.00008	-	0.01625	0.05604
0.00195	0.00328	0.00313	0.00235	0.00149	1.36047	0.00227	0.00281	-	0.00005	-	0.00993	0.03425
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00195	0.00328	0.00313	0.00235	0.00149	1.36047	0.00227	0.00281	-	0.00005	-	0.00993	0.03425
0.00093	0.00157	0.00149	0.00112	0.00071	0.64978	0.00108	0.00134	-	0.00002	-	0.00474	0.01636
-	0.00979	-	-	0.00089	0.44485	-	-	-	0.00048	-	-	0.00979
0.00093	0.01136	0.00149	0.00112	0.00160	1.09463	0.00108	0.00134	-	0.00050	-	0.00474	0.02614
0.00106	0.00178	0.00169	0.00127	0.00080	0.73642	0.00123	0.00152	-	0.00003	-	0.00538	0.01854
-	0.01109	-	-	0.00101	0.50417	-	-	-	0.00054	-	-	0.01109
0.00106	0.01287	0.00169	0.00127	0.00181	1.24059	0.00123	0.00152	-	0.00057	-	0.00538	0.02963
0.00025	0.00042	0.00040	0.00030	0.00019	0.17250	0.00029	0.00036	-	0.00001	-	0.00126	0.00434
-	0.00344	-	-	0.00031	0.15659	-	-	-	0.00017	-	-	0.00344
0.00025	0.00388	0.00040	0.00030	0.00050	0.32909	0.00029	0.00036	-	0.00018	-	0.00126	0.00779
0.00031	0.00052	0.00050	0.00037	0.00024	0.21563	0.00036	0.00045	-	0.00001	-	0.00157	0.00543
-	0.00431	-	-	0.00039	0.19573	-	-	-	0.00021	-	-	0.00431
0.00031	0.00483	0.00050	0.00037	0.00063	0.41138	0.00036	0.00045	-	0.00022	-	0.00157	0.00973
0.00036	0.00061	0.00058	0.00043	0.00027	0.25091	0.00042	0.00052	-	0.00001	-	0.00183	0.00632
-	0.00501	-	-	0.00046	0.22776	-	-	-	0.00025	-	-	0.00501
0.00036	0.00562	0.00058	0.00043	0.00073	0.47868	0.00042	0.00052	-	0.00025	-	0.00183	0.01133
0.00078	0.00130	0.00124	0.00093	0.00059	0.54004	0.00090	0.00112	-	0.00002	-	0.00394	0.01359
-	0.01566	-	-	0.00142	0.71176	-	-	-	0.00077	-	-	0.01566
0.00078	0.01698	0.00124	0.00093	0.00201	1.25180	0.00090	0.00112	-	0.00079	-	0.00394	0.02925
0.002	0.027	0.003	0.002	0.004	2.460	0.002	0.003	-	0.001	-	0.010	0.058
0.001	0.017	0.001	0.001	0.002	1.252	0.001	0.001	-	0.001	-	0.004	0.029

San Pedro Waterfront

Unmitigated Alternative 1 Toxic Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia
Sea / Fairway - North-Bound	Diesel Engines	4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>4.28639</i>	<i>1.15848</i>	<i>8.68863</i>	<i>0.57924</i>	<i>0.04924</i>	<i>0.09268</i>	<i>1.50603</i>	<i>0.86886</i>	<i>0.65440</i>
Sea / Fairway - South-Bound	Diesel Engines	5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>5.06359</i>	<i>1.36854</i>	<i>10.26404</i>	<i>0.68427</i>	<i>0.05816</i>	<i>0.10948</i>	<i>1.77910</i>	<i>1.02640</i>	<i>0.77305</i>
Fairway - North-Bound	Diesel Engines	3.28166	0.88693	6.65201	0.44347	0.03769	0.07095	1.15302	0.66520	0.50101
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>3.28166</i>	<i>0.88693</i>	<i>6.65201</i>	<i>0.44347</i>	<i>0.03769</i>	<i>0.07095</i>	<i>1.15302</i>	<i>0.66520</i>	<i>0.50101</i>
Fairway - South-Bound	Diesel Engines	2.00546	0.54202	4.06512	0.27101	0.02304	0.04336	0.70462	0.40651	0.30617
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>2.00546</i>	<i>0.54202</i>	<i>4.06512</i>	<i>0.27101</i>	<i>0.02304</i>	<i>0.04336</i>	<i>0.70462</i>	<i>0.40651</i>	<i>0.30617</i>
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.14320
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	-
<i>Total Precautionary Zone - North-Bound</i>		<i>0.93797</i>	<i>0.25681</i>	<i>1.90145</i>	<i>0.12844</i>	<i>0.01088</i>	<i>0.02271</i>	<i>0.33651</i>	<i>0.19343</i>	<i>0.14320</i>
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.16229
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	-
<i>Total Precautionary Zone - South-Bound</i>		<i>1.06304</i>	<i>0.29105</i>	<i>2.15498</i>	<i>0.14556</i>	<i>0.01233</i>	<i>0.02574</i>	<i>0.38138</i>	<i>0.21922</i>	<i>0.16229</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.03702
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	-
<i>Total Outer Harbor Zone1</i>		<i>0.24251</i>	<i>0.06670</i>	<i>0.49162</i>	<i>0.03336</i>	<i>0.00282</i>	<i>0.00610</i>	<i>0.08765</i>	<i>0.05032</i>	<i>0.03702</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.04628
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	-
<i>Total Outer Harbor Zone2</i>		<i>0.30313</i>	<i>0.08338</i>	<i>0.61453</i>	<i>0.04171</i>	<i>0.00353</i>	<i>0.00762</i>	<i>0.10957</i>	<i>0.06290</i>	<i>0.04628</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.05385
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	-
<i>Total Inner Harbor Zone</i>		<i>0.35274</i>	<i>0.09703</i>	<i>0.71509</i>	<i>0.04853</i>	<i>0.00411</i>	<i>0.00887</i>	<i>0.12749</i>	<i>0.07319</i>	<i>0.05385</i>
Hoteling	Diesel Engines	0.75090	0.20295	1.52210	0.10147	0.00863	0.01624	0.26383	0.15221	0.11464
Hoteling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	-
<i>Total Hoteling</i>		<i>0.75090</i>	<i>0.20823</i>	<i>1.52235</i>	<i>0.10417</i>	<i>0.00880</i>	<i>0.02013</i>	<i>0.27496</i>	<i>0.15749</i>	<i>0.11464</i>
First Peak Hour Scenario (per vessel)		1.961	0.538	3.976	0.269	0.023	0.048	0.706	0.406	0.299
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		0.751	0.208	1.522	0.104	0.009	0.020	0.275	0.157	0.115
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:						0	Year 2011 only			
						2	All other years			

San Pedro Waterfront

Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00096	0.00346	0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00096	0.00346	0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00114	0.00409	0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00114	0.00409	0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00074	0.00265	0.00589	0.00368	0.00619	0.00589	0.00442	0.00280	2.56397	0.00427	0.00530	-	0.00009	0.01871	0.06454
0.00074	0.00265	0.00589	0.00368	0.00619	0.00589	0.00442	0.00280	2.56397	0.00427	0.00530	-	0.00009	0.01871	0.06454
0.00045	0.00162	0.00360	0.00225	0.00378	0.00360	0.00270	0.00171	1.56687	0.00261	0.00324	-	0.00005	0.01144	0.03944
0.00045	0.00162	0.00360	0.00225	0.00378	0.00360	0.00270	0.00171	1.56687	0.00261	0.00324	-	0.00005	0.01144	0.03944
0.00021	0.00076	0.00168	0.00105	0.00177	0.00168	0.00126	0.00080	0.73284	0.00122	0.00152	-	0.00003	0.00535	0.01845
0.00961	-	0.00089	-	0.00979	-	-	0.00089	0.44485	-	-	-	0.00048	-	0.00979
0.00961	-	0.00089	-	0.00979	-	-	0.00089	0.44485	-	-	-	0.00048	-	0.00979
0.00982	0.00076	0.00257	0.00105	0.01156	0.00168	0.00126	0.00169	1.17769	0.00122	0.00152	-	0.00051	0.00535	0.02823
0.00024	0.00086	0.00191	0.00119	0.00200	0.00191	0.00143	0.00091	0.83055	0.00138	0.00172	-	0.00003	0.00606	0.02091
0.01089	-	0.00101	-	0.01109	-	-	0.00101	0.50417	-	-	-	0.00054	-	0.01109
0.01113	0.00086	0.00292	0.00119	0.01310	0.00191	0.00143	0.00192	1.33472	0.00138	0.00172	-	0.00057	0.00606	0.03200
0.00005	0.00020	0.00044	0.00027	0.00046	0.00044	0.00033	0.00021	0.18947	0.00032	0.00039	-	0.00001	0.00138	0.00477
0.00338	-	0.00031	-	0.00344	-	-	0.00031	0.15659	-	-	-	0.00017	-	0.00344
0.00344	0.00020	0.00075	0.00027	0.00390	0.00044	0.00033	0.00052	0.34606	0.00032	0.00039	-	0.00018	0.00138	0.00821
0.00007	0.00025	0.00054	0.00034	0.00057	0.00054	0.00041	0.00026	0.23684	0.00039	0.00049	-	0.00001	0.00173	0.00596
0.00423	-	0.00039	-	0.00431	-	-	0.00039	0.19573	-	-	-	0.00021	-	0.00431
0.00430	0.00025	0.00094	0.00034	0.00488	0.00054	0.00041	0.00065	0.43257	0.00039	0.00049	-	0.00022	0.00173	0.01027
0.00008	0.00029	0.00063	0.00040	0.00067	0.00063	0.00048	0.00030	0.27559	0.00046	0.00057	-	0.00001	0.00201	0.00694
0.00492	-	0.00046	-	0.00501	-	-	0.00046	0.22776	-	-	-	0.00025	-	0.00501
0.00500	0.00029	0.00109	0.00040	0.00568	0.00063	0.00048	0.00076	0.50336	0.00046	0.00057	-	0.00026	0.00201	0.01195
0.00017	0.00061	0.00135	0.00084	0.00142	0.00135	0.00101	0.00064	0.58668	0.00098	0.00121	-	0.00002	0.00428	0.01477
0.01537	0.00142	-	-	0.01566	-	-	0.00142	0.71176	-	-	-	0.00077	-	0.01566
0.01534	0.00061	0.00277	0.00084	0.01707	0.00135	0.00101	0.00206	1.29845	0.00098	0.00121	-	0.00079	0.00428	0.03042
0.024	0.002	0.006	0.002	0.028	0.004	0.003	0.004	2.617	0.003	0.003	-	0.001	0.011	0.062
0.016	0.001	0.003	0.001	0.017	0.001	0.001	0.002	1.298	0.001	0.001	-	0.001	0.004	0.038

San Pedro Waterfront

Unmitigated Alternative 1 Toxic Pollutant Emissions

Year: 2011

Year (b/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,111										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,111</i>	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	89,139										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>89,139</i>	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	1,565										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,565</i>	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	26,387										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>26,387</i>	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	468										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>468</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	17,717										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.4	4.1	2.0	-	3.5
<i>Total Precautionary Zone - South-Bound</i>		<i>17,717</i>	-	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>4.1</i>	<i>2.0</i>	-	<i>3.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,269										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.6	0.8	-	1.4
<i>Total Outer Harbor Zone2</i>		<i>5,269</i>	-	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.8</i>	-	<i>1.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	6,131										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	1.9	0.9	-	1.6
<i>Total Inner Harbor Zone</i>		<i>6,131</i>	-	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>1.9</i>	<i>0.9</i>	-	<i>1.6</i>
Hoteling	Diesel Engines	78,724										
Hoteling	Boiler		-	17.1	0.8	8.7	0.6	12.6	35.9	17.1	-	30.7
<i>Total Hoteling</i>		<i>78,724</i>	-	<i>17.1</i>	<i>0.8</i>	<i>8.7</i>	<i>0.6</i>	<i>12.6</i>	<i>35.9</i>	<i>17.1</i>	-	<i>30.7</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.3	-	-	-	-	0.0	0.1
-	0.0	-	0.1	-	-	0.0	4.3	-	-	-	-	0.0	0.1
-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	-	0.2	3.6
-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	-	0.2	3.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	-	0.1	1.4
-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	-	0.1	1.4
-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	-	0.1	1.7
-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	-	0.1	1.7
-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	-	1.5	31.3
-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	-	1.5	31.3

San Pedro Waterfront

Unmitigated Alternative 1 Toxic Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,158										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,158</i>	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	91,127										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>91,127</i>	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	1,600										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,600</i>	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	26,976										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>26,976</i>	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	478										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>478</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	18,112										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>18,112</i>	-	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	-	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	1,436										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.2	0.4	0.2	-	0.4
<i>Total Outer Harbor Zone1</i>		<i>1,436</i>	-	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.4</i>	<i>0.2</i>	-	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,591										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	1.0
<i>Total Outer Harbor Zone2</i>		<i>3,591</i>	-	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	-	<i>1.0</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,179										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	1.1
<i>Total Inner Harbor Zone</i>		<i>4,179</i>	-	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.3</i>	<i>0.6</i>	-	<i>1.1</i>
Hoteling	Diesel Engines	80,479										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hoteling</i>		<i>80,479</i>	-	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	-	<i>31.4</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	-	0.0	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	-	0.0	0.1
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	-	0.2	3.7
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	-	0.2	3.7
-	0.0	-	0.4	-	-	0.0	17.8	-	-	-	-	0.0	0.4
-	0.0	-	0.4	-	-	0.0	17.8	-	-	-	-	0.0	0.4
-	0.1	-	1.0	-	-	0.1	44.5	-	-	-	-	0.0	1.0
-	0.1	-	1.0	-	-	0.1	44.5	-	-	-	-	0.0	1.0
-	0.1	-	1.1	-	-	0.1	51.7	-	-	-	-	0.1	1.1
-	0.1	-	1.1	-	-	0.1	51.7	-	-	-	-	0.1	1.1
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	-	1.6	32.0
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	-	1.6	32.0

San Pedro Waterfront

Unmitigated Alternative 1 Toxic Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,158										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,158</i>	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	91,127										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>91,127</i>	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	1,600										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,600</i>	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	26,976										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>26,976</i>	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	478										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>478</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	18,112										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>18,112</i>	-	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	-	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	1,436										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.2	0.4	0.2	-	0.4
<i>Total Outer Harbor Zone1</i>		<i>1,436</i>	-	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.4</i>	<i>0.2</i>	-	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,591										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	1.0
<i>Total Outer Harbor Zone2</i>		<i>3,591</i>	-	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	-	<i>1.0</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,179										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	1.1
<i>Total Inner Harbor Zone</i>		<i>4,179</i>	-	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.3</i>	<i>0.6</i>	-	<i>1.1</i>
Hoteling	Diesel Engines	80,479										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hoteling</i>		<i>80,479</i>	-	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	-	<i>31.4</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	-	0.0	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	-	0.0	0.1
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	-	0.2	3.7
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	-	0.2	3.7
-	0.0	-	0.4	-	-	0.0	17.8	-	-	-	-	0.0	0.4
-	0.0	-	0.4	-	-	0.0	17.8	-	-	-	-	0.0	0.4
-	0.1	-	1.0	-	-	0.1	44.5	-	-	-	-	0.0	1.0
-	0.1	-	1.0	-	-	0.1	44.5	-	-	-	-	0.0	1.0
-	0.1	-	1.1	-	-	0.1	51.7	-	-	-	-	0.1	1.1
-	0.1	-	1.1	-	-	0.1	51.7	-	-	-	-	0.1	1.1
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	-	1.6	32.0
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	-	1.6	32.0

San Pedro Waterfront

Unmitigated Alternative 1 Toxic Pollutant Emissions

Year: 2037

Year (b/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,158										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,158</i>	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	91,127										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>91,127</i>	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	1,600										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,600</i>	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	26,976										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>26,976</i>	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	478										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>478</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	18,112										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>18,112</i>	-	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	-	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	1,436										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.2	0.4	0.2	-	0.4
<i>Total Outer Harbor Zone1</i>		<i>1,436</i>	-	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.4</i>	<i>0.2</i>	-	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,591										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	1.0
<i>Total Outer Harbor Zone2</i>		<i>3,591</i>	-	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	-	<i>1.0</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,179										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	1.1
<i>Total Inner Harbor Zone</i>		<i>4,179</i>	-	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.3</i>	<i>0.6</i>	-	<i>1.1</i>
Hoteling	Diesel Engines	80,479										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hoteling</i>		<i>80,479</i>	-	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	-	<i>31.4</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	-	0.0	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	-	0.0	0.1
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	-	0.2	3.7
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	-	0.2	3.7
-	0.0	-	0.4	-	-	0.0	17.8	-	-	-	-	0.0	0.4
-	0.0	-	0.4	-	-	0.0	17.8	-	-	-	-	0.0	0.4
-	0.1	-	1.0	-	-	0.1	44.5	-	-	-	-	0.0	1.0
-	0.1	-	1.0	-	-	0.1	44.5	-	-	-	-	0.0	1.0
-	0.1	-	1.1	-	-	0.1	51.7	-	-	-	-	0.1	1.1
-	0.1	-	1.1	-	-	0.1	51.7	-	-	-	-	0.1	1.1
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	-	1.6	32.0
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	-	1.6	32.0

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 1													
		70-year average	Project Start Year 2009	2010	Evaluation Year 2011	2012	2013	Evaluation Year 2014	2015	2016	2017	2018	2019	2020	2021
DPM															
Sea / Fairway - North-Bound	Diesel Engines	2,151	2,024	2,024	2,111	2,111	2,111	2,111	2,158	2,158	2,158	2,158	2,158	2,158	2,158
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	90,853	85,494	85,494	89,139	89,139	89,139	89,139	91,127	91,127	91,127	91,127	91,127	91,127	91,127
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	1,595	1,501	1,501	1,565	1,565	1,565	1,565	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	26,894	25,308	25,308	26,387	26,387	26,387	26,387	26,976	26,976	26,976	26,976	26,976	26,976	26,976
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	477	449	449	468	468	468	468	478	478	478	478	478	478	478
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - North-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - South-Bound	Diesel Engines	18,058	16,993	16,993	17,717	17,717	17,717	17,717	18,112	18,112	18,112	18,112	18,112	18,112	18,112
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - South-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	1,354	-	-	-	-	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,729	5,053	5,053	5,269	5,269	5,269	5,269	3,591	3,591	3,591	3,591	3,591	3,591	3,591
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone2</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inner Harbor Zone (maneuvering through main channel: inner h	Diesel Engines	4,339	5,880	5,880	6,131	6,131	6,131	6,131	4,179	4,179	4,179	4,179	4,179	4,179	4,179
Inner Harbor Zone (maneuvering through main channel: inner h	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Inner Harbor Zone</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoteling	Diesel Engines	80,237	75,504	75,504	78,724	78,724	78,724	78,724	80,479	80,479	80,479	80,479	80,479	80,479	80,479
Hoteling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Hoteling</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-

San Pedro Waterfront

Evaluation Year 2022															Evaluation Year	
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 1													
		70-year average	Project Start Year 2009	2010	Evaluation Year 2011	2012	2013	Evaluation Year 2014	2015	2016	2017	2018	2019	2020	2021
PM from OGV boilers															
Sea / Fairway - North-Bound	Diesel Engines														
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>															
Sea / Fairway - South-Bound	Diesel Engines														
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>															
Fairway - North-Bound	Diesel Engines														
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>															
Fairway - South-Bound	Diesel Engines														
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>															
Precautionary Zone - North-Bound	Diesel Engines														
Precautionary Zone - North-Bound	Boiler	18	17	17	17	17	17	17	18	18	18	18	18	18	18
<i>Total Precautionary Zone - North-Bound</i>															
Precautionary Zone - South-Bound	Diesel Engines														
Precautionary Zone - South-Bound	Boiler	665	626	626	653	653	653	653	667	667	667	667	667	667	667
<i>Total Precautionary Zone - South-Bound</i>															
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	67	-	-	-	71	71	71	71	71	71	71	71	71	71
<i>Total Outer Harbor Zone1</i>															
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	185	250	250	261	261	261	261	178	178	178	178	178	178	178
<i>Total Outer Harbor Zone2</i>															
Inner Harbor Zone (maneuvering through main channel: inner h	Diesel Engines														
Inner Harbor Zone (maneuvering through main channel: inner h	Boiler	215	291	291	304	304	304	304	207	207	207	207	207	207	207
<i>Total Inner Harbor Zone</i>															
Hoteling	Diesel Engines														
Hoteling	Boiler	5,803	5,460	5,460	5,693	5,693	5,693	5,693	5,820	5,820	5,820	5,820	5,820	5,820	5,820
<i>Total Hoteling</i>															

San Pedro Waterfront

Evaluation Year															Evaluation Year	
2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

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2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 1													
		70-year average	Project Start Year 2009	2010	Evaluation Year 2011	2012	2013	Evaluation Year		2016	2017	2018	2019	2020	2021
								2014	2015						
VOC from OGV boilers															
Sea / Fairway - North-Bound	Diesel Engines														
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>															
Sea / Fairway - South-Bound	Diesel Engines														
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>															
Fairway - North-Bound	Diesel Engines														
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>															
Fairway - South-Bound	Diesel Engines														
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>															
Precautionary Zone - North-Bound	Diesel Engines														
Precautionary Zone - North-Bound	Boiler	2	2	2	2	2	2	2	2	2	2	2	2	2	2
<i>Total Precautionary Zone - North-Bound</i>															
Precautionary Zone - South-Bound	Diesel Engines														
Precautionary Zone - South-Bound	Boiler	88	82	82	86	86	86	86	88	88	88	88	88	88	88
<i>Total Precautionary Zone - South-Bound</i>															
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	9	-	-	-	-	9	9	9	9	9	9	9	9	9
<i>Total Outer Harbor Zone1</i>															
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	24	33	33	34	34	34	34	23	23	23	23	23	23	23
<i>Total Outer Harbor Zone2</i>															
Inner Harbor Zone (maneuvering through main channel: inner h	Diesel Engines														
Inner Harbor Zone (maneuvering through main channel: inner h	Boiler	28	38	38	40	40	40	40	27	27	27	27	27	27	27
<i>Total Inner Harbor Zone</i>															
Hoteling	Diesel Engines														
Hoteling	Boiler	764	719	719	749	749	749	749	766	766	766	766	766	766	766
<i>Total Hoteling</i>															

San Pedro Waterfront

Evaluation Year 2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	Evaluation Year 2037	2038
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

Unmitigated Alternative 1 Toxic Pollutant Emissions
70-Year Average

Year (b/yr)	Spatial Allocation	Power Type	VOC							PM						
			DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	Copper
	Sea / Fairway - North-Bound	Diesel Engines	2,151													
	Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - North-Bound</i>		<i>2,151</i>													
	Sea / Fairway - South-Bound	Diesel Engines	90,853													
	Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - South-Bound</i>		<i>90,853</i>													
	Fairway - North-Bound	Diesel Engines	1,595													
	Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - North-Bound</i>		<i>1,595</i>													
	Fairway - South-Bound	Diesel Engines	26,894													
	Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - South-Bound</i>		<i>26,894</i>													
	Precautionary Zone - North-Bound	Diesel Engines	477													
	Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1	-	0.0	-
	<i>Total Precautionary Zone - North-Bound</i>		<i>477</i>		<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>		<i>0.1</i>		<i>0.0</i>	
	Precautionary Zone - South-Bound	Diesel Engines	18,058													
	Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6	-	0.3	-
	<i>Total Precautionary Zone - South-Bound</i>		<i>18,058</i>		<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>		<i>3.6</i>		<i>0.3</i>	
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	1,354													
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.1	0.4	0.2	-	0.4	-	0.0	-
	<i>Total Outer Harbor Zone1</i>		<i>1,354</i>		<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.1</i>	<i>0.4</i>	<i>0.2</i>		<i>0.4</i>		<i>0.0</i>	
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,729													
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.6	0.0	0.3	0.0	0.4	1.2	0.6	-	1.0	-	0.1	-
	<i>Total Outer Harbor Zone2</i>		<i>3,729</i>		<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.2</i>	<i>0.6</i>		<i>1.0</i>		<i>0.1</i>	
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,339													
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.4	0.6	-	1.2	-	0.1	-
	<i>Total Inner Harbor Zone</i>		<i>4,339</i>		<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.4</i>	<i>0.6</i>		<i>1.2</i>		<i>0.1</i>	
	Hoteling	Diesel Engines	80,237													
	Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.6	17.4	-	31.3	-	2.9	-
	<i>Total Hoteling</i>		<i>80,237</i>		<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.6</i>	<i>17.4</i>		<i>31.3</i>		<i>2.9</i>	

San Pedro Waterfront

Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
3.7	-	-	0.3	166.3	-	-	-	0.2	-	3.7
3.7	-	-	0.3	166.3	-	-	-	0.2	-	3.7
0.4	-	-	0.0	16.8	-	-	-	0.0	-	0.4
0.4	-	-	0.0	16.8	-	-	-	0.0	-	0.4
1.0	-	-	0.1	46.2	-	-	-	0.0	-	1.0
1.0	-	-	0.1	46.2	-	-	-	0.0	-	1.0
1.2	-	-	0.1	53.7	-	-	-	0.1	-	1.2
1.2	-	-	0.1	53.7	-	-	-	0.1	-	1.2
31.9	-	-	2.9	1,450.7	-	-	-	1.6	-	31.9
31.9	-	-	2.9	1,450.7	-	-	-	1.6	-	31.9

Mitigated Alternative 1 Criteria Pollutant Emissions										Transit Time (hr)
Year: 2011										
Peak Hourly (lb/hr) for Single Type 2 Vessel with No Applied Mitigations										
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>43.2</i>	<i>78.2</i>	<i>19.6</i>	<i>549.7</i>	<i>78.2</i>	<i>62.6</i>	<i>752.5</i>	<i>20.7</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.6</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
<i>Emissions = Engine Power * Load Factor * Emission Factor * Time</i>										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.										
VOC/HC = 1.053										
1 lb = 453.59										
<u>Assumptions</u>										
1. Residual fuel with 4.5% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.										
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.										
5. No VSRP										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:						3.0	Divide by 2 = Half of 2011 Type 2 vessels			

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 3 Vessel with No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽⁹⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽⁹⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hotelling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	1.2
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.
Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 - (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
 1 lb = 453.59

Assumptions

1. Residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 3 vessels will have this unmitigated profile for the peak scenario.
5. No VSRP

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

Divide by 2 =
 Half of 2011
 Type 3 vessels
 0.0

Mitigated Alternative 1 Criteria Pollutant Emissions										Transit Time (hr)
Year: 2011										
Peak Hourly (lb/hr) for Single Type 2 Vessel with Applied Mitigations										
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>33.0</i>	<i>59.8</i>	<i>15.0</i>	<i>420.1</i>	<i>59.8</i>	<i>47.8</i>	<i>575.1</i>	<i>15.8</i>	
Fairway - South-Bound	Diesel Engines	30.3	54.8	13.8	385.1	54.8	43.8	527.2	14.5	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>30.3</i>	<i>54.8</i>	<i>13.8</i>	<i>385.1</i>	<i>54.8</i>	<i>43.8</i>	<i>527.2</i>	<i>14.5</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.6</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
<i>Emissions = Engine Power * Load Factor * Emission Factor * Time</i>										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.										
VOC/HC = 1.053										
1 lb = 453.59										
<u>Assumptions</u>										
1. 2.7% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.										
4. Half of all Type 2 vessels will have this mitigated profile for the peak scenario.										
5. VSRP = 100% within 20 nm										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:						3.0	Divide by 2 = Half of 2011 Type 2 vessels			

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 3 Vessel with Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	
Fairway - South-Bound	Diesel Engines	34.1	61.8	15.5	434.3	61.8	49.4	594.5	16.3	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		34.1	61.8	15.5	434.3	61.8	49.4	594.5	16.3	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hotelling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.
*Emissions = Engine Power * Load Factor * Emission Factor * Time*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 - (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
 1 lb = 453.59

Assumptions

- 2.7% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this mitigated profile for the peak scenario.
- VSRP = 100% within 20 nm

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

Divide by 2 =
 Half of 2011
 Type 3 vessels
 0.0

Mitigated Alternative 1 Criteria Pollutant Emissions										Transit Time (hr)
Year: 2015+										
Peak Hourly (lb/hr) for Single Type 2 Vessel No Applied Mitigations										
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>43.2</i>	<i>78.2</i>	<i>19.6</i>	<i>549.7</i>	<i>78.2</i>	<i>62.6</i>	<i>752.5</i>	<i>20.7</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.6</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	1.2
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
<i>Emissions = Engine Power * Load Factor * Emission Factor * Time</i>										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.										
VOC/HC = 1.053										
1 lb = 453.59										
<u>Assumptions</u>										
1. Residual fuel with 4.5% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.										
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:						1.0	Divide by 2 = Half of 2015+ Type 2 vessels			

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 3 Vessel No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hotelling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12.00
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.		19	34	9	242	37	29	385	9	
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

- Residual fuel with 4.5% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this unmitigated profile for the peak scenario.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

2.0

Divide by 2 = Half of 2015+ Type 3 vessels

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 2 Vessel With Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.52
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	
Sea / Fairway - South-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.92
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	
Fairway - North-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	
Fairway - South-Bound	Diesel Engines	30.3	17.5	13.8	350.4	17.5	14.0	52.7	14.5	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		30.3	17.5	13.8	350.4	17.5	14.0	52.7	14.5	
Precautionary Zone - North-Bound	Diesel Engines	20.6	11.9	9.4	238.9	11.9	9.5	35.9	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.6	0.5	0.4	3.8	0.1	
Total Precautionary Zone - North-Bound		20.9	11.9	9.5	241.5	12.4	9.9	39.7	10.0	
Precautionary Zone - South-Bound	Diesel Engines	23.4	13.5	10.6	270.8	13.5	10.8	40.7	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.0	0.5	0.4	4.3	0.2	
Total Precautionary Zone - South-Bound		23.7	13.5	10.8	273.7	14.0	11.2	45.0	11.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	3.2	2.5	63.4	3.2	2.5	9.5	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	0.9	0.2	0.1	1.3	0.05	
Total Outer Harbor Zone1		5.6	3.2	2.5	64.4	3.3	2.7	10.9	2.7	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	4.0	3.1	79.3	4.0	3.2	11.9	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.2	0.2	1.7	0.06	
Total Outer Harbor Zone2		7.0	4.0	3.2	80.4	4.2	3.3	13.6	3.3	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	4.6	3.6	92.3	4.6	3.7	13.9	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.3	0.2	0.2	1.9	0.07	
Total Inner Harbor Zone		8.1	4.6	3.7	93.6	4.8	3.9	15.8	3.9	
Hoteling	Diesel Engines	1.4	0.8	0.6	16.5	0.8	0.7	2.5	0.7	12
Hoteling	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
Total Hoteling		1.9	0.8	0.9	20.8	1.6	1.3	8.6	0.9	

First Peak Hour Scenario (per vessel) 44 25 20 512 26 21 85 21

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel) 2 1 1 21 2 1 9 1

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

$Emissions = Engine\ Power * Load\ Factor * Emission\ Factor * Time$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Assumptions

1. Residual fuel with 2.7% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 2 vessels will have this mitigated profile for the peak scenario.
5. AMP applied to hoteling: 80% to inner harbor; 90% to outer harbor.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

1.0 Divide by 2 = Half of 2015+ Type 2 vessels

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 3 Vessel With Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.52
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	
Sea / Fairway - South-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.92
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	
Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	
Fairway - South-Bound	Diesel Engines	34.1	19.7	15.5	395.2	19.7	15.8	59.5	16.3	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		34.1	19.7	15.5	395.2	19.7	15.8	59.5	16.3	
Precautionary Zone - North-Bound	Diesel Engines	23.3	13.5	10.6	269.4	13.5	10.8	40.5	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.6	0.5	0.4	3.8	0.1	
Total Precautionary Zone - North-Bound		23.5	13.5	10.7	272.7	13.9	11.1	44.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	15.2	12.0	305.4	15.2	12.2	45.9	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.0	0.5	0.4	4.3	0.2	
Total Precautionary Zone - South-Bound		26.7	15.2	12.1	308.4	15.8	12.6	50.2	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	3.5	2.7	69.7	3.5	2.8	10.5	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	0.9	0.2	0.1	1.3	0.05	
Total Outer Harbor Zone1		6.1	3.5	2.8	70.6	3.6	2.9	11.8	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	4.3	3.4	87.1	4.3	3.5	13.1	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.2	0.2	1.7	0.06	
Total Outer Harbor Zone2		7.6	4.3	3.5	88.2	4.6	3.6	14.8	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	5.1	4.0	101.3	5.1	4.0	15.2	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.3	0.2	0.2	1.9	0.07	
Total Inner Harbor Zone		8.9	5.1	4.0	102.7	5.3	4.2	17.2	4.3	
Hotelling	Diesel Engines	1.6	0.9	0.7	18.0	0.9	0.7	2.7	0.7	12.00
Hotelling	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
Total Hotelling		2.0	0.9	0.9	22.2	1.6	1.3	8.8	1.0	

First Peak Hour Scenario (per vessel)

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel)

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

$$Emissions = Engine Power * Load Factor * Emission Factor * Time$$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$VOC/HC = 1.053$$

$$1 lb = 453.59$$

Assumptions

1. Residual fuel with 2.7% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 3 vessels will have this mitigated profile for the peak scenario.
5. AMP applied to hotelling: 80% to inner harbor; 90% to outer harbor.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

2.0

Divide by 2 = Half of 2015+ Type 3 vessels

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2011

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>
Sea / Fairway - South-Bound	Diesel Engines	115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>115.9</i>	<i>209.9</i>	<i>52.7</i>	<i>1,475.4</i>	<i>209.9</i>	<i>167.9</i>	<i>2,019.9</i>	<i>55.5</i>
Fairway - North-Bound	Diesel Engines	62.8	113.7	28.5	799.1	113.7	90.9	1,093.9	30.1
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>62.8</i>	<i>113.7</i>	<i>28.5</i>	<i>799.1</i>	<i>113.7</i>	<i>90.9</i>	<i>1,093.9</i>	<i>30.1</i>
Fairway - South-Bound	Diesel Engines	31.7	57.4	14.4	403.2	57.4	45.9	552.0	15.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>31.7</i>	<i>57.4</i>	<i>14.4</i>	<i>403.2</i>	<i>57.4</i>	<i>45.9</i>	<i>552.0</i>	<i>15.2</i>
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9
Precautionary Zone - North-Bound	Boiler	0.2	-	0.1	2.4	1.4	1.2	30.8	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>264.9</i>	<i>38.8</i>	<i>31.0</i>	<i>390.2</i>	<i>10.0</i>
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.1
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.8</i>	<i>2.7</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.1
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>136.0</i>	<i>3.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.1
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.2</i>	<i>158.2</i>	<i>3.9</i>
Hotelling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.5
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hotelling</i>		<i>211.0</i>	<i>372.4</i>	<i>96.2</i>	<i>2,674.0</i>	<i>406.6</i>	<i>325.3</i>	<i>4,312.2</i>	<i>101.3</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		627	1,124	285	7,966	1,163	931	11,658	300
Inner Harbor Berths per Vessel - Peak Day (lb/day)		646	1,158	294	8,207	1,199	959	12,029	309
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		1,938	3,473	882	24,621	3,598	2,878	36,086	928
2011 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,305	2,356	593	16,599	2,378	1,903	23,150	625
2011 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	3	0

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2011

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - South-Bound	Diesel Engines	134.4	243.2	61.1	1,710.0	243.2	194.6	2,341.0	64.3
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.4	243.2	61.1	1,710.0	243.2	194.6	2,341.0	64.3
Fairway - North-Bound	Diesel Engines	71.8	130.0	32.6	914.2	130.0	104.0	1,251.6	34.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		71.8	130.0	32.6	914.2	130.0	104.0	1,251.6	34.4
Fairway - South-Bound	Diesel Engines	36.2	65.6	16.5	461.3	65.6	52.5	631.5	17.3
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		36.2	65.6	16.5	461.3	65.6	52.5	631.5	17.3
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.2
Precautionary Zone - South-Bound	Diesel Engines	22.5	40.8	10.2	286.6	40.8	32.6	392.4	10.8
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		22.8	40.8	10.4	289.9	42.8	34.2	435.4	11.0
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.1
Total Outer Harbor Zone1		6.1	10.9	2.7	77.6	11.5	9.2	118.1	3.0
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.1
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.1
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	107.0
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
Total Hotelling		228.8	404.6	104.2	2,900.0	438.8	351.0	4,621.7	109.8
Outer Harbor Berths per Vessel - Peak Day (lb/day)		700	1,257	319	8,902	1,296	1,037	12,930	336
Inner Harbor Berths per Vessel - Peak Day (lb/day)		721	1,294	328	9,166	1,335	1,068	13,333	346
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	0	0

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2015+

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	59.8	91.1	27.2	745.5	91.1	72.9	823.5	28.6
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>59.8</i>	<i>91.1</i>	<i>27.2</i>	<i>745.5</i>	<i>91.1</i>	<i>72.9</i>	<i>823.5</i>	<i>28.6</i>
Sea / Fairway - South-Bound	Diesel Engines	75.6	115.1	34.4	942.2	115.1	92.1	1,040.7	36.2
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>75.6</i>	<i>115.1</i>	<i>34.4</i>	<i>942.2</i>	<i>115.1</i>	<i>92.1</i>	<i>1,040.7</i>	<i>36.2</i>
Fairway - North-Bound	Diesel Engines	62.8	89.0	28.5	776.2	89.0	71.2	780.5	30.1
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>62.8</i>	<i>89.0</i>	<i>28.5</i>	<i>776.2</i>	<i>89.0</i>	<i>71.2</i>	<i>780.5</i>	<i>30.1</i>
Fairway - South-Bound	Diesel Engines	31.7	44.9	14.4	391.6	44.9	35.9	393.8	15.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>31.7</i>	<i>44.9</i>	<i>14.4</i>	<i>391.6</i>	<i>44.9</i>	<i>35.9</i>	<i>393.8</i>	<i>15.2</i>
Precautionary Zone - North-Bound	Diesel Engines	20.6	24.6	9.4	250.7	24.6	19.7	197.7	9.9
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.8	1.1	0.9	20.8	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>24.6</i>	<i>9.5</i>	<i>253.5</i>	<i>25.8</i>	<i>20.6</i>	<i>218.5</i>	<i>10.0</i>
Precautionary Zone - South-Bound	Diesel Engines	23.4	27.9	10.6	284.2	27.9	22.3	224.0	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.1	1.3	1.0	23.6	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>27.9</i>	<i>10.8</i>	<i>287.3</i>	<i>29.2</i>	<i>23.4</i>	<i>247.7</i>	<i>11.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	6.5	2.5	66.6	6.5	5.2	52.5	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.4	0.3	7.3	0.1
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>6.5</i>	<i>2.5</i>	<i>67.5</i>	<i>6.9</i>	<i>5.5</i>	<i>59.8</i>	<i>2.7</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	8.2	3.1	83.2	8.2	6.5	65.6	3.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.5	0.4	9.2	0.1
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>8.2</i>	<i>3.2</i>	<i>84.4</i>	<i>8.7</i>	<i>6.9</i>	<i>74.8</i>	<i>3.3</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	9.5	3.6	96.8	9.5	7.6	76.3	3.8
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.4	0.6	0.5	10.7	0.1
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>9.5</i>	<i>3.7</i>	<i>98.2</i>	<i>10.1</i>	<i>8.1</i>	<i>87.0</i>	<i>3.9</i>
Hotelling	Diesel Engines	111.4	191.2	50.7	1,408.5	191.2	152.9	1,807.3	53.3
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hotelling</i>		<i>116.7</i>	<i>191.2</i>	<i>53.3</i>	<i>1,461.5</i>	<i>212.7</i>	<i>170.2</i>	<i>2,207.4</i>	<i>56.1</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		452	668	206	5,608	693	555	6,465	217
Inner Harbor Berths per Vessel - Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2015 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		354	500	161	4,376	504	403	4,461	170
2015 Vessel Type 2 Hotelling Peak Day (lb/day)		117	191	53	1,462	213	170	2,207	56
2022 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		354	500	161	4,376	504	403	4,461	170
2022 Vessel Type 2 Hotelling Peak Day (lb/day)		117	191	53	1,462	213	170	2,207	56
2037 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		354	500	161	4,376	504	403	4,461	170
2037 Vessel Type 2 Hotelling Peak Day (lb/day)		117	191	53	1,462	213	170	2,207	56

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels	
	bound to Inner Harbor	bound to Outer Harbor
2011	3	0
2015	1	0
2022	1	0
2037	1	0

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2015+

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	68.9	105.3	31.3	859.0	105.3	84.3	953.7	33.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		68.9	105.3	31.3	859.0	105.3	84.3	953.7	33.0
Sea / Fairway - South-Bound	Diesel Engines	87.1	133.1	39.6	1,085.6	133.1	106.5	1,205.2	41.7
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		87.1	133.1	39.6	1,085.6	133.1	106.5	1,205.2	41.7
Fairway - North-Bound	Diesel Engines	71.8	102.3	32.6	888.4	102.3	81.8	898.1	34.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		71.8	102.3	32.6	888.4	102.3	81.8	898.1	34.4
Fairway - South-Bound	Diesel Engines	36.2	51.6	16.5	448.3	51.6	41.3	453.2	17.3
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		36.2	51.6	16.5	448.3	51.6	41.3	453.2	17.3
Precautionary Zone - North-Bound	Diesel Engines	23.3	27.8	10.6	282.8	27.8	22.2	223.0	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.8	1.1	0.9	20.8	0.1
Total Precautionary Zone - North-Bound		23.5	27.8	10.7	285.5	28.9	23.1	243.8	11.2
Precautionary Zone - South-Bound	Diesel Engines	26.4	31.5	12.0	320.5	31.5	25.2	252.7	12.6
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.1	1.3	1.0	23.6	0.2
Total Precautionary Zone - South-Bound		26.7	31.5	12.2	323.6	32.8	26.2	276.3	12.8
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	7.2	2.7	73.1	7.2	5.7	57.6	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.4	0.3	7.3	0.1
Total Outer Harbor Zone1		6.1	7.2	2.8	74.1	7.6	6.0	64.9	3.0
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	9.0	3.4	91.4	9.0	7.2	72.1	3.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.5	0.4	9.2	0.1
Total Outer Harbor Zone2		7.6	9.0	3.5	92.6	9.5	7.6	81.3	3.7
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	10.4	4.0	106.3	10.4	8.4	83.8	4.2
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.4	0.6	0.5	10.7	0.1
Total Inner Harbor Zone		8.9	10.4	4.0	107.7	11.0	8.9	94.5	4.3
Hotelling	Diesel Engines	121.1	207.7	55.0	1,530.1	207.7	166.2	1,963.3	57.9
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
Total Hotelling		126.4	207.7	57.6	1,583.2	229.3	183.5	2,363.4	60.7
Outer Harbor Berths per Vessel - Peak Day (lb/day)		510	756	232	6,326	781	625	7,253	244
Inner Harbor Berths per Vessel - Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2015 Total Outer Harbor Berths Peak Day (lb/day)		510	756	232	6,326	781	625	7,253	244
2015 Total Inner Harbor Berths Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2022 Total Outer Harbor Berths Peak Day (lb/day)		510	756	232	6,326	781	625	7,253	244
2022 Total Inner Harbor Berths Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2037 Total Outer Harbor Berths Peak Day (lb/day)		510	756	232	6,326	781	625	7,253	244
2037 Total Inner Harbor Berths Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2015 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		788	1,121	358	9,739	1,129	903	10,000	377
2015 Vessel Type 3 Hotelling Peak Day (lb/day)		253	415	115	3,166	459	367	4,727	121
2022 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		788	1,121	358	9,739	1,129	903	10,000	377
2022 Vessel Type 3 Hotelling Peak Day (lb/day)		253	415	115	3,166	459	367	4,727	121
2037 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		788	1,121	358	9,739	1,129	903	10,000	377
2037 Vessel Type 3 Hotelling Peak Day (lb/day)		253	415	115	3,166	459	367	4,727	121

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Harbor bound to Inner	Harbor bound to Outer
2011	0	0
2015	1	1
2022	1	1
2037	1	1

Mitigated Alternative 1 Criteria Pollutant Emissions
 Year: 2011, 2015, 2022, 2037

Total Peak Day (lb/day) for all Vessels

	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
2011 Transit & Maneuvering Peak Day (lb/day)	1,305	2,356	593	16,599	2,378	1,903	23,150	625
2011 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2015 Transit & Maneuvering Peak Day (lb/day)	1,142	1,620	519	14,116	1,633	1,306	14,461	547
2015 Hotelling Peak Day (lb/day)	369	607	169	4,628	671	537	6,934	178
2022 Transit & Maneuvering Peak Day (lb/day)	1,142	1,620	519	14,116	1,633	1,306	14,461	547
2022 Hotelling Peak Day (lb/day)	369	607	169	4,628	671	537	6,934	178
2037 Transit & Maneuvering Peak Day (lb/day)	1,142	1,620	519	14,116	1,633	1,306	14,461	547
2037 Hotelling Peak Day (lb/day)	369	607	169	4,628	671	537	6,934	178

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2011

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	11.5	20.8	5.2	145.9	20.8	16.6	199.8	5.5
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>11.5</i>	<i>20.8</i>	<i>5.2</i>	<i>145.9</i>	<i>20.8</i>	<i>16.6</i>	<i>199.8</i>	<i>5.5</i>
Sea / Fairway - South-Bound	Diesel Engines	14.5	26.2	6.6	184.4	26.2	21.0	252.5	6.9
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>14.5</i>	<i>26.2</i>	<i>6.6</i>	<i>184.4</i>	<i>26.2</i>	<i>21.0</i>	<i>252.5</i>	<i>6.9</i>
Fairway - North-Bound	Diesel Engines	7.8	14.2	3.6	99.9	14.2	11.4	136.7	3.8
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>7.8</i>	<i>14.2</i>	<i>3.6</i>	<i>99.9</i>	<i>14.2</i>	<i>11.4</i>	<i>136.7</i>	<i>3.8</i>
Fairway - South-Bound	Diesel Engines	4.0	7.2	1.8	50.4	7.2	5.7	69.0	1.9
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>4.0</i>	<i>7.2</i>	<i>1.8</i>	<i>50.4</i>	<i>7.2</i>	<i>5.7</i>	<i>69.0</i>	<i>1.9</i>
Precautionary Zone - North-Bound	Diesel Engines	2.6	4.7	1.2	32.8	4.7	3.7	44.9	1.2
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.2	0.1	3.8	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>4.7</i>	<i>1.2</i>	<i>33.1</i>	<i>4.8</i>	<i>3.9</i>	<i>48.8</i>	<i>1.2</i>
Precautionary Zone - South-Bound	Diesel Engines	2.9	5.3	1.3	37.2	5.3	4.2	50.9	1.4
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.3	0.2	5.4	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>5.3</i>	<i>1.3</i>	<i>37.6</i>	<i>5.5</i>	<i>4.4</i>	<i>56.3</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	1.2	0.3	8.7	1.2	1.0	11.9	0.3
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.1	0.1	1.7	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>8.8</i>	<i>1.3</i>	<i>1.1</i>	<i>13.6</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.5	0.4	10.9	1.5	1.2	14.9	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.5</i>	<i>0.4</i>	<i>11.0</i>	<i>1.6</i>	<i>1.3</i>	<i>17.0</i>	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.8	0.5	12.7	1.8	1.4	17.3	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.4	0.0
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.5</i>	<i>12.9</i>	<i>1.9</i>	<i>1.5</i>	<i>19.8</i>	<i>0.5</i>
Hoteling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hoteling</i>		<i>211.0</i>	<i>372.4</i>	<i>96.2</i>	<i>2,673.9</i>	<i>406.6</i>	<i>325.3</i>	<i>4,312.2</i>	<i>101.3</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2011

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>13.3</i>	<i>24.1</i>	<i>6.0</i>	<i>169.1</i>	<i>24.1</i>	<i>19.2</i>	<i>231.6</i>	<i>6.4</i>
Sea / Fairway - South-Bound	Diesel Engines	16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>16.8</i>	<i>30.4</i>	<i>7.6</i>	<i>213.7</i>	<i>30.4</i>	<i>24.3</i>	<i>292.6</i>	<i>8.0</i>
Fairway - North-Bound	Diesel Engines	9.0	16.3	4.1	114.3	16.3	13.0	156.4	4.3
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>9.0</i>	<i>16.3</i>	<i>4.1</i>	<i>114.3</i>	<i>16.3</i>	<i>13.0</i>	<i>156.4</i>	<i>4.3</i>
Fairway - South-Bound	Diesel Engines	4.5	8.2	2.1	57.7	8.2	6.6	78.9	2.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>4.5</i>	<i>8.2</i>	<i>2.1</i>	<i>57.7</i>	<i>8.2</i>	<i>6.6</i>	<i>78.9</i>	<i>2.2</i>
Precautionary Zone - North-Bound	Diesel Engines	2.9	5.3	1.3	37.0	5.3	4.2	50.7	1.4
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.2	4.7	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.94</i>	<i>5.26</i>	<i>1.34</i>	<i>37.4</i>	<i>5.5</i>	<i>4.4</i>	<i>55.4</i>	<i>1.4</i>
Precautionary Zone - South-Bound	Diesel Engines	2.8	5.1	1.3	35.8	5.1	4.1	49.1	1.3
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.3	0.2	5.4	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>2.9</i>	<i>5.1</i>	<i>1.3</i>	<i>36.2</i>	<i>5.3</i>	<i>4.3</i>	<i>54.4</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	1.4	0.3	9.6	1.4	1.1	13.1	0.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.1	0.1	1.7	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>1.4</i>	<i>0.3</i>	<i>9.7</i>	<i>1.4</i>	<i>1.2</i>	<i>14.8</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.7	0.4	12.0	1.7	1.4	16.4	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.7</i>	<i>0.4</i>	<i>12.7</i>	<i>1.8</i>	<i>1.4</i>	<i>18.5</i>	<i>0.5</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	2.0	0.5	13.9	2.0	1.6	19.1	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.4	0.0
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>2.0</i>	<i>0.5</i>	<i>14.1</i>	<i>2.1</i>	<i>1.7</i>	<i>21.5</i>	<i>0.5</i>
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	107.0
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hotelling</i>		<i>228.8</i>	<i>404.6</i>	<i>104.2</i>	<i>2,900.0</i>	<i>438.8</i>	<i>351.0</i>	<i>4,621.8</i>	<i>109.8</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except hotelling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 - (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
1 lb = 453.59

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2015+

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	7.5	11.4	3.4	93.2	11.4	9.1	102.9	3.6
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>7.5</i>	<i>11.4</i>	<i>3.4</i>	<i>93.2</i>	<i>11.4</i>	<i>9.1</i>	<i>102.9</i>	<i>3.6</i>
Sea / Fairway - South-Bound	Diesel Engines	9.5	14.4	4.3	117.8	14.4	11.5	130.1	4.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>9.5</i>	<i>14.4</i>	<i>4.3</i>	<i>117.8</i>	<i>14.4</i>	<i>11.5</i>	<i>130.1</i>	<i>4.5</i>
Fairway - North-Bound	Diesel Engines	7.8	11.1	3.6	97.0	11.1	8.9	97.6	3.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>7.8</i>	<i>11.1</i>	<i>3.6</i>	<i>97.0</i>	<i>11.1</i>	<i>8.9</i>	<i>97.6</i>	<i>3.8</i>
Fairway - South-Bound	Diesel Engines	4.0	5.6	1.8	49.0	5.6	4.5	49.2	1.9
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>4.0</i>	<i>5.6</i>	<i>1.8</i>	<i>49.0</i>	<i>5.6</i>	<i>4.5</i>	<i>49.2</i>	<i>1.9</i>
Precautionary Zone - North-Bound	Diesel Engines	2.6	3.1	1.2	31.3	3.1	2.5	24.7	1.2
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.1	0.1	2.6	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>3.1</i>	<i>1.2</i>	<i>31.7</i>	<i>3.2</i>	<i>2.6</i>	<i>27.3</i>	<i>1.3</i>
Precautionary Zone - South-Bound	Diesel Engines	2.9	3.5	1.3	35.5	3.5	2.8	28.0	1.4
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.1	3.0	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>3.5</i>	<i>1.3</i>	<i>35.9</i>	<i>3.6</i>	<i>2.9</i>	<i>31.0</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	0.8	0.3	8.3	0.8	0.7	6.6	0.3
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.0	0.0	0.9	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>0.8</i>	<i>0.3</i>	<i>8.4</i>	<i>0.9</i>	<i>0.7</i>	<i>7.5</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.0	0.4	10.4	1.0	0.8	8.2	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.0	1.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.0</i>	<i>0.4</i>	<i>10.6</i>	<i>1.1</i>	<i>0.9</i>	<i>9.3</i>	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.2	0.5	12.1	1.2	1.0	9.5	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	1.3	0.0
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.2</i>	<i>0.5</i>	<i>12.3</i>	<i>1.3</i>	<i>1.0</i>	<i>10.9</i>	<i>0.5</i>
Hoteling	Diesel Engines	111.4	191.2	50.7	1,408.5	191.2	152.9	1,807.3	53.3
Hoteling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hoteling</i>		<i>116.7</i>	<i>191.2</i>	<i>53.3</i>	<i>1,461.5</i>	<i>212.7</i>	<i>170.2</i>	<i>2,207.4</i>	<i>56.1</i>

*Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except for hoteling)*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2015+

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	8.6	13.2	3.9	107.4	13.2	10.5	119.2	4.1
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>8.6</i>	<i>13.2</i>	<i>3.9</i>	<i>107.4</i>	<i>13.2</i>	<i>10.5</i>	<i>119.2</i>	<i>4.1</i>
Sea / Fairway - South-Bound	Diesel Engines	10.9	16.6	4.9	135.7	16.6	13.3	150.7	5.2
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>10.9</i>	<i>16.6</i>	<i>4.9</i>	<i>135.7</i>	<i>16.6</i>	<i>13.3</i>	<i>150.7</i>	<i>5.2</i>
Fairway - North-Bound	Diesel Engines	9.0	12.8	4.1	111.0	12.8	10.2	112.3	4.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>9.0</i>	<i>12.8</i>	<i>4.1</i>	<i>111.0</i>	<i>12.8</i>	<i>10.2</i>	<i>112.3</i>	<i>4.3</i>
Fairway - South-Bound	Diesel Engines	4.5	6.5	2.1	56.0	6.5	5.2	56.6	2.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>4.5</i>	<i>6.5</i>	<i>2.1</i>	<i>56.0</i>	<i>6.5</i>	<i>5.2</i>	<i>56.6</i>	<i>2.2</i>
Precautionary Zone - North-Bound	Diesel Engines	2.9	3.5	1.3	35.3	3.5	2.8	27.9	1.4
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.1	0.1	2.6	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.94</i>	<i>3.47</i>	<i>1.34</i>	<i>35.7</i>	<i>3.6</i>	<i>2.9</i>	<i>30.5</i>	<i>1.4</i>
Precautionary Zone - South-Bound	Diesel Engines	3.3	3.9	1.5	40.1	3.9	3.1	31.6	1.6
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.1	3.0	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.3</i>	<i>3.9</i>	<i>1.5</i>	<i>40.5</i>	<i>4.1</i>	<i>3.3</i>	<i>34.5</i>	<i>1.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	0.9	0.3	9.1	0.9	0.7	7.2	0.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.0	0.0	0.9	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>0.9</i>	<i>0.3</i>	<i>9.3</i>	<i>0.9</i>	<i>0.8</i>	<i>8.1</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.1	0.4	11.4	1.1	0.9	9.0	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.0	1.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.1</i>	<i>0.4</i>	<i>11.6</i>	<i>1.2</i>	<i>0.9</i>	<i>10.2</i>	<i>0.5</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	1.3	0.5	13.3	1.3	1.0	10.5	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	1.3	0.0
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>1.3</i>	<i>0.5</i>	<i>13.5</i>	<i>1.4</i>	<i>1.1</i>	<i>11.8</i>	<i>0.5</i>
Hotelling	Diesel Engines	121.1	207.7	55.0	1,530.1	207.7	166.2	1,963.3	57.9
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hotelling</i>		<i>126.4</i>	<i>207.7</i>	<i>57.7</i>	<i>1,583.2</i>	<i>229.3</i>	<i>183.4</i>	<i>2,363.5</i>	<i>60.7</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except for hotelling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 - (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
 1 lb = 453.59

Alternative 1 Mitigated Criteria Pollutant Emissions
Year: 2011

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	193.6	213.3	88.0	2,300.1	213.3	170.7	1,462.0	92.7
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		193.6	213.3	88.0	2,300.1	213.3	170.7	1,462.0	92.7
Sea / Fairway - South-Bound	Diesel Engines	244.7	269.6	111.2	2,906.7	269.6	215.7	1,847.6	117.1
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		244.7	269.6	111.2	2,906.7	269.6	215.7	1,847.6	117.1
Fairway - North-Bound	Diesel Engines	127.6	140.6	58.0	1,515.5	140.6	112.5	963.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		127.6	140.6	58.0	1,515.5	140.6	112.5	963.3	61.1
Fairway - South-Bound	Diesel Engines	64.4	70.9	29.3	764.7	70.9	56.7	486.1	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		64.4	70.9	29.3	764.7	70.9	56.7	486.1	30.8
Precautionary Zone - North-Bound	Diesel Engines	43.9	48.4	20.0	521.4	48.4	38.7	331.4	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.6	1.8	1.4	32.8	0.3
Total Precautionary Zone - North-Bound		44.4	48.4	20.2	527.0	50.1	40.1	364.2	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	54.8	22.6	590.9	54.8	43.8	375.6	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.4	2.0	1.6	37.2	0.3
Total Precautionary Zone - South-Bound		50	55	23	597	57	45	413	24
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	12.7	5.2	136.5	12.7	10.1	86.8	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.0	0.6	0.5	11.6	0.1
Total Outer Harbor Zone1		11.7	12.7	5.3	138.5	13.3	10.6	98.4	5.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	14.4	15.8	6.5	170.6	15.8	12.7	108.5	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.5	0.8	0.6	14.4	0.1
Total Outer Harbor Zone2		14.6	15.8	6.7	173.1	16.6	13.3	122.9	7.0
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	16.7	18.4	7.6	198.5	18.4	14.7	126.2	8.0
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.3	-	0.1	2.9	0.9	0.7	16.8	0.1
Total Inner Harbor Zone		17.0	18.4	7.7	201.4	19.3	15.5	143.0	8.1
Hoteling	Diesel Engines	155.6	171.4	70.7	1,848.3	171.4	137.1	1,174.8	74.5
Hoteling	Boiler	5.3	-	2.6	53.9	17.1	13.7	315.3	2.8
Total Hoteling		160.9	171.4	73.4	1,902.2	188.5	150.8	1,490.1	77.3

Alt 1 Mitigated Criteria Pollutant Emissions
Year: 2011

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	567	617	258	6,721	638	511	4,622	272
North-Bound Single Vessel Average Day (ton/day)	0.28	0.31	0.13	3.38	0.32	0.26	2.32	0.14
South-Bound Single Vessel Average Day (ton/day)	0.28	0.31	0.13	3.34	0.32	0.25	2.30	0.14
Temporal Allocation								
2011 Total Annual Emissions (ton/yr)	76	83	35	899	81	66	619	31

Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

Hoteling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 30% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 53%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 30% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance in 2011 assumed to be 30%

Alternative 1 Mitigated Criteria Pollutant Emissions

Year: 2015

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.5	61.6	48.4	1,181.9	61.6	49.3	185.6	51.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.5	61.6	48.4	1,181.9	61.6	49.3	185.6	51.0
Sea / Fairway - South-Bound	Diesel Engines	134.6	77.8	61.2	1,493.6	77.8	62.3	234.5	64.4
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.6	77.8	61.2	1,493.6	77.8	62.3	234.5	64.4
Fairway - North-Bound	Diesel Engines	127.6	73.8	58.0	1,415.7	73.8	59.0	222.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		127.6	73.8	58.0	1,415.7	73.8	59.0	222.3	61.1
Fairway - South-Bound	Diesel Engines	64.4	37.2	29.3	714.3	37.2	29.8	112.2	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		64.4	37.2	29.3	714.3	37.2	29.8	112.2	30.8
Precautionary Zone - North-Bound	Diesel Engines	43.9	25.4	20.0	487.0	25.4	20.3	76.5	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		44.4	25.4	20.2	492.3	26.3	21.1	84.1	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	28.8	22.6	552.0	28.8	23.0	86.7	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		50	29	23	558	30	24	95	24
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	6.6	5.2	127.5	6.6	5.3	20.0	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		12	7	5	129	7	6	23	6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	14.4	8.3	6.5	159.4	8.3	6.6	25.0	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		14.6	8.3	6.7	161.7	8.7	7.0	28.4	7.0
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	16.7	9.7	7.6	185.5	9.7	7.7	29.1	8.0
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		17.0	9.7	7.7	188.2	10.1	8.1	33.0	8.1
Hotelling	Diesel Engines	40.5	23.4	18.4	449.5	23.4	18.7	70.6	19.4
Hotelling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
Total Hotelling		45.8	23.4	21.1	500.0	32.4	25.9	143.3	22.2

Alt 1 Mitigated Criteria Pollutant Emissions

Year: 2015

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	321	182	146	3,557	193	154	633	154
Inner Harbor Berths per Vessel - Average Day (lb/day)	353	200	161	3,907	211	169	694	169
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	1.99	0.11	0.09	0.35	0.09
South-Bound Single Vessel Average Day (ton/day)	0.16	0.09	0.08	1.83	0.10	0.08	0.33	0.08
Temporal Allocation								
2015 Total Annual Emissions (ton/yr)	45	26	21	503	27	22	90	22

Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels) * Time * 2 (1-Way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 59%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

Alternative 1 Mitigated Criteria Pollutant Emissions

Year: 2022

Note: for 2022, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.5	61.6	48.4	1,172.8	61.6	49.3	185.6	51.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.5	61.6	48.4	1,172.8	61.6	49.3	185.6	51.0
Sea / Fairway - South-Bound	Diesel Engines	134.6	77.8	61.2	1,482.2	77.8	62.3	234.5	64.4
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.6	77.8	61.2	1,482.2	77.8	62.3	234.5	64.4
Fairway - North-Bound	Diesel Engines	127.6	73.8	58.0	1,404.8	73.8	59.0	222.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		127.6	73.8	58.0	1,404.8	73.8	59.0	222.3	61.1
Fairway - South-Bound	Diesel Engines	64.4	37.2	29.3	708.9	37.2	29.8	112.2	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		64.4	37.2	29.3	708.9	37.2	29.8	112.2	30.8
Precautionary Zone - North-Bound	Diesel Engines	43.9	25.4	20.0	483.3	25.4	20.3	76.5	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		44.4	25.4	20.2	488.6	26.3	21.1	84.1	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	28.8	22.6	547.8	28.8	23.0	86.7	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		50	29	23	554	30	24	95	24
Outer Harbor Zone1 (vessels bound to outer harbor)	Diesel Engines	11.5	6.6	5.2	126.5	6.6	5.3	20.0	5.5
Outer Harbor Zone1 (vessels bound to outer harbor)	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		12	7	5	128	7	6	23	6
Outer Harbor Zone2 (vessels bound to inner harbor)	Diesel Engines	14.4	8.3	6.5	158.2	8.3	6.6	25.0	6.9
Outer Harbor Zone2 (vessels bound to inner harbor)	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		14.6	8.3	6.7	160.5	8.7	7.0	28.4	7.0
Inner Harbor Zone (maneuvering through the harbor)	Diesel Engines	16.7	9.7	7.6	184.0	9.7	7.7	29.1	8.0
Inner Harbor Zone (maneuvering through the harbor)	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		17.0	9.7	7.7	186.7	10.1	8.1	33.0	8.1
Hotelling	Diesel Engines	40.5	23.4	18.4	446.0	23.4	18.7	70.6	19.4
Hotelling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
Total Hotelling		45.8	23.4	21.1	496.6	32.4	25.9	143.3	22.2

Alt 1 Mitigated Criteria Pollutant Emissions

Year: 2022

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	321	182	146	3,531	193	154	633	154
Inner Harbor Berths per Vessel - Average Day (lb/day)	353	200	161	3,878	211	169	694	169
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	1.97	0.11	0.09	0.35	0.09
South-Bound Single Vessel Average Day (ton/day)	0.16	0.09	0.08	1.81	0.10	0.08	0.33	0.08
Temporal Allocation								
2022 Total Annual Emissions (ton/yr)	48	26	21	500	27	22	90	22

$Emissions (lb/yr) = Average Engine Power * Load Factor_{(VSR corrected)} * Fuel Corrected Emission Factor * Time_{(VSR corrected)} * 2_{(1-Way)} Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2_{(1-Way)} Trips * Vessels per Year$

$Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 $1 lb = 453.59$ grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = **69%**
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed
- Annual emissions assume 100% compliance with VSRP to 40 nm.
- Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%

Alternative 1 Mitigated Criteria Pollutant Emissions
Year: 2037

Note: for 2037, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.5	61.6	48.4	1,165.2	61.6	49.3	185.6	51.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.5	61.6	48.4	1,165.2	61.6	49.3	185.6	51.0
Sea / Fairway - South-Bound	Diesel Engines	134.6	77.8	61.2	1,472.5	77.8	62.3	234.5	64.4
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.6	77.8	61.2	1,472.5	77.8	62.3	234.5	64.4
Fairway - North-Bound	Diesel Engines	127.6	73.8	58.0	1,395.7	73.8	59.0	222.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		127.6	73.8	58.0	1,395.7	73.8	59.0	222.3	61.1
Fairway - South-Bound	Diesel Engines	64.4	37.2	29.3	704.3	37.2	29.8	112.2	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		64.4	37.2	29.3	704.3	37.2	29.8	112.2	30.8
Precautionary Zone - North-Bound	Diesel Engines	43.9	25.4	20.0	480.2	25.4	20.3	76.5	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		44.4	25.4	20.2	485.4	26.3	21.1	84.1	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	28.8	22.6	544.2	28.8	23.0	86.7	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		50	29	23	550	30	24	95	24
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	11.5	6.6	5.2	125.7	6.6	5.3	20.0	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		12	7	5	128	7	6	23	6
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	14.4	8.3	6.5	157.1	8.3	6.6	25.0	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		14.6	8.3	6.7	159.5	8.7	7.0	28.4	7.0
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	16.7	9.7	7.6	182.9	9.7	7.7	29.1	8.0
Inner Harbor Zone (maneuvering through main channel)	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		17.0	9.7	7.7	185.5	10.1	8.1	33.0	8.1
Hoteling	Diesel Engines	40.5	23.4	18.4	443.2	23.4	18.7	70.6	19.4
Hoteling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
Total Hoteling		45.8	23.4	21.1	493.7	32.4	25.9	143.3	22.2

Alt 1 Mitigated Criteria Pollutant Emissions
Year: 2037

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Outer Harbor Berths per Vessel - Average Day (lb/day)	321	182	146	3,508	193	154	633	154	
Inner Harbor Berths per Vessel - Average Day (lb/day)	353	200	161	3,853	211	169	694	169	
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	1.96	0.11	0.09	0.35	0.09	
South-Bound Single Vessel Average Day (ton/day)	0.16	0.09	0.08	1.80	0.10	0.08	0.33	0.08	
Temporal Allocation									
2037 Total Annual Emissions (ton/yr)	48	26	21	496	27	22	90	22	

$Emissions (lb/yr) = Average Engine Power * Load Factor_{(VSR corrected)} * Fuel Corrected Emission Factor * Time_{(VSR corrected)} * 2_{(1-Way)} Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2_{(1-Way)} Trips * Vessels per Year$

$Hoteling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 78%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,513	1,667	688	17,978	1,667	1,334	11,427	724
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,513</i>	<i>1,667</i>	<i>688</i>	<i>17,978</i>	<i>1,667</i>	<i>1,334</i>	<i>11,427</i>	<i>724</i>
Sea / Fairway - South-Bound	Diesel Engines	63,910	70,418	29,050	759,190	70,418	56,334	482,556	30,590
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>63,910</i>	<i>70,418</i>	<i>29,050</i>	<i>759,190</i>	<i>70,418</i>	<i>56,334</i>	<i>482,556</i>	<i>30,590</i>
Fairway - North-Bound	Diesel Engines	997	1,099	453	11,845	1,099	879	7,529	477
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>997</i>	<i>1,099</i>	<i>453</i>	<i>11,845</i>	<i>1,099</i>	<i>879</i>	<i>7,529</i>	<i>477</i>
Fairway - South-Bound	Diesel Engines	16,814	18,526	7,643	199,731	18,526	14,821	126,953	8,048
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>16,814</i>	<i>18,526</i>	<i>7,643</i>	<i>199,731</i>	<i>18,526</i>	<i>14,821</i>	<i>126,953</i>	<i>8,048</i>
Precautionary Zone - North-Bound	Diesel Engines	343	378	156	4,075	378	302	2,590	164
Precautionary Zone - North-Bound	Boiler	4	-	2	44	14	11	257	2
<i>Total Precautionary Zone - North-Bound</i>		<i>347</i>	<i>378</i>	<i>158</i>	<i>4,119</i>	<i>392</i>	<i>314</i>	<i>2,847</i>	<i>166</i>
Precautionary Zone - South-Bound	Diesel Engines	12,993	14,315	5,906	154,338	14,315	11,452	98,100	6,219
Precautionary Zone - South-Bound	Boiler	163	-	82	1,662	527	422	9,721	86
<i>Total Precautionary Zone - South-Bound</i>		<i>13,156</i>	<i>14,315</i>	<i>5,987</i>	<i>155,999</i>	<i>14,843</i>	<i>11,874</i>	<i>107,821</i>	<i>6,305</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,864	4,257	1,756	45,899	4,257	3,406	29,174	1,849
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	65	-	33	664	211	169	3,887	34
<i>Total Outer Harbor Zone2</i>		<i>3,929</i>	<i>4,257</i>	<i>1,789</i>	<i>46,563</i>	<i>4,468</i>	<i>3,575</i>	<i>33,061</i>	<i>1,884</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor berths) ⁽²⁾	Diesel Engines	4,496	4,954	2,044	53,410	4,954	3,963	33,948	2,152
Inner Harbor Zone (maneuvering through main channel: inner harbor berths) ⁽²⁾	Boiler	76	-	38	773	245	196	4,523	40
<i>Total Inner Harbor Zone</i>		<i>4,572</i>	<i>4,954</i>	<i>2,082</i>	<i>54,183</i>	<i>5,199</i>	<i>4,159</i>	<i>38,471</i>	<i>2,192</i>
Hotelling	Diesel Engines	41,855	46,116	19,025	497,191	46,116	36,893	316,024	20,033
Hotelling	Boiler	1,423	-	712	14,496	4,600	3,680	84,805	749
<i>Total Hotelling</i>		<i>43,278</i>	<i>46,116</i>	<i>19,737</i>	<i>511,687</i>	<i>50,716</i>	<i>40,573</i>	<i>400,829</i>	<i>20,783</i>
Total (lb/yr)		148,517	161,730	67,586	1,761,296	167,328	133,862	1,211,494	71,169
boilers only						5,998			912
Average Day (lb/day) - Transit		288.3	316.8	131.1	3,423.6	319.5	255.6	2,221.0	138.0
Average Day (lb/day) - Hotelling		118.6	126.3	54.1	1401.9	138.9	111.2	1098.2	56.9

*Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year*

*NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year*

*Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
 - 2. All berths occupied.
 - 3. Annual emissions are based on 30% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm.
 - 4. Maximum of 2 one-way trips per vessel.
 - 5. IMO compliance rate for NOx = 53%
 - 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed
 - 7. Annual emissions assume 30% compliance with VSRP to 40 nm.
 - 8. Inner Harbor AMP compliance in 2011 assumed to be 30%
- Total Vessels in 2011: 269
 Percent of North-Bound Vessels: 2.9%
 Percent of South-Bound Vessels: 97.1%
- Inner Harbor Berths: 3
 Outer Harbor Berths: 0

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	851	492	387	9,444	492	394	1,483	407
Sea / Fairway - North-Bound	Boiler								
Total in Sea / Fairway - North-Bound		851	492	387	9,444	492	394	1,483	407
Sea / Fairway - South-Bound	Diesel Engines	35,940	20,780	16,337	398,806	20,780	16,624	62,623	17,202
Sea / Fairway - South-Bound	Boiler								
Total in Sea / Fairway - South-Bound		35,940	20,780	16,337	398,806	20,780	16,624	62,623	17,202
Fairway - North-Bound	Diesel Engines	1,019	589	463	11,312	589	472	1,776	488
Fairway - North-Bound	Boiler								
Total in Fairway - North-Bound		1,019	589	463	11,312	589	472	1,776	488
Fairway - South-Bound	Diesel Engines	17,189	9,938	7,813	190,733	9,938	7,951	29,950	8,227
Fairway - South-Bound	Boiler								
Total in Fairway - South-Bound		17,189	9,938	7,813	190,733	9,938	7,951	29,950	8,227
Precautionary Zone - North-Bound	Diesel Engines	351	203	159	3,892	203	162	611	168
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
Total Precautionary Zone - North-Bound		355	203	162	3,934	210	168	672	170
Precautionary Zone - South-Bound	Diesel Engines	13,282	7,680	6,037	147,385	7,680	6,144	23,143	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
Total Precautionary Zone - South-Bound		13,449	7,680	6,121	148,978	7,962	6,370	25,437	6,445
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	1,053	609	479	11,688	609	487	1,835	504
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	18	-	9	170	30	24	245	9
Total Outer Harbor Zone1		1,071	609	488	11,858	639	511	2,080	514
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	2,633	1,523	1,197	29,221	1,523	1,218	4,588	1,260
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	44	-	22	425	75	60	611	23
Total Outer Harbor Zone2		2,678	1,523	1,219	29,646	1,598	1,278	5,200	1,284
Inner Harbor Zone (maneuvering through main channel: int)	Diesel Engines	3,064	1,772	1,393	34,002	1,772	1,417	5,339	1,467
Inner Harbor Zone (maneuvering through main channel: int)	Boiler	52	-	26	494	88	70	711	27
Total Inner Harbor Zone		3,116	1,772	1,419	34,497	1,859	1,488	6,051	1,494
Hotelling	Diesel Engines	11,140	6,441	5,063	123,610	6,441	5,153	19,410	5,332
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
Total Hotelling		12,595	6,441	5,791	137,513	8,909	7,127	39,417	6,098
Total (lb/yr)		88,264	50,026	40,199	976,720	52,978	42,382	174,689	42,329
boilers only						2,951			916
Average Day (lb/day) - Transit		207.3	119.4	94.3	2,299.2	120.7	96.6	370.6	99.3
Average Day (lb/day) - Hotelling		34.5	17.6	15.9	376.7	24.4	19.5	108.0	16.7

$Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-way) Trips * Vessels per Year$

$Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NO_x = 59%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

Total Vessels in 2015:	275	Inner Harbor Berths:	2
Percent of North-Bound Vessels:	2.9%	Outer Harbor Berths:	1
Percent of South-Bound Vessels:	97.1%		

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	851	492	387	9,371	492	394	1,483	407
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		851	492	387	9,371	492	394	1,483	407
Sea / Fairway - South-Bound	Diesel Engines	35,940	20,780	16,337	395,753	20,780	16,624	62,623	17,202
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		35,940	20,780	16,337	395,753	20,780	16,624	62,623	17,202
Fairway - North-Bound	Diesel Engines	1,019	589	463	11,225	589	472	1,776	488
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,019	589	463	11,225	589	472	1,776	488
Fairway - South-Bound	Diesel Engines	17,189	9,938	7,813	189,273	9,938	7,951	29,950	8,227
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		17,189	9,938	7,813	189,273	9,938	7,951	29,950	8,227
Precautionary Zone - North-Bound	Diesel Engines	351	203	159	3,862	203	162	611	168
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
Total Precautionary Zone - North-Bound		355	203	162	3,904	210	168	672	170
Precautionary Zone - South-Bound	Diesel Engines	13,282	7,680	6,037	146,256	7,680	6,144	23,143	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
Total Precautionary Zone - South-Bound		13,449	7,680	6,121	147,850	7,963	6,370	25,437	6,445
Outer Harbor Zone1 (vessels bound to out)	Diesel Engines	1,053	609	479	11,599	609	487	1,835	504
Outer Harbor Zone1 (vessels bound to out)	Boiler	18	-	9	170	30	24	245	9
Total Outer Harbor Zone1		1,071	609	488	11,769	639	511	2,080	514
Outer Harbor Zone2 (vessels bound to inn)	Diesel Engines	2,633	1,523	1,197	28,997	1,523	1,218	4,588	1,260
Outer Harbor Zone2 (vessels bound to inn)	Boiler	44	-	22	425	75	60	611	23
Total Outer Harbor Zone2		2,678	1,523	1,219	29,422	1,598	1,278	5,200	1,284
Inner Harbor Zone (maneuvering through r	Diesel Engines	3,064	1,772	1,393	33,742	1,772	1,417	5,339	1,467
Inner Harbor Zone (maneuvering through r	Boiler	52	-	26	494	88	70	711	27
Total Inner Harbor Zone		3,116	1,772	1,419	34,236	1,859	1,488	6,051	1,494
Hotelling	Diesel Engines	11,140	6,441	5,063	122,663	6,441	5,153	19,410	5,332
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
Total Hotelling		12,595	6,441	5,791	136,566	8,909	7,127	39,417	6,098
Total (lb/yr)		88,264	50,026	40,199	969,370	52,978	42,382	174,689	42,329
	boilers only					2,951			916
Average Day (lb/day) - Transit		207.3	119.4	94.3	2,281.7	120.7	96.6	370.6	99.3
Average Day (lb/day) - Hotelling		34.5	17.6	15.9	374.2	24.4	19.5	108.0	16.7

Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

1. Maximum of 1 ship per day per berth.

2. All berths occupied.

3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals

4. Maximum of 2 one-way trips per vessel.

5. IMO compliance rate for NOx = 69%

6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed

7. Annual emissions assume 100% compliance with VSRP to 40 nm.

8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

Total Vessels in 2022:

275

Percent of North-Bound Vessels:

2.9%

Percent of South-Bound Vessels:

97.1%

Inner Harbor Berths:

2

Outer Harbor Berths:

1

Mitigated Alternative 1 Criteria Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	851	492	387	9,311	492	394	1,483	407
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>851</i>	<i>492</i>	<i>387</i>	<i>9,311</i>	<i>492</i>	<i>394</i>	<i>1,483</i>	<i>407</i>
Sea / Fairway - South-Bound	Diesel Engines	35,940	20,780	16,337	393,181	20,780	16,624	62,623	17,202
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>35,940</i>	<i>20,780</i>	<i>16,337</i>	<i>393,181</i>	<i>20,780</i>	<i>16,624</i>	<i>62,623</i>	<i>17,202</i>
Fairway - North-Bound	Diesel Engines	1,019	589	463	11,152	589	472	1,776	488
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,019</i>	<i>589</i>	<i>463</i>	<i>11,152</i>	<i>589</i>	<i>472</i>	<i>1,776</i>	<i>488</i>
Fairway - South-Bound	Diesel Engines	17,189	9,938	7,813	188,043	9,938	7,951	29,950	8,227
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>17,189</i>	<i>9,938</i>	<i>7,813</i>	<i>188,043</i>	<i>9,938</i>	<i>7,951</i>	<i>29,950</i>	<i>8,227</i>
Precautionary Zone - North-Bound	Diesel Engines	351	203	159	3,837	203	162	611	168
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
<i>Total Precautionary Zone - North-Bound</i>		<i>355</i>	<i>203</i>	<i>162</i>	<i>3,879</i>	<i>210</i>	<i>168</i>	<i>672</i>	<i>170</i>
Precautionary Zone - South-Bound	Diesel Engines	13,282	7,680	6,037	145,306	7,680	6,144	23,143	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
<i>Total Precautionary Zone - South-Bound</i>		<i>13,449</i>	<i>7,680</i>	<i>6,121</i>	<i>146,900</i>	<i>7,962</i>	<i>6,370</i>	<i>25,437</i>	<i>6,445</i>
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	1,053	609	479	11,523	609	487	1,835	504
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	18	-	9	170	30	24	245	9
<i>Total Outer Harbor Zone1</i>		<i>1,071</i>	<i>609</i>	<i>488</i>	<i>11,693</i>	<i>639</i>	<i>511</i>	<i>2,080</i>	<i>514</i>
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	2,633	1,523	1,197	28,809	1,523	1,218	4,588	1,260
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	44	-	22	425	75	60	611	23
<i>Total Outer Harbor Zone2</i>		<i>2,678</i>	<i>1,523</i>	<i>1,219</i>	<i>29,234</i>	<i>1,598</i>	<i>1,278</i>	<i>5,200</i>	<i>1,284</i>
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	3,064	1,772	1,393	33,523	1,772	1,417	5,339	1,467
Inner Harbor Zone (maneuvering through main channel)	Boiler	52	-	26	494	88	70	711	27
<i>Total Inner Harbor Zone</i>		<i>3,116</i>	<i>1,772</i>	<i>1,419</i>	<i>34,017</i>	<i>1,859</i>	<i>1,488</i>	<i>6,051</i>	<i>1,494</i>
Hotelling	Diesel Engines	11,140	6,441	5,063	121,866	6,441	5,153	19,410	5,332
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
<i>Total Hotelling</i>		<i>12,595</i>	<i>6,441</i>	<i>5,791</i>	<i>135,769</i>	<i>8,909</i>	<i>7,127</i>	<i>39,417</i>	<i>6,098</i>
Total (lb/yr)		88,264	50,026	40,199	963,179	52,978	42,382	174,689	42,329
boilers only						2,951			916
Average Day (lb/day) - Transit		207.3	119.4	94.3	2,266.9	120.7	96.6	370.6	99.3
Average Day (lb/day) - Hotelling		34.5	17.6	15.9	372.0	24.4	19.5	108.0	16.7

*Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year*

*NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year*

*Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year*

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

1. Maximum of 1 ship per day per berth.

2. All berths occupied.

3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals

4. Maximum of 2 one-way trips per vessel.

5. IMO compliance rate for NOx = 78%

6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed

7. Annual emissions assume 100% compliance with VSRP to 40 nm.

8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

Total Vessels in 2037: 275
 Percent of North-Bound Vessels: 2.9%
 Percent of South-Bound Vessels: 97.1%
 Inner Harbor Berths: 2
 Outer Harbor Berths: 1

Mitigated Alternative 1 Toxic Pollutant Emissions

Year: 2011

Peak Hourly (lb/h) for Single Unmitigated/Mitigated Combined Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	
Sea / Fairway - North-Bound	Diesel Engines	3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083		0.00299	0.00664
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083		0.00299	0.00664
Sea / Fairway - South-Bound	Diesel Engines	4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098		0.00353	0.00785
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098		0.00353	0.00785
Fairway - North-Bound	Diesel Engines	2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.31908	0.00047		0.00169	0.00375
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.31908	0.00047		0.00169	0.00375
Fairway - South-Bound	Diesel Engines	1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.22603	0.00033		0.00120	0.00266
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.22603	0.00033		0.00120	0.00266
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.12697	0.00019		0.00067	0.00149
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	0.00605	0.00001		0.00003	0.00007
Total Precautionary Zone - North-Bound		0.83167	0.22808	1.68596	0.11407	0.00966	0.02042	0.29916	0.17188	0.13302	0.00020		0.00070	0.00156
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.14390	0.00021		0.00076	0.00169
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	0.00686	0.00001		0.00004	0.00008
Total Precautionary Zone - South-Bound		0.94255	0.25849	1.91076	0.12928	0.01095	0.02314	0.33905	0.19480	0.15075	0.00022		0.00080	0.00177
Outer Harbor Zone1 (vessels bound to outer harbor berths) ²⁰	Diesel Engines	0.22079	0.05961	0.44754	0.02981	0.00251	0.00477	0.07757	0.04475	0.03371	0.00005		0.00018	0.00040
Outer Harbor Zone1 (vessels bound to outer harbor berths) ²⁰	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	0.00213	0.00000		0.00001	0.00003
Total Outer Harbor Zone1		0.22079	0.06077	0.44759	0.03040	0.00255	0.00563	0.08002	0.04591	0.03584	0.00005		0.00019	0.00043
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²⁰	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.04213	0.00006		0.00022	0.00050
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²⁰	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	0.00266	0.00000		0.00001	0.00003
Total Outer Harbor Zone2		0.27599	0.07604	0.55950	0.03804	0.00322	0.00704	0.10003	0.05740	0.04480	0.00007		0.00024	0.00053
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.04903	0.00007		0.00026	0.00058
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	0.00310	0.00000		0.00002	0.00004
Total Inner Harbor Zone		0.32115	0.08849	0.65105	0.04426	0.00374	0.00819	0.11640	0.06679	0.05213	0.00008		0.00028	0.00061
Holding	Diesel Engines	0.69121	0.18681	1.40109	0.09341	0.00794	0.01494	0.24286	0.14011	0.10553	0.00016		0.00056	0.00124
Holding	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	0.00968	0.00001		0.00005	0.00011
Total Holding		0.69121	0.19210	1.40134	0.09610	0.00811	0.01884	0.25398	0.14539	0.11521	0.00017		0.00061	0.00135

First Peak Hour Scenario (per vessel) 1.760 0.484 3.569 0.242 0.020 0.044 0.635 0.365 0.284 0.000 0.002 0.003
 First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.
 Second Peak Hour Scenario (per vessel) 0.891 0.192 1.401 0.096 0.006 0.019 0.254 0.146 0.115 0.000 0.001 0.001
 Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc	
0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	-	0.02109	0.07274
0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	-	0.02109	0.07274
0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	-	0.02491	0.08593
0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	-	0.02491	0.08593
0.00235	0.00394	0.00375	0.00282	0.00178	1.63294	0.00272	0.00338	-	0.00006	-	0.01192	0.04111
0.00235	0.00394	0.00375	0.00282	0.00178	1.63294	0.00272	0.00338	-	0.00006	-	0.01192	0.04111
0.00166	0.00279	0.00266	0.00199	0.00126	1.15674	0.00193	0.00239	-	0.00004	-	0.00844	0.02912
0.00166	0.00279	0.00266	0.00199	0.00126	1.15674	0.00193	0.00239	-	0.00004	-	0.00844	0.02912
0.00093	0.00157	0.00149	0.00112	0.00071	0.64978	0.00108	0.00134	-	0.00002	-	0.00474	0.01636
0.00004	0.00007	0.00007	0.00005	0.00003	0.03096	0.00005	0.00006	-	0.00000	-	0.00023	0.00078
0.00098	0.00164	0.00156	0.00117	0.00074	0.68074	0.00113	0.00147	-	0.00002	-	0.00497	0.01714
0.00106	0.00178	0.00169	0.00127	0.00080	0.73642	0.00123	0.00152	-	0.00003	-	0.00538	0.01854
0.00005	0.00008	0.00008	0.00006	0.00004	0.03509	0.00006	0.00007	-	0.00000	-	0.00026	0.00088
0.00111	0.00186	0.00177	0.00133	0.00084	0.77151	0.00129	0.00160	-	0.00003	-	0.00563	0.01942
0.00025	0.00042	0.00040	0.00030	0.00019	0.17250	0.00029	0.00036	-	0.00001	-	0.00126	0.00434
0.00002	0.00003	0.00003	0.00002	0.00001	0.01090	0.00002	0.00002	-	0.00000	-	0.00008	0.00027
0.00025	0.00042	0.00042	0.00032	0.00020	0.18230	0.00031	0.00038	-	0.00001	-	0.00134	0.00446
0.00031	0.00052	0.00050	0.00037	0.00024	0.21563	0.00036	0.00045	-	0.00001	-	0.00157	0.00543
0.00002	0.00003	0.00003	0.00002	0.00001	0.01362	0.00002	0.00003	-	0.00000	-	0.00010	0.00034
0.00033	0.00055	0.00053	0.00040	0.00025	0.22925	0.00038	0.00047	-	0.00001	-	0.00167	0.00577
0.00036	0.00061	0.00058	0.00043	0.00027	0.25091	0.00042	0.00052	-	0.00001	-	0.00183	0.00632
0.00002	0.00004	0.00004	0.00003	0.00002	0.01585	0.00003	0.00003	-	0.00000	-	0.00012	0.00040
0.00038	0.00064	0.00061	0.00046	0.00029	0.26677	0.00044	0.00055	-	0.00001	-	0.00195	0.00632
0.00078	0.00130	0.00124	0.00093	0.00059	0.54004	0.00090	0.00112	-	0.00002	-	0.00394	0.01359
0.00007	0.00012	0.00011	0.00009	0.00005	0.04954	0.00008	0.00010	-	0.00000	-	0.00036	0.00125
0.00085	0.00142	0.00136	0.00102	0.00064	0.58958	0.00098	0.00122	-	0.00002	-	0.00430	0.01481
0.002	0.004	0.003	0.003	0.002	1.451	0.002	0.003	-	0.000	-	0.011	0.037
0.001	0.001	0.001	0.001	0.001	0.590	0.001	0.001	-	0.000	-	0.004	0.016

Mitigated Alternative 1 Toxic Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	
Sea / Fairway - North-Bound	Diesel Engines	4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603		0.86886	0.65440	0.00096	0.00346
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total In Sea / Fairway - North-Bound		4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603		0.86886	0.65440	0.00096	0.00346
Sea / Fairway - South-Bound	Diesel Engines	5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910		1.02640	0.77305	0.00114	0.00409
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total In Sea / Fairway - South-Bound		5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910		1.02640	0.77305	0.00114	0.00409
Fairway - North-Bound	Diesel Engines	2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015		0.48470	0.36506	0.00054	0.00193
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total In Fairway - North-Bound		2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015		0.48470	0.36506	0.00054	0.00193
Fairway - South-Bound	Diesel Engines	1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399		0.34268	0.25810	0.00038	0.00137
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total In Fairway - South-Bound		1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399		0.34268	0.25810	0.00038	0.00137
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956		0.19013	0.14320	0.00021	0.00076
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429		0.00248	0.00605	0.00001	0.00003
Total Precautionary Zone - North-Bound		0.95019	0.25681	1.92607	0.12840	0.01091	0.02054	0.33385		0.19261	0.14925	0.00022	0.00079
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350		0.21548	0.16229	0.00024	0.00086
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487		0.00281	0.00686	0.00001	0.00004
Total Precautionary Zone - South-Bound		1.07689	0.29105	2.18288	0.14553	0.01237	0.02328	0.37837		0.21829	0.16915	0.00025	0.00090
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520		0.04916	0.03702	0.00005	0.00020
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151		0.00087	0.00213	0.00000	0.00001
Total Outer Harbor Zone1		0.24681	0.06670	0.50029	0.03335	0.00283	0.00533	0.08671		0.05003	0.03915	0.00005	0.00021
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651		0.06145	0.04628	0.00007	0.00025
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189		0.00109	0.00266	0.00000	0.00001
Total Outer Harbor Zone2		0.30851	0.08338	0.62536	0.04169	0.00354	0.00667	0.10840		0.06254	0.04894	0.00007	0.00026
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393		0.07150	0.05385	0.00008	0.00029
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220		0.00127	0.00310	0.00000	0.00002
Total Inner Harbor Zone		0.35899	0.09703	0.72769	0.04851	0.00412	0.00776	0.12613		0.07277	0.05695	0.00008	0.00030
Hotelling	Diesel Engines	0.75090	0.20295	1.52210	0.10147	0.00863	0.01624	0.26383		0.15221	0.11464	0.00017	0.00061
Hotelling	Boiler	0.01955	0.00529	0.03964	0.00284	0.00022	0.00042	0.00687		0.00396	0.00968	0.00001	0.00005
Total Hotelling		0.77045	0.20824	1.56174	0.10431	0.00885	0.01666	0.27070		0.15617	0.12432	0.00018	0.00066
First Peak Hour Scenario (per vessel)		1.991	0.538	4.036	0.269	0.023	0.043	0.700		0.404	0.314	0.000	0.002
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors		0.770	0.208	1.562	0.104	0.009	0.017	0.271		0.156	0.124	0.000	0.001
Second Peak Hour Scenario (per vessel)		0.770	0.208	1.562	0.104	0.009	0.017	0.271		0.156	0.124	0.000	0.001
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity		0.770	0.208	1.562	0.104	0.009	0.017	0.271		0.156	0.124	0.000	0.001
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:		0.0											

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorus	Zinc	
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558		0.00693	-	0.00012	0.02444	0.08430
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558		0.00693	-	0.00012	0.02444	0.08430
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659		0.00819	-	0.00014	0.02888	0.09959
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659		0.00819	-	0.00014	0.02888	0.09959
0.00429	0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311		0.00387	-	0.00006	0.01364	0.04703
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00429	0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311		0.00387	-	0.00006	0.01364	0.04703
0.00304	0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220		0.00273	-	0.00005	0.00964	0.03325
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00304	0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220		0.00273	-	0.00005	0.00964	0.03325
0.00168	0.00105	0.00177	0.00168	0.00126	0.00080	0.73284	0.00122		0.00152	-	0.00003	0.00535	0.01845
0.00007	0.00004	0.00007	0.00007	0.00005	0.00003	0.03096	0.00005		0.00006	-	0.00000	0.00023	0.00078
0.00176	0.00110	0.00184	0.00176	0.00132	0.00083	0.76380	0.00127		0.00158	-	0.00003	0.00557	0.01923
0.00191	0.00119	0.00200	0.00191	0.00143	0.00091	0.83055	0.00138		0.00172	-	0.00003	0.00606	0.02091
0.00008	0.00005	0.00008	0.00008	0.00006	0.00004	0.03509	0.00006		0.00007	-	0.00000	0.00026	0.00088
0.00199	0.00124	0.00209	0.00199	0.00149	0.00095	0.86564	0.00144		0.00179	-	0.00003	0.00632	0.02179
0.00044	0.00027	0.00046	0.00044	0.00033	0.00021	0.18947	0.00032		0.00039	-	0.00001	0.00138	0.00477
0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01090	0.00002		0.00002	-	0.00000	0.00008	0.00027
0.00246	0.00209	0.00246	0.00246	0.00235	0.00222	0.30213	0.00231		0.00244	-	0.00015	0.00246	0.00504
0.00054	0.00034	0.00057	0.00054	0.00041	0.00026	0.23684	0.00039		0.00049	-	0.00001	0.00173	0.00596
0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01362	0.00002		0.00003	-	0.00000	0.00010	0.00034
0.00058	0.00036	0.00060	0.00058	0.00043	0.00027	0.25046	0.00042		0.00052	-	0.00007	0.00183	0.00630
0.00063	0.00040	0.00067	0.00063	0.00048	0.00030	0.27559	0.00046		0.00057	-	0.00001	0.00201	0.00694
0.00004	0.00002	0.00004	0.00004	0.00003	0.00002	0.01585	0.00003		0.00003	-	0.00000	0.00012	0.00040
0.00067	0.00042	0.00070	0.00067	0.00050	0.00032	0.29145	0.00049		0.00060	-	0.00007	0.00213	0.00734
0.00135	0.00084	0.00142	0.00135	0.00101	0.00064	0.58668	0.00098		0.00121	-	0.00002	0.00428	0.01477
0.00011	0.00007	0.00012	0.00011	0.00009	0.00005	0.04954	0.00008		0.00010	-	0.00000	0.00036	0.00125
0.00146	0.00097	0.00154	0.00146	0.00110	0.00069	0.63622	0.00106		0.00122	-	0.00002	0.00464	0.01602
0.004	0.002	0.004	0.004	0.003	0.002	1.608	0.003		0.003	-	0.000	0.012	0.040
0.001	0.001	0.002	0.001	0.001	0.001	0.636	0.001		0.001	-	0.000	0.005	0.010

Mitigated Alternative 1 Toxic Pollutant Emissions

Year: 2015-

Peak Hourly (lb/h) for Single Unmitigated/Mitigated Combined Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	
Sea / Fairway - North-Bound	Diesel Engines	2.51453	0.67960	5.09701	0.33980	0.02888	0.05437	0.88348	0.50970	0.31475	0.00046		0.00167	0.00370
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		2.51453	0.67960	5.09701	0.33980	0.02888	0.05437	0.88348	0.50970	0.31475	0.00046		0.00167	0.00370
Sea / Fairway - South-Bound	Diesel Engines	2.84982	0.77022	5.77666	0.38511	0.03273	0.06162	1.00129	0.57767	0.36594	0.00054		0.00194	0.00431
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		2.84982	0.77022	5.77666	0.38511	0.03273	0.06162	1.00129	0.57767	0.36594	0.00054		0.00194	0.00431
Fairway - North-Bound	Diesel Engines	2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.24995	0.00037		0.00132	0.00294
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.24995	0.00037		0.00132	0.00294
Fairway - South-Bound	Diesel Engines	1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.16266	0.00024		0.00086	0.00191
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.16266	0.00024		0.00086	0.00191
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.08376	0.00012		0.00044	0.00099
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00382	0.00001		0.00002	0.00004
Total Precautionary Zone - North-Bound		0.84389	0.22808	1.71058	0.11404	0.00969	0.01825	0.29650	0.17106	0.08758	0.00013		0.00046	0.00103
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.09493	0.00014		0.00050	0.00112
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00433	0.00001		0.00002	0.00005
Total Precautionary Zone - South-Bound		0.95641	0.25849	1.93866	0.12924	0.01099	0.02068	0.33603	0.19387	0.09926	0.00015		0.00052	0.00117
Outer Harbor Zone1 (vessels bound to outer harbor berths) ²⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.02224	0.00003		0.00012	0.00026
Outer Harbor Zone1 (vessels bound to outer harbor berths) ²⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00134	0.00000		0.00001	0.00002
Total Outer Harbor Zone1		0.22509	0.06084	0.45626	0.03042	0.00259	0.00487	0.07909	0.04563	0.02358	0.00003		0.00012	0.00028
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.02780	0.00004		0.00015	0.00033
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00168	0.00000		0.00001	0.00002
Total Outer Harbor Zone2		0.28136	0.07604	0.57033	0.03803	0.00323	0.00609	0.09886	0.05703	0.02948	0.00004		0.00016	0.00035
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.03234	0.00005		0.00017	0.00038
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00196	0.00000		0.00001	0.00002
Total Inner Harbor Zone		0.32740	0.08849	0.66366	0.04424	0.00376	0.00708	0.11503	0.06637	0.03430	0.00005		0.00018	0.00040
Hotelling	Diesel Engines	0.31440	0.10119	0.75893	0.05060	0.00430	0.00810	0.13155	0.07589	0.05417	0.00008		0.00029	0.00084
Hotelling	Boiler	0.01955	0.00523	0.03864	0.00284	0.00022	0.00042	0.00687	0.00396	0.00611	0.00001		0.00003	0.00007
Total Hotelling		0.33395	0.10642	0.79757	0.05344	0.00452	0.00852	0.13842	0.07985	0.06028	0.00009		0.00032	0.00091
First Peak Hour Scenario (per vessel)		1.790	0.484	3.629	0.242	0.021	0.039	0.629	0.363	0.187	0.000		0.001	0.002
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.														
Second Peak Hour Scenario (per vessel)		0.194	0.106	0.799	0.053	0.005	0.009	0.138	0.080	0.040	0.000		0.000	0.001
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.														

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

1.0 2015+ years

Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc	
0.00231	0.00389	0.00370	0.00278	0.00176	1.61080	0.00268	0.00333	-	0.00006		0.01176	0.04055
0.00231	0.00389	0.00370	0.00278	0.00176	1.61080	0.00268	0.00333	-	0.00006		0.01176	0.04055
0.00269	0.00452	0.00431	0.00323	0.00204	1.87276	0.00312	0.00387	-	0.00006		0.01367	0.04714
0.00269	0.00452	0.00431	0.00323	0.00204	1.87276	0.00312	0.00387	-	0.00006		0.01367	0.04714
0.00184	0.00309	0.00294	0.00221	0.00140	1.27913	0.00213	0.00265	-	0.00004		0.00934	0.03220
0.00184	0.00309	0.00294	0.00221	0.00140	1.27913	0.00213	0.00265	-	0.00004		0.00934	0.03220
0.00120	0.00201	0.00191	0.00144	0.00091	0.83242	0.00139	0.00172	-	0.00003		0.00608	0.02095
0.00120	0.00201	0.00191	0.00144	0.00091	0.83242	0.00139	0.00172	-	0.00003		0.00608	0.02095
0.00062	0.00103	0.00099	0.00074	0.00047	0.42865	0.00071	0.00089	-	0.00001		0.00313	0.01079
0.00003	0.00005	0.00004	0.00003	0.00002	0.01955	0.00003	0.00004	-	0.00000		0.00014	0.00049
0.00064	0.00108	0.00103	0.00077	0.00049	0.44820	0.00075	0.00093	-	0.00002		0.00327	0.01128
0.00070	0.00117	0.00112	0.00084	0.00053	0.48581	0.00081	0.00101	-	0.00002		0.00355	0.01223
0.00003	0.00005	0.00005	0.00004	0.00002	0.02215	0.00004	0.00005	-	0.00000		0.00016	0.00056
0.00073	0.00123	0.00117	0.00088	0.00055	0.50796	0.00085	0.00105	-	0.00002		0.00371	0.01279
0.00016	0.00027	0.00026	0.00020	0.00012	0.11380	0.00019	0.00024	-	0.00000		0.00083	0.00286
0.00001	0.00002	0.00002	0.00001	0.00001	0.00688	0.00001	0.00001	-	0.00000		0.00005	0.00017
0.00017	0.00029	0.00028	0.00021	0.00013	0.12068	0.00020	0.00025	-	0.00000		0.00088	0.00304
0.00020	0.00034	0.00033	0.00025	0.00016	0.14225	0.00024	0.00029	-	0.00000		0.00104	0.00358
0.00001	0.00002	0.00002	0.00001	0.00001	0.00860	0.00001	0.00002	-	0.00000		0.00006	0.00022
0.00022	0.00036	0.00035	0.00026	0.00016	0.15085	0.00025	0.00031	-	0.00001		0.00110	0.00380
0.00024	0.00040	0.00038	0.00029	0.00018	0.16552	0.00028	0.00034	-	0.00001		0.00121	0.00417
0.00001	0.00002	0.00002	0.00002	0.00001	0.01001	0.00002	0.00002	-	0.00000		0.00007	0.00025
0.00025	0.00042	0.00040	0.00030	0.00019	0.17553	0.00029	0.00036	-	0.00001		0.00128	0.00442
0.00040	0.00061	0.00064	0.00048	0.00030	0.27121	0.00046	0.00051	-	0.00001		0.00252	0.00698
0.00004	0.00008	0.00007	0.00005	0.00003	0.03128	0.00005	0.00006	-	0.00000		0.00023	0.00079
0.00004	0.00009	0.00007	0.00005	0.00003	0.03648	0.00005	0.00006	-	0.00000		0.00025	0.00077
0.001	0.002	0.002	0.002	0.001	0.955	0.002	0.002	-	0.000		0.007	0.024
0.000	0.001	0.001	0.001	0.000	0.308	0.001	0.001	-	0.000		0.002	0.008

Mitigated Alternative 1 Toxic Pollutant Emissions

Year: 2015-

Peak Hourly (lb/h) for Single Unmitigated/Mitigated Combined Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	Copper	
Sea / Fairway - North-Bound	Diesel Engines	2.89357	0.78205	5.86535	0.39102	0.03324	0.06256	1.01666		0.58654	0.36379	0.00053	0.00193	0.00428	0.00267
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		2.89357	0.78205	5.86535	0.39102	0.03324	0.06256	1.01666		0.58654	0.36379	0.00053	0.00193	0.00428	0.00267
Sea / Fairway - South-Bound	Diesel Engines	3.28217	0.88707	6.65306	0.44354	0.03770	0.07097	1.15320		0.66531	0.42311	0.00062	0.00224	0.00498	0.00311
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		3.28217	0.88707	6.65306	0.44354	0.03770	0.07097	1.15320		0.66531	0.42311	0.00062	0.00224	0.00498	0.00311
Fairway - North-Bound	Diesel Engines	2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015		0.48470	0.28709	0.00042	0.00152	0.00338	0.00211
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015		0.48470	0.28709	0.00042	0.00152	0.00338	0.00211
Fairway - South-Bound	Diesel Engines	1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399		0.34268	0.18662	0.00027	0.00099	0.00220	0.00137
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399		0.34268	0.18662	0.00027	0.00099	0.00220	0.00137
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956		0.19013	0.09447	0.00014	0.00050	0.00111	0.00069
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429		0.00248	0.00382	0.00001	0.00002	0.00004	0.00003
Total Precautionary Zone - North-Bound		0.95019	0.25681	1.92607	0.12840	0.01091	0.02054	0.33385		0.19261	0.09829	0.00014	0.00052	0.00116	0.00072
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350		0.21548	0.10706	0.00016	0.00057	0.00126	0.00079
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487		0.00281	0.00433	0.00001	0.00002	0.00005	0.00003
Total Precautionary Zone - South-Bound		1.07689	0.29105	2.18288	0.14553	0.01237	0.02328	0.37837		0.21829	0.11139	0.00016	0.00059	0.00131	0.00082
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520		0.04916	0.02442	0.00004	0.00013	0.00029	0.00018
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151		0.00087	0.00134	0.00000	0.00001	0.00002	0.00001
Total Outer Harbor Zone1		0.24681	0.06671	0.50029	0.03335	0.00283	0.00534	0.08672		0.05003	0.02577	0.00004	0.00014	0.00030	0.00019
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651		0.06145	0.03053	0.00004	0.00016	0.00036	0.00022
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189		0.00109	0.00168	0.00000	0.00001	0.00002	0.00001
Total Outer Harbor Zone2		0.30851	0.08338	0.62536	0.04169	0.00354	0.00667	0.10840		0.06254	0.03221	0.00005	0.00017	0.00038	0.00024
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393		0.07150	0.03553	0.00005	0.00019	0.00042	0.00026
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220		0.00127	0.00196	0.00000	0.00001	0.00002	0.00001
Total Inner Harbor Zone		0.35899	0.09703	0.72769	0.04851	0.00412	0.00778	0.12613		0.07277	0.03749	0.00006	0.00020	0.00044	0.00028
Hobling	Diesel Engines	0.40674	0.10993	0.82447	0.05496	0.00467	0.00879	0.14291		0.08245	0.05085	0.00009	0.00031	0.00069	0.00043
Hobling	Boiler	0.01955	0.00529	0.03944	0.00264	0.00027	0.00042	0.00687		0.00396	0.00611	0.00001	0.00003	0.00007	0.00004
Total Hobling		0.42629	0.11522	0.86411	0.05761	0.00494	0.00922	0.14978		0.08641	0.05696	0.00010	0.00034	0.00076	0.00048
First Peak Hour Scenario (per vessel)		1.991	0.538	4.036	0.269	0.023	0.043	0.700		0.404	0.207	0.000	0.001	0.002	0.002
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.															
Second Peak Hour Scenario (per vessel)		0.449	0.119	0.864	0.058	0.005	0.009	0.130		0.086	0.045	0.000	0.000	0.001	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.															

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

2.0 2015+ years

Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc	
0.00449	0.00428	0.00321	0.00203	1.86172	0.00310		0.00385	-	0.00006	0.01359	0.04686
-	-	-	-	-	-		-	-	-	-	-
0.00449	0.00428	0.00321	0.00203	1.86172	0.00310		0.00385	-	0.00006	0.01359	0.04686
0.00523	0.00498	0.00373	0.00236	2.16534	0.00361		0.00448	-	0.00007	0.01580	0.05451
-	-	-	-	-	-		-	-	-	-	-
0.00523	0.00498	0.00373	0.00236	2.16534	0.00361		0.00448	-	0.00007	0.01580	0.05451
0.00355	0.00338	0.00253	0.00160	1.46922	0.00245		0.00304	-	0.00005	0.01072	0.03698
-	-	-	-	-	-		-	-	-	-	-
0.00355	0.00338	0.00253	0.00160	1.46922	0.00245		0.00304	-	0.00005	0.01072	0.03698
0.00231	0.00220	0.00165	0.00104	0.95507	0.00159		0.00198	-	0.00003	0.00697	0.02404
-	-	-	-	-	-		-	-	-	-	-
0.00231	0.00220	0.00165	0.00104	0.95507	0.00159		0.00198	-	0.00003	0.00697	0.02404
0.00117	0.00111	0.00083	0.00053	0.48345	0.00081		0.00100	-	0.00002	0.00353	0.01217
0.00005	0.00004	0.00003	0.00002	0.01955	0.00003		0.00004	-	0.00000	0.00014	0.00049
0.00121	0.00116	0.00087	0.00065	0.50299	0.00084		0.00104	-	0.00002	0.00367	0.01266
0.00132	0.00126	0.00094	0.00060	0.54790	0.00091		0.00113	-	0.00002	0.00400	0.01379
0.00005	0.00005	0.00004	0.00002	0.02215	0.00004		0.00005	-	0.00000	0.00016	0.00056
0.00138	0.00131	0.00098	0.00062	0.57006	0.00095		0.00118	-	0.00002	0.00416	0.01435
0.00030	0.00029	0.00022	0.00014	0.12499	0.00021		0.00026	-	0.00000	0.00091	0.00315
0.00002	0.00002	0.00001	0.00001	0.00688	0.00001		0.00001	-	0.00000	0.00005	0.00017
0.00032	0.00030	0.00023	0.00014	0.13187	0.00022		0.00027	-	0.00000	0.00096	0.00322
0.00038	0.00036	0.00027	0.00017	0.15624	0.00026		0.00032	-	0.00001	0.00114	0.00393
0.00002	0.00002	0.00001	0.00001	0.00860	0.00001		0.00002	-	0.00000	0.00006	0.00022
0.00040	0.00038	0.00028	0.00018	0.16484	0.00027		0.00034	-	0.00001	0.00120	0.00415
0.00044	0.00042	0.00031	0.00020	0.18181	0.00030		0.00038	-	0.00001	0.00133	0.00458
0.00002	0.00002	0.00002	0.00001	0.01001	0.00002		0.00002	-	0.00000	0.00007	0.00025
0.00046	0.00044	0.00033	0.00021	0.19187	0.00032		0.00040	-	0.00001	0.00140	0.00469
0.00073	0.00069	0.00052	0.00033	0.30115	0.00050		0.00062	-	0.00001	0.00220	0.00758
0.00008	0.00007	0.00005	0.00003	0.03128	0.00005		0.00006	-	0.00000	0.00023	0.00079
0.00080	0.00076	0.00057	0.00036	0.33242	0.00055		0.00069	-	0.00001	0.00243	0.00820
0.003	0.002	0.002	0.001	1.059	0.002		0.002	-	0.000	0.008	0.027
0.001	0.001	0.001	0.000	0.332	0.001		0.001	-	0.000	0.002	0.006

Mitigated Alternative 1 Toxic Pollutant Emissions
Year: 2011

Year (b/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	1,667										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,667</i>	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	70,418										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>70,418</i>	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	1,099										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,099</i>	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	18,526										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>18,526</i>	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	378										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>378</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	14,315										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.4	4.1	2.0	-	2.8
<i>Total Precautionary Zone - South-Bound</i>		<i>14,315</i>	-	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>4.1</i>	<i>2.0</i>	-	<i>2.8</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	4,257										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.6	0.8	-	1.1
<i>Total Outer Harbor Zone2</i>		<i>4,257</i>	-	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.8</i>	-	<i>1.1</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,954										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	1.9	0.9	-	1.3
<i>Total Inner Harbor Zone</i>		<i>4,954</i>	-	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>1.9</i>	<i>0.9</i>	-	<i>1.3</i>
Hoteling	Diesel Engines	46,116										
Hoteling	Boiler		-	17.1	0.8	8.7	0.6	12.6	35.9	17.1	-	24.8
<i>Total Hoteling</i>		<i>46,116</i>	-	<i>17.1</i>	<i>0.8</i>	<i>8.7</i>	<i>0.6</i>	<i>12.6</i>	<i>35.9</i>	<i>17.1</i>	-	<i>24.8</i>
		161,730	-	21	1	11	1	15	44	21	-	30

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	3.5	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	3.5	-	-	-	0.0	-	0.1
-	0.3	-	2.9	-	-	0.3	131.8	-	-	-	0.1	-	2.9
-	0.3	-	2.9	-	-	0.3	131.8	-	-	-	0.1	-	2.9
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.2	-	-	0.1	52.7	-	-	-	0.1	-	1.2
-	0.1	-	1.2	-	-	0.1	52.7	-	-	-	0.1	-	1.2
-	0.1	-	1.3	-	-	0.1	61.3	-	-	-	0.1	-	1.3
-	0.1	-	1.3	-	-	0.1	61.3	-	-	-	0.1	-	1.3
-	2.3	-	25.3	-	-	2.3	1,150.0	-	-	-	1.2	-	25.3
-	2.3	-	25.3	-	-	2.3	1,150.0	-	-	-	1.2	-	25.3
-	3	-	31	-	-	3	1,399	-	-	-	2	-	31

Mitigated Alternative 1 Toxic Pollutant Emissions

Year: 2015

Year (b/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	492										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>			<i>492</i>									
Sea / Fairway - South-Bound	Diesel Engines	20,780										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>			<i>20,780</i>									
Fairway - North-Bound	Diesel Engines	589										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>			<i>589</i>									
Fairway - South-Bound	Diesel Engines	9,938										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>			<i>9,938</i>									
Precautionary Zone - North-Bound	Diesel Engines	203										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
<i>Total Precautionary Zone - North-Bound</i>			<i>203</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.0</i>
Precautionary Zone - South-Bound	Diesel Engines	7,680										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5
<i>Total Precautionary Zone - South-Bound</i>			<i>7,680</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	-	<i>1.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	609										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.2	0.4	0.2	-	0.2
<i>Total Outer Harbor Zone1</i>			<i>609</i>	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.4</i>	<i>0.2</i>	-	<i>0.2</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,523										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	0.4
<i>Total Outer Harbor Zone2</i>			<i>1,523</i>	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	-	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,772										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	0.5
<i>Total Inner Harbor Zone</i>			<i>1,772</i>	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.3</i>	<i>0.6</i>	-	<i>0.5</i>
Hoteling	Diesel Engines	6,441										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3
<i>Total Hoteling</i>			<i>6,441</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	-	<i>13.3</i>
		50,026	-	21	1	11	1	15	44	21	-	16

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.0	-	0.2	-	-	0.0	7.5	-	-	-	0.0	-	0.2
-	0.0	-	0.2	-	-	0.0	7.5	-	-	-	0.0	-	0.2
-	0.0	-	0.4	-	-	0.0	18.9	-	-	-	0.0	-	0.4
-	0.0	-	0.4	-	-	0.0	18.9	-	-	-	0.0	-	0.4
-	0.0	-	0.5	-	-	0.0	21.9	-	-	-	0.0	-	0.5
-	0.0	-	0.5	-	-	0.0	21.9	-	-	-	0.0	-	0.5
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1	-	16	-	-	1	738	-	-	-	1	-	16

Mitigated Alternative 1 Toxic Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	492										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>			<i>492</i>									
Sea / Fairway - South-Bound	Diesel Engines	20,780										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>			<i>20,780</i>									
Fairway - North-Bound	Diesel Engines	589										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>			<i>589</i>									
Fairway - South-Bound	Diesel Engines	9,938										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>			<i>9,938</i>									
Precautionary Zone - North-Bound	Diesel Engines	203										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
<i>Total Precautionary Zone - North-Bound</i>			<i>203</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>
Precautionary Zone - South-Bound	Diesel Engines	7,680										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5
<i>Total Precautionary Zone - South-Bound</i>			<i>7,680</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>1.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	609										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.2	0.4	0.2	-	0.2
<i>Total Outer Harbor Zone1</i>			<i>609</i>	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.4</i>	<i>0.2</i>	<i>-</i>	<i>0.2</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,523										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	0.4
<i>Total Outer Harbor Zone2</i>			<i>1,523</i>	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	<i>-</i>	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,772										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	0.5
<i>Total Inner Harbor Zone</i>			<i>1,772</i>	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.3</i>	<i>0.6</i>	<i>-</i>	<i>0.5</i>
Hoteling	Diesel Engines	6,441										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3
<i>Total Hoteling</i>			<i>6,441</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>13.3</i>
			50,026	-	21	1	11	1	15	44	21	-
												16

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.0	-	0.2	-	-	0.0	7.5	-	-	-	0.0	-	0.2
-	0.0	-	0.2	-	-	0.0	7.5	-	-	-	0.0	-	0.2
-	0.0	-	0.4	-	-	0.0	18.9	-	-	-	0.0	-	0.4
-	0.0	-	0.4	-	-	0.0	18.9	-	-	-	0.0	-	0.4
-	0.0	-	0.5	-	-	0.0	21.9	-	-	-	0.0	-	0.5
-	0.0	-	0.5	-	-	0.0	21.9	-	-	-	0.0	-	0.5
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1	-	16	-	-	1	738	-	-	-	1	-	16

Mitigated Alternative 1 Toxic Pollutant Emissions

Year: 2037

Year (b/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	492										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>			<i>492</i>									
Sea / Fairway - South-Bound	Diesel Engines	20,780										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>			<i>20,780</i>									
Fairway - North-Bound	Diesel Engines	589										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>			<i>589</i>									
Fairway - South-Bound	Diesel Engines	9,938										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>			<i>9,938</i>									
Precautionary Zone - North-Bound	Diesel Engines	203										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
<i>Total Precautionary Zone - North-Bound</i>			<i>203</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.0</i>
Precautionary Zone - South-Bound	Diesel Engines	7,680										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5
<i>Total Precautionary Zone - South-Bound</i>			<i>7,680</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	-	<i>1.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	609										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.2	0.4	0.2	-	0.2
<i>Total Outer Harbor Zone1</i>			<i>609</i>	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.4</i>	<i>0.2</i>	-	<i>0.2</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,523										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	0.4
<i>Total Outer Harbor Zone2</i>			<i>1,523</i>	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	-	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,772										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	0.5
<i>Total Inner Harbor Zone</i>			<i>1,772</i>	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.3</i>	<i>0.6</i>	-	<i>0.5</i>
Hoteling	Diesel Engines	6,441										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3
<i>Total Hoteling</i>			<i>6,441</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	-	<i>13.3</i>
		50,026	-	21	1	11	1	15	44	21	-	16

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.0	-	0.2	-	-	0.0	7.5	-	-	-	0.0	-	0.2
-	0.0	-	0.2	-	-	0.0	7.5	-	-	-	0.0	-	0.2
-	0.0	-	0.4	-	-	0.0	18.9	-	-	-	0.0	-	0.4
-	0.0	-	0.4	-	-	0.0	18.9	-	-	-	0.0	-	0.4
-	0.0	-	0.5	-	-	0.0	21.9	-	-	-	0.0	-	0.5
-	0.0	-	0.5	-	-	0.0	21.9	-	-	-	0.0	-	0.5
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1	-	16	-	-	1	738	-	-	-	1	-	16

70-Year Average Calculations		Mitigated Alternative 1													
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year								
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
DPM															
Sea / Fairway - North-Bound	Diesel Engines	569	2,024	2,024	1,667	1,667	492	492	492	492	492	492	492	492	
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	-	
Sea / Fairway - South-Bound	Diesel Engines	24,047	85,494	85,494	70,418	70,418	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	-	
Fairway - North-Bound	Diesel Engines	630	1,501	1,501	1,099	1,099	589	589	589	589	589	589	589	589	
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	-	
Fairway - South-Bound	Diesel Engines	10,623	25,308	25,308	18,526	18,526	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	-	
Precautionary Zone - North-Bound	Diesel Engines	215	449	449	378	378	203	203	203	203	203	203	203	203	
Precautionary Zone - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - North-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	-	
Precautionary Zone - South-Bound	Diesel Engines	8,135	16,993	16,993	14,315	14,315	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	
Precautionary Zone - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - South-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	-	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁵	Diesel Engines	574	-	-	-	609	609	609	609	609	609	609	609	609	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁵	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone1</i>			-	-	-	-	-	-	-	-	-	-	-	-	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁷	Diesel Engines	1,702	5,053	5,053	4,257	4,257	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁷	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone2</i>			-	-	-	-	-	-	-	-	-	-	-	-	
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	1,980	5,880	5,880	4,954	4,954	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Inner Harbor Zone</i>			-	-	-	-	-	-	-	-	-	-	-	-	
Hoteling	Diesel Engines	9,548	75,504	75,504	46,116	46,116	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	
Hoteling	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Hoteling</i>			-	-	-	-	-	-	-	-	-	-	-	-	

San Pedro Waterfront

Evaluation Year 2022															Evaluation Year 2037	2038	
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036			
492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441

70-Year Average Calculations		Mitigated Alternative 1													
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year								
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
PM from OGV boilers															
Sea / Fairway - North-Bound	Diesel Engines														
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>															
Sea / Fairway - South-Bound	Diesel Engines														
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>															
Fairway - North-Bound	Diesel Engines														
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>															
Fairway - South-Bound	Diesel Engines														
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>															
Precautionary Zone - North-Bound	Diesel Engines														
Precautionary Zone - North-Bound	Boiler	8	17	17	14	14	7	7	7	7	7	7	7	7	
<i>Total Precautionary Zone - North-Bound</i>															
Precautionary Zone - South-Bound	Diesel Engines														
Precautionary Zone - South-Bound	Boiler	300	626	626	527	527	283	283	283	283	283	283	283	283	
<i>Total Precautionary Zone - South-Bound</i>															
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁵	Diesel Engines														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁵	Boiler	28	-	-	-	30	30	30	30	30	30	30	30	30	
<i>Total Outer Harbor Zone1</i>															
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁷	Diesel Engines														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁷	Boiler	84	250	250	211	211	75	75	75	75	75	75	75	75	
<i>Total Outer Harbor Zone2</i>															
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines														
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	98	291	291	245	245	88	88	88	88	88	88	88	88	
<i>Total Inner Harbor Zone</i>															
Hoteling	Diesel Engines														
Hoteling	Boiler	2,614	5,460	5,460	4,600	4,600	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	
<i>Total Hoteling</i>															

San Pedro Waterfront

Evaluation Year 2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	Evaluation Year 2037	2038
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468

70-Year Average Calculations		Mitigated Alternative 1												
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year							
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
VOC from OGV boilers														
Sea / Fairway - North-Bound	Diesel Engines													
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>														
Sea / Fairway - South-Bound	Diesel Engines													
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>														
Fairway - North-Bound	Diesel Engines													
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>														
Fairway - South-Bound	Diesel Engines													
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>														
Precautionary Zone - North-Bound	Diesel Engines													
Precautionary Zone - North-Bound	Boiler	2	2	2	2	2	2	2	2	2	2	2	2	2
<i>Total Precautionary Zone - North-Bound</i>														
Precautionary Zone - South-Bound	Diesel Engines													
Precautionary Zone - South-Bound	Boiler	88	82	86	86	88	88	88	88	88	88	88	88	88
<i>Total Precautionary Zone - South-Bound</i>														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁵	Diesel Engines													
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁵	Boiler	9	-	-	-	9	9	9	9	9	9	9	9	9
<i>Total Outer Harbor Zone1</i>														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁷	Diesel Engines													
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁷	Boiler	24	33	33	34	34	23	23	23	23	23	23	23	23
<i>Total Outer Harbor Zone2</i>														
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines													
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	28	38	38	40	40	27	27	27	27	27	27	27	27
<i>Total Inner Harbor Zone</i>														
Hoteling	Diesel Engines													
Hoteling	Boiler	764	719	719	749	749	766	766	766	766	766	766	766	766
<i>Total Hoteling</i>														

San Pedro Waterfront

Evaluation Year 2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	Evaluation Year 2037	2038
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

Mitigated Alternative 1 Toxic Pollutant Emissions
70-Year Average

Year (lb/yr)	Spatial Allocation	Power Type	DPM	VOC							PM						
				Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	Copper	
	Sea / Fairway - North-Bound	Diesel Engines	569														
	Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - North-Bound</i>		<i>569</i>														
	Sea / Fairway - South-Bound	Diesel Engines	24,047														
	Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - South-Bound</i>		<i>24,047</i>														
	Fairway - North-Bound	Diesel Engines	630														
	Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - North-Bound</i>		<i>630</i>														
	Fairway - South-Bound	Diesel Engines	10,623														
	Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - South-Bound</i>		<i>10,623</i>														
	Precautionary Zone - North-Bound	Diesel Engines	215														
	Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0	-	0.0	-	0.0
	<i>Total Precautionary Zone - North-Bound</i>		<i>215</i>		<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>		<i>0.0</i>		<i>0.0</i>		<i>0.0</i>
	Precautionary Zone - South-Bound	Diesel Engines	8,135														
	Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.6	-	0.1	-	0.1
	<i>Total Precautionary Zone - South-Bound</i>		<i>8,135</i>		<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>		<i>1.6</i>		<i>0.1</i>		<i>0.1</i>
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	574														
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.1	0.4	0.2	-	0.2	-	0.0	-	0.0
	<i>Total Outer Harbor Zone1</i>		<i>574</i>		<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.1</i>	<i>0.4</i>	<i>0.2</i>		<i>0.2</i>		<i>0.0</i>		<i>0.0</i>
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,702														
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	0.5	-	0.0	-	0.0
	<i>Total Outer Harbor Zone2</i>		<i>1,702</i>		<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>		<i>0.5</i>		<i>0.0</i>		<i>0.0</i>
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,980														
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	0.5	-	0.0	-	0.0
	<i>Total Inner Harbor Zone</i>		<i>1,980</i>		<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.3</i>	<i>0.6</i>		<i>0.5</i>		<i>0.0</i>		<i>0.0</i>
	Hoteling	Diesel Engines	9,548														
	Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.6	17.4	-	14.1	-	1.3	-	1.3
	<i>Total Hoteling</i>		<i>9,548</i>		<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.6</i>	<i>17.4</i>		<i>14.1</i>		<i>1.3</i>		<i>1.3</i>

Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
0.0	-	-	0.0	2.0	-	-	-	0.0	-	0.0
0.0	-	-	0.0	2.0	-	-	-	0.0	-	0.0
1.6	-	-	0.1	74.9	-	-	-	0.1	-	1.6
1.6	-	-	0.1	74.9	-	-	-	0.1	-	1.6
0.2	-	-	0.0	7.1	-	-	-	0.0	-	0.2
0.2	-	-	0.0	7.1	-	-	-	0.0	-	0.2
0.5	-	-	0.0	21.1	-	-	-	0.0	-	0.5
0.5	-	-	0.0	21.1	-	-	-	0.0	-	0.5
0.5	-	-	0.0	24.5	-	-	-	0.0	-	0.5
0.5	-	-	0.0	24.5	-	-	-	0.0	-	0.5
14.4	-	-	1.3	653.5	-	-	-	0.7	-	14.4
14.4	-	-	1.3	653.5	-	-	-	0.7	-	14.4

San Pedro Waterfront

Unmitigated Alternative 2 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Emissions per vessel are same as unmitigated proposed project.

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>43.2</i>	<i>78.2</i>	<i>19.6</i>	<i>549.7</i>	<i>78.2</i>	<i>62.6</i>	<i>752.5</i>	<i>20.7</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.8</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

$Emissions = Engine\ Power * Load\ Factor * Emission\ Factor * Time$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3 Year 2011 only
1 All other years

San Pedro Waterfront

Unmitigated Alternative 2 Criteria Pollutant Emissions

Year: 2015, 2022, 2037

Emissions per vessel are same as unmitigated proposed project.

Peak Hourly (lb/hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.6	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hotelling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0 Prior to 2013
3 All other years

San Pedro Waterfront

Unmitigated Alternative 2 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Emissions per vessel are same as unmitigated proposed project.

Peak Day (lb/day) for Single Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>
Sea / Fairway - South-Bound	Diesel Engines	115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>115.9</i>	<i>209.9</i>	<i>52.7</i>	<i>1,475.4</i>	<i>209.9</i>	<i>167.9</i>	<i>2,019.9</i>	<i>55.5</i>
Fairway - North-Bound	Diesel Engines	85.6	155.0	38.9	1,089.4	155.0	124.0	1,491.4	41.0
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>85.6</i>	<i>155.0</i>	<i>38.9</i>	<i>1,089.4</i>	<i>155.0</i>	<i>124.0</i>	<i>1,491.4</i>	<i>41.0</i>
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>43.2</i>	<i>78.2</i>	<i>19.6</i>	<i>549.7</i>	<i>78.2</i>	<i>62.6</i>	<i>752.5</i>	<i>20.7</i>
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>24</i>	<i>42</i>	<i>11</i>	<i>301</i>	<i>44</i>	<i>35</i>	<i>450</i>	<i>11</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
<i>Total Outer Harbor Zone1</i>		<i>6</i>	<i>10</i>	<i>3</i>	<i>71</i>	<i>11</i>	<i>8</i>	<i>109</i>	<i>3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.81
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>
Hotelling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.47
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.79
<i>Total Hotelling</i>		<i>211.6</i>	<i>372.4</i>	<i>96.2</i>	<i>2,673.9</i>	<i>406.6</i>	<i>325.3</i>	<i>4,312.2</i>	<i>101.3</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		673	1,207	306	8,547	1,246	997	12,453	322
Inner Harbor Berths per Vessel - Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2011 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304
2015 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		481	868	218	6,114	875	700	8,511	230
2015 Vessel Type 2 Hotelling Peak Day (lb/day)		211	372	96	2,674	407	325	4,312	101
2022 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		481	868	218	6,114	875	700	8,511	230
2022 Vessel Type 2 Hotelling Peak Day (lb/day)		211	372	96	2,674	407	325	4,312	101
2037 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		481	868	218	6,114	875	700	8,511	230
2037 Vessel Type 2 Hotelling Peak Day (lb/day)		211	372	96	2,674	407	325	4,312	101

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = 1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}$$

$$1 \text{ lb} = 453.59 \text{ grams}$$

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	3	0
2015	1	0
2022	1	0
2037	1	0

San Pedro Waterfront

Unmitigated Alternative 2 Criteria Pollutant Emissions

Year: 2015, 2022, 2037

Emissions per vessel are same as unmitigated proposed project.

Peak Day (lb/day) for Single Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - South-Bound	Diesel Engines	134.4	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.4	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Fairway - North-Bound	Diesel Engines	98.6	178.5	44.8	1,254.6	178.5	142.8	1,717.7	47.2
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		98.6	178.5	44.8	1,254.6	178.5	142.8	1,717.7	47.2
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		27	48	12.2	339	50	40	502	12.8
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
Total Outer Harbor Zone1		6.1	10.9	2.7	77.6	11.5	9.2	118.1	2.95
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.60
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.66
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.19
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
Total Inner Harbor Zone		8.9	15.8	4.1	112.9	16.7	13.4	171.8	4.26
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	106.97
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.79
Total Hotelling		228.8	404.6	104.2	2,900.1	438.8	351.0	4,621.7	109.76
Outer Harbor Berths per Vessel - Peak Day (lb/day)		760	1,299	329	9,193	1,338	1,070	13,338	347
Inner Harbor Berths per Vessel - Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Outer Harbor Berths Peak Day (lb/day)		1,520	2,597	658	18,386	2,676	2,141	26,676	693
2015 Total Inner Harbor Berths Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2022 Total Outer Harbor Berths Peak Day (lb/day)		1,520	2,597	658	18,386	2,676	2,141	26,676	693
2022 Total Inner Harbor Berths Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2037 Total Outer Harbor Berths Peak Day (lb/day)		1,520	2,597	658	18,386	2,676	2,141	26,676	693
2037 Total Inner Harbor Berths Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2011 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,615	2,719	684	19,143	2,737	2,189	26,551	720
2015 Vessel Type 3 Hotelling Peak Day (lb/day)		686	1,214	313	8,700	1,316	1,053	13,865	329
2022 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,615	2,719	684	19,143	2,737	2,189	26,551	720
2022 Vessel Type 3 Hotelling Peak Day (lb/day)		686	1,214	313	8,700	1,316	1,053	13,865	329
2037 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,615	2,719	684	19,143	2,737	2,189	26,551	720
2037 Vessel Type 3 Hotelling Peak Day (lb/day)		686	1,214	313	8,700	1,316	1,053	13,865	329

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels	
	bound to Inner Harbor	bound to Outer Harbor
2011	0	0
2015	1	2
2022	1	2
2037	1	2

San Pedro Waterfront

Unmitigated Alternative 2 Criteria Pollutant Emissions
 Year: 2011, 2015, 2022, 2037

Total Peak Day (lb/day) for all Vessels

	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
2011 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2015 Transit & Maneuvering Peak Day (lb/day)	2,096	3,587	903	25,257	3,612	2,890	35,062	950
2015 Hotelling Peak Day (lb/day)	897	1,586	409	11,374	1,723	1,378	18,177	431
2022 Transit & Maneuvering Peak Day (lb/day)	2,096	3,587	903	25,257	3,612	2,890	35,062	950
2022 Hotelling Peak Day (lb/day)	897	1,586	409	11,374	1,723	1,378	18,177	431
2037 Transit & Maneuvering Peak Day (lb/day)	2,096	3,587	903	25,257	3,612	2,890	35,062	950
2037 Hotelling Peak Day (lb/day)	897	1,586	409	11,374	1,723	1,378	18,177	431

San Pedro Waterfront

Unmitigated Alternative 2 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

8-Hour (lb/8-hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	11.5	20.8	5.2	145.9	20.8	16.6	199.8	5.5	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>11.5</i>	<i>20.8</i>	<i>5.2</i>	<i>145.9</i>	<i>20.8</i>	<i>16.6</i>	<i>199.8</i>	<i>5.5</i>	0.85
Sea / Fairway - South-Bound	Diesel Engines	14.5	26.2	6.6	184.4	26.2	21.0	252.5	6.9	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>14.5</i>	<i>26.2</i>	<i>6.6</i>	<i>184.4</i>	<i>26.2</i>	<i>21.0</i>	<i>252.5</i>	<i>6.9</i>	1.07
Fairway - North-Bound	Diesel Engines	10.7	19.4	4.9	136.2	19.4	15.5	186.4	5.1	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>10.7</i>	<i>19.4</i>	<i>4.9</i>	<i>136.2</i>	<i>19.4</i>	<i>15.5</i>	<i>186.4</i>	<i>5.1</i>	1.21
Fairway - South-Bound	Diesel Engines	5.4	9.8	2.5	68.7	9.8	7.8	94.1	2.6	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>5.4</i>	<i>9.8</i>	<i>2.5</i>	<i>68.7</i>	<i>9.8</i>	<i>7.8</i>	<i>94.1</i>	<i>2.6</i>	0.61
Precautionary Zone - North-Bound	Diesel Engines	2.6	4.7	1.2	32.8	4.7	3.7	44.9	1.2	
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.0	
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>4.7</i>	<i>1.2</i>	<i>33.2</i>	<i>4.9</i>	<i>3.9</i>	<i>49.7</i>	<i>1.2</i>	0.63
Precautionary Zone - South-Bound	Diesel Engines	2.9	5.3	1.3	37.2	5.3	4.2	50.9	1.4	
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.4	0.3	0.2	5.4	0.0	
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>5.3</i>	<i>1.3</i>	<i>37.6</i>	<i>5.5</i>	<i>4.4</i>	<i>56.3</i>	<i>1.4</i>	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	1.2	0.3	8.7	1.2	1.0	11.9	0.3	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.01	-	0.006	0.13	0.08	0.06	1.7	0.01	
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>8.8</i>	<i>1.3</i>	<i>1.1</i>	<i>13.6</i>	<i>0.3</i>	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.5	0.4	10.9	1.5	1.2	14.9	0.4	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.5</i>	<i>0.4</i>	<i>11.0</i>	<i>1.6</i>	<i>1.3</i>	<i>17.0</i>	<i>0.4</i>	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.8	0.5	12.7	1.8	1.4	17.3	0.5	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.5</i>	<i>12.9</i>	<i>1.9</i>	<i>1.5</i>	<i>19.8</i>	<i>0.5</i>	0.32
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	12

First Max 8-Hour Scenario (per vessel)

First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors.

Second Max 8-Hour Scenario (per vessel)

Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.

*Emissions = Engine Power * Load Factor * Emission Factor * Time*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.
3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak 8-hour emissions assume no VSRP.

For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 2 vessels:

3 Year 2011 only
1 All other years

San Pedro Waterfront

Unmitigated Alternative 2 Criteria Pollutant Emissions

Year: 2015, 2022, 2037

8-Hour (lb/8-hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4	0.85
Sea / Fairway - South-Bound	Diesel Engines	16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0	1.07
Fairway - North-Bound	Diesel Engines	12.3	22.3	5.6	156.8	22.3	17.8	214.7	5.9	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		12.3	22.3	5.6	156.8	22.3	17.8	214.7	5.9	1.21
Fairway - South-Bound	Diesel Engines	6.2	11.3	2.8	79.1	11.3	9.0	108.3	3.0	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		6.2	11.3	2.8	79.1	11.3	9.0	108.3	3.0	0.61
Precautionary Zone - North-Bound	Diesel Engines	2.9	5.3	1.3	37.0	5.3	4.2	50.7	1.4	
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.0	
Total Precautionary Zone - North-Bound		2.9	5.3	1.3	37.4	5.5	4.4	55.4	1.4	0.63
Precautionary Zone - South-Bound	Diesel Engines	3.3	6.0	1.5	41.9	6.0	4.8	57.4	1.6	
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.41	0.25	0.20	5.37	0.0	
Total Precautionary Zone - South-Bound		3.3	6.0	1.5	42.4	6.2	5.0	62.8	1.6	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	1.4	0.3	9.6	1.4	1.1	13.1	0.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.01	-	0.006	0.13	0.08	0.06	1.7	0.01	
Total Outer Harbor Zone1		0.8	1.4	0.3	9.7	1.4	1.2	14.8	0.4	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.7	0.4	12.0	1.7	1.4	16.4	0.4	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
Total Outer Harbor Zone2		1.0	1.7	0.4	12.2	1.8	1.4	18.5	0.5	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	2.0	0.5	13.9	2.0	1.6	19.1	0.5	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
Total Inner Harbor Zone		1.1	2.0	0.5	14.1	2.1	1.7	21.5	0.5	0.32
Hotelling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	12

First Max 8-Hour Scenario (per vessel)

First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors.

Second Max 8-Hour Scenario (per vessel)

Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Assumptions

1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.
3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak 8-hour emissions assume no VSRP.

For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 3 vessels:

0 Prior to 2013
3 All other years

San Pedro Waterfront

Alternative 2 Unmitigated Criteria Pollutant Emissions

Year: 2011

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,425.4	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>198.0</i>	<i>270.1</i>	<i>90.0</i>	<i>2,425.4</i>	<i>270.1</i>	<i>216.1</i>	<i>2,070.5</i>	<i>94.8</i>
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,065.0	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>250.3</i>	<i>341.3</i>	<i>113.8</i>	<i>3,065.0</i>	<i>341.3</i>	<i>273.0</i>	<i>2,616.5</i>	<i>119.8</i>
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,798.1	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>146.8</i>	<i>200.2</i>	<i>66.7</i>	<i>1,798.1</i>	<i>200.2</i>	<i>160.2</i>	<i>1,535.0</i>	<i>70.3</i>
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	907.3	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>74.1</i>	<i>101.0</i>	<i>33.7</i>	<i>907.3</i>	<i>101.0</i>	<i>80.8</i>	<i>774.6</i>	<i>35.5</i>
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	537.5	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>44.4</i>	<i>59.9</i>	<i>20.2</i>	<i>543.3</i>	<i>62.1</i>	<i>49.6</i>	<i>504.3</i>	<i>21.3</i>
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	609.2	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>50</i>	<i>68</i>	<i>23</i>	<i>616</i>	<i>70</i>	<i>56</i>	<i>572</i>	<i>24</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	15.7	5.2	140.7	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
<i>Total Outer Harbor Zone1</i>		<i>11.7</i>	<i>15.7</i>	<i>5.3</i>	<i>142.7</i>	<i>16.5</i>	<i>13.1</i>	<i>136.1</i>	<i>5.6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	14.4	19.6	6.5	175.9	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
<i>Total Outer Harbor Zone2</i>		<i>14.6</i>	<i>19.6</i>	<i>6.7</i>	<i>178.5</i>	<i>20.6</i>	<i>16.4</i>	<i>170.2</i>	<i>7.0</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Diesel Engines	16.7	22.8	7.6	204.7	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
<i>Total Inner Harbor Zone</i>		<i>17.0</i>	<i>22.8</i>	<i>7.7</i>	<i>207.7</i>	<i>23.9</i>	<i>19.1</i>	<i>198.0</i>	<i>8.1</i>
Hoteling	Diesel Engines	214.6	292.7	97.6	2,628.2	292.7	234.1	2,243.7	102.7
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
<i>Total Hoteling</i>		<i>219.9</i>	<i>292.7</i>	<i>100.2</i>	<i>2,683.8</i>	<i>313.8</i>	<i>251.1</i>	<i>2,680.2</i>	<i>105.5</i>

Alternative 2 Unmitigated Criteria Pollutant Emissions

Year: 2011

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,890	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.33	0.44	0.15	3.99	0.45	0.36	3.65	0.16
South-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.90	0.44	0.35	3.57	0.15
Temporal Allocation								
2011 Total Annual Emissions (ton/yr)	86	116	39	1,050	119	96	967	41

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = 1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}$$

$$1 \text{ lb} = 453.59 \text{ grams}$$

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NOx = 53%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 2 Unmitigated Criteria Pollutant Emissions
Year: 2015

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,414.9	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		198.0	270.1	90.0	2,414.9	270.1	216.1	2,070.5	94.8
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,051.8	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		250.3	341.3	113.8	3,051.8	341.3	273.0	2,616.5	119.8
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,790.4	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		146.8	200.2	66.7	1,790.4	200.2	160.2	1,535.0	70.3
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	903.4	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		74.1	101.0	33.7	903.4	101.0	80.8	774.6	35.5
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	535.2	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		44.4	59.9	20.2	541.0	62.1	49.6	504.3	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	606.6	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		50	68	23	613	70	56	572	24
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.5	15.7	5.2	140.1	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		11.7	15.7	5.3	142.1	16.5	13.1	136.1	5.6
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	14.4	19.6	6.5	175.1	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		14.6	19.6	6.7	177.6	20.6	16.4	170.2	7.0
Inner Harbor Zone (maneuvering through main channel: int)	Diesel Engines	16.7	22.8	7.6	203.8	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel: int)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		17.0	22.8	7.7	206.8	23.9	19.1	198.0	8.1
Hotelling	Diesel Engines	214.6	292.7	97.6	2,616.9	292.7	234.1	2,243.7	102.7
Hotelling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hotelling		219.9	292.7	100.2	2,672.5	313.8	251.0	2,680.2	105.5

Alternative 2 Unmitigated Criteria Pollutant Emissions
Year: 2015

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	614	828	279	7,472	853	682	6,853	294
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,856	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.92	0.45	0.36	3.60	0.15
South-Bound Single Vessel Average Day (ton/day)	0.31	0.42	0.14	3.83	0.44	0.35	3.52	0.15
Temporal Allocation								
2015 Total Annual Emissions (ton/yr)	67	117	39	1,055	120	96	970	41

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NO_x Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NO_x Emission Factor * % IMO vessels) + (non-IMO NO_x Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

1. Maximum of 1 ship per day per berth.
2. All berths occupied.
3. Annual emissions are based on residual fuel with 2.7% sulfur content.
4. Maximum of 2 one-way trips per vessel.
5. IMO compliance rate for NO_x = 59%
6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
7. Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 2 Unmitigated Criteria Pollutant Emissions

Year: 2022

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,399.5	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		198.0	270.1	90.0	2,399.5	270.1	216.1	2,070.5	94.8
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,032.4	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		250.3	341.3	113.8	3,032.4	341.3	273.0	2,616.5	119.8
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,779.0	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		146.8	200.2	66.7	1,779.0	200.2	160.2	1,535.0	70.3
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	897.6	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		74.1	101.0	33.7	897.6	101.0	80.8	774.6	35.5
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	531.8	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		44.4	59.9	20.2	537.6	62.1	49.6	504.3	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	602.7	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		50	68	23	609	70	56	572	24
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹	Diesel Engines	11.5	15.7	5.2	139.2	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ²	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		12	16	5	141	16	13	136	6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹	Diesel Engines	14.4	19.6	6.5	174.0	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		14.6	19.6	6.7	176.6	20.6	16.4	170.2	7.0
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines	16.7	22.8	7.6	202.5	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		17.0	22.8	7.7	205.5	23.9	19.1	198.0	8.1
Hotelling	Diesel Engines	214.6	292.7	97.6	2,600.2	292.7	234.1	2,243.7	102.7
Hotelling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hotelling		219.9	292.7	100.2	2,655.8	313.8	251.1	2,680.2	105.5

Alternative 2 Unmitigated Criteria Pollutant Emissions

Year: 2022

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	614	828	279	7,425	853	682	6,853	294
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,807	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.90	0.45	0.36	3.60	0.15
South-Bound Single Vessel Average Day (ton/day)	0.31	0.42	0.14	3.81	0.44	0.35	3.52	0.15
Temporal Allocation								
2022 Total Annual Emissions (ton/yr)	89	120	40	1,075	124	99	994	43

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.

1 lb = 453.59 grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x - **67%**
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 2 Unmitigated Criteria Pollutant Emissions
Year: 2037

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,385.5	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>198.0</i>	<i>270.1</i>	<i>90.0</i>	<i>2,385.5</i>	<i>270.1</i>	<i>216.1</i>	<i>2,070.5</i>	<i>94.8</i>
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,014.6	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>250.3</i>	<i>341.3</i>	<i>113.8</i>	<i>3,014.6</i>	<i>341.3</i>	<i>273.0</i>	<i>2,616.5</i>	<i>119.8</i>
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,768.6	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>146.8</i>	<i>200.2</i>	<i>66.7</i>	<i>1,768.6</i>	<i>200.2</i>	<i>160.2</i>	<i>1,535.0</i>	<i>70.3</i>
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	892.4	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>74.1</i>	<i>101.0</i>	<i>33.7</i>	<i>892.4</i>	<i>101.0</i>	<i>80.8</i>	<i>774.6</i>	<i>35.5</i>
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	528.7	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>44.4</i>	<i>59.9</i>	<i>20.2</i>	<i>534.5</i>	<i>62.1</i>	<i>49.6</i>	<i>504.3</i>	<i>21.3</i>
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	599.2	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>50</i>	<i>68</i>	<i>23</i>	<i>606</i>	<i>70</i>	<i>56</i>	<i>572</i>	<i>24</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	15.7	5.2	138.4	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
<i>Total Outer Harbor Zone1</i>		<i>12</i>	<i>16</i>	<i>5</i>	<i>140</i>	<i>16</i>	<i>13</i>	<i>136</i>	<i>6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	14.4	19.6	6.5	173.0	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
<i>Total Outer Harbor Zone2</i>		<i>14.6</i>	<i>19.6</i>	<i>6.7</i>	<i>175.6</i>	<i>20.6</i>	<i>16.4</i>	<i>170.2</i>	<i>7.0</i>
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	16.7	22.8	7.6	201.3	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
<i>Total Inner Harbor Zone</i>		<i>17.0</i>	<i>22.8</i>	<i>7.7</i>	<i>204.3</i>	<i>23.9</i>	<i>19.1</i>	<i>198.0</i>	<i>8.1</i>
Hoteling	Diesel Engines	214.6	292.7	97.6	2,585.0	292.7	234.1	2,243.7	102.7
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
<i>Total Hoteling</i>		<i>219.9</i>	<i>292.7</i>	<i>100.2</i>	<i>2,640.6</i>	<i>313.8</i>	<i>251.1</i>	<i>2,680.2</i>	<i>105.5</i>

Alternative 2 Unmitigated Criteria Pollutant Emissions
Year: 2037

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Outer Harbor Berths per Vessel - Average Day (lb/day)	614	828	279	7,382	853	682	6,853	294	
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,762	897	718	7,221	309	
North-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.87	0.45	0.36	3.60	0.15	
South-Bound Single Vessel Average Day (ton/day)	0.31	0.42	0.14	3.79	0.44	0.35	3.52	0.15	
Temporal Allocation									
2037 Total Annual Emissions (ton/yr)	90	122	41	1,087	126	101	1,012	43	

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NOx = 75%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Unmitigated Alternative 2 Criteria Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,548	2,111	704	18,956	2,111	1,689	16,183	741
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,548</i>	<i>2,111</i>	<i>704</i>	<i>18,956</i>	<i>2,111</i>	<i>1,689</i>	<i>16,183</i>	<i>741</i>
Sea / Fairway - South-Bound	Diesel Engines	65,369	89,139	29,713	800,530	89,139	71,311	683,400	31,288
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>65,369</i>	<i>89,139</i>	<i>29,713</i>	<i>800,530</i>	<i>89,139</i>	<i>71,311</i>	<i>683,400</i>	<i>31,288</i>
Fairway - North-Bound	Diesel Engines	1,148	1,565	522	14,054	1,565	1,252	11,998	549
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,148</i>	<i>1,565</i>	<i>522</i>	<i>14,054</i>	<i>1,565</i>	<i>1,252</i>	<i>11,998</i>	<i>549</i>
Fairway - South-Bound	Diesel Engines	19,350	26,387	8,796	236,973	26,387	21,110	202,301	9,262
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>19,350</i>	<i>26,387</i>	<i>8,796</i>	<i>236,973</i>	<i>26,387</i>	<i>21,110</i>	<i>202,301</i>	<i>9,262</i>
Precautionary Zone - North-Bound	Diesel Engines	343	468	156	4,201	468	374	3,587	164
Precautionary Zone - North-Bound	Boiler	4	-	2	45	17	14	355	2
<i>Total Precautionary Zone - North-Bound</i>		<i>347</i>	<i>468</i>	<i>158</i>	<i>4,246</i>	<i>485</i>	<i>388</i>	<i>3,942</i>	<i>166</i>
Precautionary Zone - South-Bound	Diesel Engines	12,993	17,717	5,906	159,111	17,717	14,174	135,831	6,219
Precautionary Zone - South-Bound	Boiler	163	-	82	1,713	653	522	13,460	86
<i>Total Precautionary Zone - South-Bound</i>		<i>13,156</i>	<i>17,717</i>	<i>5,987</i>	<i>160,824</i>	<i>18,370</i>	<i>14,696</i>	<i>149,290</i>	<i>6,305</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,864	5,269	1,756	47,319	5,269	4,215	40,395	1,849
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	65	-	33	685	261	209	5,382	34
<i>Total Outer Harbor Zone2</i>		<i>3,929</i>	<i>5,269</i>	<i>1,789</i>	<i>48,004</i>	<i>5,530</i>	<i>4,424</i>	<i>45,777</i>	<i>1,884</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Diesel Engines	4,496	6,131	2,044	55,062	6,131	4,905	47,005	2,152
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Boiler	76	-	38	797	304	243	6,263	40
<i>Total Inner Harbor Zone</i>		<i>4,572</i>	<i>6,131</i>	<i>2,082</i>	<i>55,859</i>	<i>6,435</i>	<i>5,148</i>	<i>53,268</i>	<i>2,192</i>
Hotelling	Diesel Engines	57,731	78,724	26,241	706,990	78,724	62,979	603,547	27,632
Hotelling	Boiler	1,423	-	712	14,945	5,693	4,555	117,423	749
<i>Total Hotelling</i>		<i>59,154</i>	<i>78,724</i>	<i>26,953</i>	<i>721,935</i>	<i>84,417</i>	<i>67,533</i>	<i>720,970</i>	<i>28,381</i>
<i>Total (lb/yr)</i>		<i>168,573</i>	<i>227,510</i>	<i>76,703</i>	<i>2,061,382</i>	<i>234,438</i>	<i>187,550</i>	<i>1,887,129</i>	<i>80,768</i>
boilers only						6,928			912
Average Day (lb/day) - Transit		299.8	407.6	136.3	3,669.7	411.0	328.8	3,195.0	143.5
Average Day (lb/day) - Hotelling		162.1	215.7	73.8	1977.9	231.3	185.0	1975.3	77.8

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 53%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2011: 269
 Percent of North-Bound Vessels: 2.9% Inner Harbor Berths: 3
 Percent of South-Bound Vessels: 97.1% Outer Harbor Berths: 0

San Pedro Waterfront

Unmitigated Alternative 2 Criteria Pollutant Emissions
Year: 2015

Year (lb/yr)									
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,582	2,158	719	19,296.1	2,158	1,726	16,544	757
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		1,582	2,158	719	19,296.1	2,158	1,726	16,544	757
Sea / Fairway - South-Bound	Diesel Engines	66,827	91,127	30,376	814,870.0	91,127	72,902	698,644	31,986
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		66,827	91,127	30,376	814,870.0	91,127	72,902	698,644	31,986
Fairway - North-Bound	Diesel Engines	1,173	1,600	533	14,305.8	1,600	1,280	12,265	562
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,173	1,600	533	14,305.8	1,600	1,280	12,265	562
Fairway - South-Bound	Diesel Engines	19,782	26,976	8,992	241,218.2	26,976	21,580	206,813	9,468
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		19,782	26,976	8,992	241,218.2	26,976	21,580	206,813	9,468
Precautionary Zone - North-Bound	Diesel Engines	351	478	159	4,276.5	478	383	3,667	168
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
Total Precautionary Zone - North-Bound		355	478	162	4,322.8	496	397	4,030	170
Precautionary Zone - South-Bound	Diesel Engines	13,282	18,112	6,037	161,961.3	18,112	14,490	138,861	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
Total Precautionary Zone - South-Bound		13,449	18,112	6,121	163,713	18,779	15,024	152,620	6,445
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	1,580	2,155	718	19,266.5	2,155	1,724	16,518	756
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	27	-	13	280.1	107	85	2,201	14
Total Outer Harbor Zone1		1,607	2,155	732	19,547	2,262	1,809	18,719	770
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	1,975	2,693	898	24,083.1	2,693	2,155	20,648	945
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	33	-	17	350.1	133	107	2,751	18
Total Outer Harbor Zone2		2,008	2,693	914	24,433.2	2,827	2,262	23,399	963
Inner Harbor Zone (maneuvering through main channel: int	Diesel Engines	2,298	3,134	1,045	28,024.0	3,134	2,507	24,027	1,100
Inner Harbor Zone (maneuvering through main channel: int	Boiler	39	-	19	407.4	155	124	3,201	20
Total Inner Harbor Zone		2,337	3,134	1,064	28,431.4	3,289	2,631	27,228	1,120
Hotelling	Diesel Engines	59,018	80,479	26,826	719,654.7	80,479	64,384	617,009	28,248
Hotelling	Boiler	1,455	-	728	15,278.0	5,820	4,656	120,042	766
Total Hotelling		60,473	80,479	27,554	734,932.8	86,300	69,040	737,051	29,014
Total (lb/yr)		169,594	228,912	77,167	2,065,069	235,813	188,650	1,897,313	81,257
boilers only						6,900			908
Average Day (lb/day) - Transit		299.0	406.7	135.9	3,644.2	409.6	327.7	3,178.8	143.1
Average Day (lb/day) - Hotelling		165.7	220.5	75.5	2013.5	236.4	189.1	2019.3	79.5

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year
 NOx Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 59%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Unmitigated Alternative 2 Criteria Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,623	2,213	738	19,661.0	2,213	1,770	16,965	777
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		1,623	2,213	738	19,661.0	2,213	1,770	16,965	777
Sea / Fairway - South-Bound	Diesel Engines	68,528	93,447	31,149	830,281.2	93,447	74,758	716,427	32,800
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		68,528	93,447	31,149	830,281.2	93,447	74,758	716,427	32,800
Fairway - North-Bound	Diesel Engines	1,203	1,641	547	14,576.3	1,641	1,312	12,578	576
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,203	1,641	547	14,576.3	1,641	1,312	12,578	576
Fairway - South-Bound	Diesel Engines	20,286	27,662	9,221	245,780.3	27,662	22,130	212,077	9,709
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		20,286	27,662	9,221	245,780.3	27,662	22,130	212,077	9,709
Precautionary Zone - North-Bound	Diesel Engines	360	490	163	4,357.4	490	392	3,760	172
Precautionary Zone - North-Bound	Boiler	5	-	2	47.4	18	14	373	2
Total Precautionary Zone - North-Bound		364	490	166	4,404.8	508	407	4,132	175
Precautionary Zone - South-Bound	Diesel Engines	13,620	18,573	6,191	165,024.4	18,573	14,859	142,395	6,519
Precautionary Zone - South-Bound	Boiler	171	-	86	1,795.8	684	547	14,110	90
Total Precautionary Zone - South-Bound		13,791	18,573	6,277	166,820	19,257	15,406	156,505	6,609
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹	Diesel Engines	1,620	2,209	736	19,630.9	2,209	1,768	16,939	776
Outer Harbor Zone1 (vessels bound to outer harbor berths) ²	Boiler	27	-	14	287.2	109	88	2,257	14
Total Outer Harbor Zone1		1,648	2,209	750	19,918	2,319	1,855	19,196	790
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹	Diesel Engines	2,025	2,762	921	24,538.6	2,762	2,209	21,174	969
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²	Boiler	34	-	17	359.0	137	109	2,821	18
Total Outer Harbor Zone2		2,060	2,762	938	24,897.6	2,899	2,319	23,995	987
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines	2,357	3,214	1,071	28,554.0	3,214	2,571	24,638	1,128
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	40	-	20	417.8	159	127	3,283	21
Total Inner Harbor Zone		2,397	3,214	1,091	28,971.8	3,373	2,698	27,921	1,149
Hotelling	Diesel Engines	60,521	82,528	27,509	733,265	82,528	66,022	632,715	28,967
Hotelling	Boiler	1,492	-	746	15,667	5,968	4,775	123,097	786
Total Hotelling		62,013	82,528	28,255	748,932.2	88,496	70,797	755,812	29,753
Total (lb/yr)		173,911	234,739	79,131	2,104,244	241,815	193,452	1,945,608	83,325
boilers only						7,076			931
Average Day (lb/day) - Transit		306.6	417.0	139.4	3,713.2	420.1	336.0	3,259.7	146.8
Average Day (lb/day) - Hotelling		169.9	226.1	77.4	2,051.9	242.5	194.0	2,070.7	81.5

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- | | | | |
|--|---------------------------------|-------|------------------------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2022: | 282 | |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: 2 |
| 3. Annual emissions are based on residual fuel with 2.7% sulfur content. | Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: 2 |
| 4. Maximum of 2 one-way trips per vessel. | | | |
| 5. IMO compliance rate for NOx = 67% | | | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | |
| 7. Annual emissions assume 80% compliance with VSRP to 20 nm. | | | |

San Pedro Waterfront

Unmitigated Alternative 2 Criteria Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,652	2,252	751	19,892.6	2,252	1,802	17,266	790
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,652</i>	<i>2,252</i>	<i>751</i>	<i>19,892.6</i>	<i>2,252</i>	<i>1,802</i>	<i>17,266</i>	<i>790</i>
Sea / Fairway - South-Bound	Diesel Engines	69,743	95,104	31,701	840,059.7	95,104	76,083	729,130	33,381
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>69,743</i>	<i>95,104</i>	<i>31,701</i>	<i>840,059.7</i>	<i>95,104</i>	<i>76,083</i>	<i>729,130</i>	<i>33,381</i>
Fairway - North-Bound	Diesel Engines	1,224	1,670	557	14,748.0	1,670	1,336	12,801	586
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,224</i>	<i>1,670</i>	<i>557</i>	<i>14,748.0</i>	<i>1,670</i>	<i>1,336</i>	<i>12,801</i>	<i>586</i>
Fairway - South-Bound	Diesel Engines	20,645	28,153	9,384	248,674.9	26,976	21,580	206,813	9,882
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>20,645</i>	<i>28,153</i>	<i>9,384</i>	<i>248,674.9</i>	<i>26,976</i>	<i>21,580</i>	<i>206,813</i>	<i>9,882</i>
Precautionary Zone - North-Bound	Diesel Engines	366	499	166	4,408.7	499	399	3,827	175
Precautionary Zone - North-Bound	Boiler	5	-	2	48.3	18	15	379	2
<i>Total Precautionary Zone - North-Bound</i>		<i>371</i>	<i>499</i>	<i>169</i>	<i>4,457.0</i>	<i>517</i>	<i>414</i>	<i>4,206</i>	<i>178</i>
Precautionary Zone - South-Bound	Diesel Engines	13,862	18,903	6,301	166,968.0	18,903	15,122	144,920	6,635
Precautionary Zone - South-Bound	Boiler	174	-	87	1,827.7	696	557	14,360	92
<i>Total Precautionary Zone - South-Bound</i>		<i>14,036</i>	<i>18,903</i>	<i>6,388</i>	<i>168,796</i>	<i>19,599</i>	<i>15,679</i>	<i>159,280</i>	<i>6,726</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	1,649	2,249	750	19,862.1	2,249	1,799	17,239	789
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	28	-	14	292.3	111	89	2,297	15
<i>Total Outer Harbor Zone1</i>		<i>1,677</i>	<i>2,249</i>	<i>763</i>	<i>20,154</i>	<i>2,360</i>	<i>1,888</i>	<i>19,536</i>	<i>804</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,061	2,811	937	24,827.6	2,811	2,249	21,549	987
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	35	-	17	365.4	139	111	2,871	18
<i>Total Outer Harbor Zone2</i>		<i>2,096</i>	<i>2,811</i>	<i>954</i>	<i>25,193.0</i>	<i>2,950</i>	<i>2,360</i>	<i>24,420</i>	<i>1,005</i>
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	2,399	3,271	1,090	28,890.3	3,271	2,617	25,075	1,148
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	40	-	20	425.2	162	130	3,341	21
<i>Total Inner Harbor Zone</i>		<i>2,439</i>	<i>3,271</i>	<i>1,110</i>	<i>29,315.5</i>	<i>3,433</i>	<i>2,746</i>	<i>28,416</i>	<i>1,169</i>
Hotelling	Diesel Engines	61,594	83,991	27,997	741,901.1	83,991	67,193	643,933	29,481
Hotelling	Boiler	1,519	-	759	15,944.7	6,074	4,859	125,280	800
<i>Total Hotelling</i>		<i>63,112</i>	<i>83,991</i>	<i>28,756</i>	<i>757,845.8</i>	<i>90,065</i>	<i>72,052</i>	<i>769,213</i>	<i>30,280</i>
<i>Total (lb/yr)</i>		<i>176,995</i>	<i>238,901</i>	<i>80,534</i>	<i>2,129,136</i>	<i>244,926</i>	<i>195,940</i>	<i>1,971,080</i>	<i>84,802</i>
boilers only						7,201			948
Average Day (lb/day) - Transit		312.0	424.4	141.9	3,757.0	424.3	339.4	3,292.8	149.4
Average Day (lb/day) - Hotelling		172.9	230.1	78.8	2076.3	246.8	197.4	2107.4	83.0

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NO_x Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NO_x Emission Factor * % IMO vessels) + (non-IMO NO_x Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = 1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}$$

$$1 \text{ lb} = 453.59 \text{ grams}$$

Assumptions

- | | | |
|--|---------------------------------|-------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2037: | 287 |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% |
| 3. Annual emissions are based on residual fuel with 2.7% sulfur content. | Percent of South-Bound Vessels: | 97.1% |
| 4. Maximum of 2 one-way trips per vessel. | | |
| 5. IMO compliance rate for NO _x = | | 75% |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO _x emissions; 4% annual fleet turnover rate was assumed. | | |
| 7. Annual emissions assume 80% compliance with VSRP to 20 nm. | | |

San Pedro Waterfront

Unmitigated Alternative 2 Toxic Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury
Sea / Fairway - North-Bound	Diesel Engines	3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083	0.00299	0.00664	0.00415	0.00697	0.00664	0.00498
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083	0.00299	0.00664	0.00415	0.00697	0.00664	0.00498
Sea / Fairway - South-Bound	Diesel Engines	4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098	0.00353	0.00785	0.00490	0.00824	0.00785	0.00589
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098	0.00353	0.00785	0.00490	0.00824	0.00785	0.00589
Fairway - North-Bound	Diesel Engines	2.84938	0.77010	5.77577	0.38505	0.03273	0.06161	1.00113	0.57758	0.43501	0.00064	0.00230	0.00512	0.00320	0.00537	0.00512	0.00384
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.84938	0.77010	5.77577	0.38505	0.03273	0.06161	1.00113	0.57758	0.43501	0.00064	0.00230	0.00512	0.00320	0.00537	0.00512	0.00384
Fairway - South-Bound	Diesel Engines	1.74129	0.47062	3.52964	0.23531	0.02000	0.03765	0.61180	0.35296	0.26584	0.00039	0.00141	0.00313	0.00195	0.00328	0.00313	0.00235
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.74129	0.47062	3.52964	0.23531	0.02000	0.03765	0.61180	0.35296	0.26584	0.00039	0.00141	0.00313	0.00195	0.00328	0.00313	0.00235
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.12697	0.00019	0.00067	0.00149	0.00093	0.00157	0.00149	0.00112
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	-	0.00961	-	0.00089	-	0.00979	-	-
Total Precautionary Zone - North-Bound		0.83167	0.22808	1.68596	0.11407	0.00966	0.02042	0.29916	0.17188	0.12697	0.00980	0.00067	0.00238	0.00093	0.01136	0.00149	0.00112
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.14390	0.00021	0.00076	0.00169	0.00106	0.00178	0.00169	0.00127
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	-	0.01089	-	0.00101	-	0.01109	-	-
Total Precautionary Zone - South-Bound		0.94255	0.25849	1.91076	0.12928	0.01095	0.02314	0.33905	0.19480	0.14390	0.01110	0.00076	0.00270	0.00106	0.01287	0.00169	0.00127
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.03371	0.00005	0.00018	0.00040	0.00025	0.00042	0.00040	0.00030
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	-	0.00338	-	0.00031	-	0.00344	-	-
Total Outer Harbor Zone1		0.22079	0.06084	0.44760	0.03043	0.00257	0.00563	0.08002	0.04592	0.03371	0.00343	0.00018	0.00071	0.00025	0.00386	0.00040	0.00030
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.04213	0.00006	0.00022	0.00050	0.00031	0.00052	0.00050	0.00037
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	-	0.00423	-	0.00039	-	0.00431	-	-
Total Outer Harbor Zone2		0.27599	0.07604	0.55950	0.03804	0.00322	0.00704	0.10003	0.05740	0.04213	0.00429	0.00022	0.00089	0.00031	0.00483	0.00050	0.00037
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.04903	0.00007	0.00026	0.00058	0.00036	0.00061	0.00058	0.00043
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	-	0.00492	-	0.00046	-	0.00501	-	-
Total Inner Harbor Zone		0.32115	0.08849	0.65105	0.04426	0.00374	0.00819	0.11640	0.06679	0.04903	0.00499	0.00026	0.00103	0.00036	0.00562	0.00058	0.00043
Hoteling	Diesel Engines	0.69121	0.18681	1.40109	0.09341	0.00794	0.01494	0.24286	0.14011	0.10553	0.00016	0.00056	0.00124	0.00078	0.00130	0.00124	0.00093
Hoteling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	-	0.01537	-	0.00142	-	0.01566	-	-
Total Hoteling		0.69121	0.19210	1.40134	0.09610	0.00811	0.01884	0.25398	0.14539	0.10553	0.01553	0.00056	0.00266	0.00078	0.01696	0.00124	0.00093

First Peak Hour Scenario (per vessel) 1.760 0.484 3.569 0.242 0.020 0.044 0.635 0.365 0.269 0.024 0.001 0.005 0.002 0.027 0.003 0.002

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel) 0.691 0.192 1.401 0.096 0.008 0.019 0.254 0.145 0.106 0.016 0.001 0.003 0.001 0.017 0.001 0.001

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3 Year 2011 only
1 All other years

San Pedro Waterfront

Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
-	-	-	-	-	-	-	-
0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
-	-	-	-	-	-	-	-
0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
0.00243	2.22623	0.00371	0.00461	-	0.00008	0.01625	0.05604
-	-	-	-	-	-	-	-
0.00243	2.22623	0.00371	0.00461	-	0.00008	0.01625	0.05604
0.00149	1.36047	0.00227	0.00281	-	0.00005	0.00993	0.03425
-	-	-	-	-	-	-	-
0.00149	1.36047	0.00227	0.00281	-	0.00005	0.00993	0.03425
0.00071	0.64978	0.00108	0.00134	-	0.00002	0.00474	0.01636
0.00089	0.44485	-	-	-	0.00048	-	0.00979
0.00160	1.09463	0.00108	0.00134	-	0.00050	0.00474	0.02614
0.00080	0.73642	0.00123	0.00152	-	0.00003	0.00538	0.01854
0.00101	0.50417	-	-	-	0.00054	-	0.01109
0.00181	1.24059	0.00123	0.00152	-	0.00057	0.00538	0.02963
0.00019	0.17250	0.00029	0.00036	-	0.00001	0.00126	0.00434
0.00031	0.15659	-	-	-	0.00017	-	0.00344
0.00050	0.32909	0.00029	0.00036	-	0.00018	0.00126	0.00779
0.00024	0.21563	0.00036	0.00045	-	0.00001	0.00157	0.00543
0.00039	0.19573	-	-	-	0.00021	-	0.00431
0.00063	0.41136	0.00036	0.00045	-	0.00022	0.00157	0.00973
0.00027	0.25091	0.00042	0.00052	-	0.00001	0.00183	0.00632
0.00046	0.22776	-	-	-	0.00025	-	0.00501
0.00073	0.47868	0.00042	0.00052	-	0.00025	0.00183	0.01133
0.00059	0.54004	0.00090	0.00112	-	0.00002	0.00394	0.01359
0.00142	0.71176	-	-	-	0.00077	-	0.01566
0.00201	1.25180	0.00090	0.00112	-	0.00079	0.00394	0.02925
0.004	2.460	0.002	0.003	-	0.001	0.010	0.058
0.002	1.252	0.001	0.001	-	0.001	0.004	0.029

San Pedro Waterfront

Unmitigated Alternative 2 Toxic Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	Copper	Lead
Sea / Fairway - North-Bound	Diesel Engines	4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346	0.00770	0.00481	0.00808
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>4.28639</i>	<i>1.15848</i>	<i>8.68863</i>	<i>0.57924</i>	<i>0.04924</i>	<i>0.09268</i>	<i>1.50603</i>	<i>0.86886</i>	<i>0.65440</i>	<i>0.00096</i>	<i>0.00346</i>	<i>0.00770</i>	<i>0.00481</i>	<i>0.00808</i>
Sea / Fairway - South-Bound	Diesel Engines	5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409	0.00909	0.00568	0.00955
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>5.06359</i>	<i>1.36854</i>	<i>10.26404</i>	<i>0.68427</i>	<i>0.05816</i>	<i>0.10948</i>	<i>1.77910</i>	<i>1.02640</i>	<i>0.77305</i>	<i>0.00114</i>	<i>0.00409</i>	<i>0.00909</i>	<i>0.00568</i>	<i>0.00955</i>
Fairway - North-Bound	Diesel Engines	3.28166	0.88693	6.65201	0.44347	0.03769	0.07095	1.15302	0.66520	0.50101	0.00074	0.00265	0.00589	0.00368	0.00619
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>3.28166</i>	<i>0.88693</i>	<i>6.65201</i>	<i>0.44347</i>	<i>0.03769</i>	<i>0.07095</i>	<i>1.15302</i>	<i>0.66520</i>	<i>0.50101</i>	<i>0.00074</i>	<i>0.00265</i>	<i>0.00589</i>	<i>0.00368</i>	<i>0.00619</i>
Fairway - South-Bound	Diesel Engines	2.00546	0.54202	4.06512	0.27101	0.02304	0.04336	0.70462	0.40651	0.30617	0.00045	0.00162	0.00360	0.00225	0.00378
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>2.00546</i>	<i>0.54202</i>	<i>4.06512</i>	<i>0.27101</i>	<i>0.02304</i>	<i>0.04336</i>	<i>0.70462</i>	<i>0.40651</i>	<i>0.30617</i>	<i>0.00045</i>	<i>0.00162</i>	<i>0.00360</i>	<i>0.00225</i>	<i>0.00378</i>
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.14320	0.00021	0.00076	0.00168	0.00105	0.00177
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	-	0.00961	-	0.00089	-	0.00979
<i>Total Precautionary Zone - North-Bound</i>		<i>0.93797</i>	<i>0.25681</i>	<i>1.90145</i>	<i>0.12844</i>	<i>0.01088</i>	<i>0.02271</i>	<i>0.33651</i>	<i>0.19343</i>	<i>0.14320</i>	<i>0.00982</i>	<i>0.00076</i>	<i>0.00257</i>	<i>0.00105</i>	<i>0.01156</i>
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.16229	0.00024	0.00086	0.00191	0.00119	0.00200
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	-	0.01089	-	0.00101	-	0.01109
<i>Total Precautionary Zone - South-Bound</i>		<i>1.06304</i>	<i>0.29105</i>	<i>2.15498</i>	<i>0.14556</i>	<i>0.01233</i>	<i>0.02574</i>	<i>0.38138</i>	<i>0.21922</i>	<i>0.16229</i>	<i>0.01113</i>	<i>0.00086</i>	<i>0.00292</i>	<i>0.00119</i>	<i>0.01310</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.03702	0.00005	0.00020	0.00044	0.00027	0.00046
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	-	0.00338	-	0.00031	-	0.00344
<i>Total Outer Harbor Zone1</i>		<i>0.24251</i>	<i>0.06670</i>	<i>0.49162</i>	<i>0.03336</i>	<i>0.00282</i>	<i>0.00610</i>	<i>0.08765</i>	<i>0.05032</i>	<i>0.03702</i>	<i>0.00344</i>	<i>0.00020</i>	<i>0.00075</i>	<i>0.00027</i>	<i>0.00390</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.04628	0.00007	0.00025	0.00054	0.00034	0.00057
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	-	0.00423	-	0.00039	-	0.00431
<i>Total Outer Harbor Zone2</i>		<i>0.30313</i>	<i>0.08338</i>	<i>0.61453</i>	<i>0.04171</i>	<i>0.00353</i>	<i>0.00762</i>	<i>0.10957</i>	<i>0.06290</i>	<i>0.04628</i>	<i>0.00430</i>	<i>0.00025</i>	<i>0.00094</i>	<i>0.00034</i>	<i>0.00488</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.05385	0.00008	0.00029	0.00063	0.00040	0.00067
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	-	0.00492	-	0.00046	-	0.00501
<i>Total Inner Harbor Zone</i>		<i>0.35274</i>	<i>0.09703</i>	<i>0.71509</i>	<i>0.04853</i>	<i>0.00411</i>	<i>0.00887</i>	<i>0.12749</i>	<i>0.07319</i>	<i>0.05385</i>	<i>0.00500</i>	<i>0.00029</i>	<i>0.00109</i>	<i>0.00040</i>	<i>0.00568</i>
Hoteling	Diesel Engines	0.75090	0.20295	1.52210	0.10147	0.00863	0.01624	0.26383	0.15221	0.11464	0.00017	0.00061	0.00135	0.00084	0.00142
Hoteling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	-	0.01537	-	0.00142	-	0.01566
<i>Total Hoteling</i>		<i>0.75090</i>	<i>0.20823</i>	<i>1.52235</i>	<i>0.10417</i>	<i>0.00880</i>	<i>0.02013</i>	<i>0.27496</i>	<i>0.15749</i>	<i>0.11464</i>	<i>0.01554</i>	<i>0.00061</i>	<i>0.00277</i>	<i>0.00084</i>	<i>0.01707</i>
First Peak Hour Scenario (per vessel)		1.961	0.538	3.976	0.269	0.023	0.048	0.706	0.406	0.299	0.024	0.002	0.006	0.002	0.028
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.															
Second Peak Hour Scenario (per vessel)		0.751	0.208	1.522	0.104	0.009	0.020	0.275	0.157	0.115	0.016	0.001	0.003	0.001	0.017
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.															

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0 Year 2011 only
3 All other years

San Pedro Waterfront

Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorus	Zinc
0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
-	-	-	-	-	-	-	-	-	-
0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
-	-	-	-	-	-	-	-	-	-
0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00589	0.00442	0.00280	2.56397	0.00427	0.00530	-	0.00009	0.01871	0.06454
-	-	-	-	-	-	-	-	-	-
0.00589	0.00442	0.00280	2.56397	0.00427	0.00530	-	0.00009	0.01871	0.06454
0.00360	0.00270	0.00171	1.56687	0.00261	0.00324	-	0.00005	0.01144	0.03944
-	-	-	-	-	-	-	-	-	-
0.00360	0.00270	0.00171	1.56687	0.00261	0.00324	-	0.00005	0.01144	0.03944
0.00168	0.00126	0.00080	0.73284	0.00122	0.00152	-	0.00003	0.00535	0.01845
-	-	0.00089	0.44485	-	-	-	0.00048	-	0.00979
0.00168	0.00126	0.00169	1.17769	0.00122	0.00152	-	0.00051	0.00535	0.02823
0.00191	0.00143	0.00091	0.83055	0.00138	0.00172	-	0.00003	0.00606	0.02091
-	-	0.00101	0.50417	-	-	-	0.00054	-	0.01109
0.00191	0.00143	0.00192	1.33472	0.00138	0.00172	-	0.00057	0.00606	0.03200
0.00044	0.00033	0.00021	0.18947	0.00032	0.00039	-	0.00001	0.00138	0.00477
-	-	0.00031	0.15659	-	-	-	0.00017	-	0.00344
0.00044	0.00033	0.00052	0.34606	0.00032	0.00039	-	0.00018	0.00138	0.00821
0.00054	0.00041	0.00026	0.23684	0.00039	0.00049	-	0.00001	0.00173	0.00596
-	-	0.00039	0.19573	-	-	-	0.00021	-	0.00431
0.00054	0.00041	0.00065	0.43257	0.00039	0.00049	-	0.00022	0.00173	0.01027
0.00063	0.00048	0.00030	0.27559	0.00046	0.00057	-	0.00001	0.00201	0.00694
-	-	0.00046	0.22776	-	-	-	0.00025	-	0.00501
0.00063	0.00048	0.00076	0.50336	0.00046	0.00057	-	0.00026	0.00201	0.01195
0.00135	0.00101	0.00064	0.58668	0.00098	0.00121	-	0.00002	0.00428	0.01477
-	-	0.00142	0.71176	-	-	-	0.00077	-	0.01566
0.00135	0.00101	0.00206	1.29845	0.00098	0.00121	-	0.00079	0.00428	0.03043
0.004	0.003	0.004	2.617	0.003	0.003	-	0.001	0.011	0.062
0.001	0.001	0.002	1.298	0.001	0.001	-	0.001	0.004	0.030

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,111										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,111</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	89,139										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>89,139</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,565										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,565</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	26,387										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>26,387</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	468										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>468</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	17,717										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.4	4.1	2.0	-	3.5
<i>Total Precautionary Zone - South-Bound</i>		<i>17,717</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>4.1</i>	<i>2.0</i>	<i>-</i>	<i>3.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,269										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.6	0.8	-	1.4
<i>Total Outer Harbor Zone2</i>		<i>5,269</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.8</i>	<i>-</i>	<i>1.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	6,131										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	1.9	0.9	-	1.6
<i>Total Inner Harbor Zone</i>		<i>6,131</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>1.9</i>	<i>0.9</i>	<i>-</i>	<i>1.6</i>
Hoteling	Diesel Engines	78,724										
Hoteling	Boiler		-	17.1	0.8	8.7	0.6	12.6	35.9	17.1	-	30.7
<i>Total Hoteling</i>		<i>78,724</i>	<i>-</i>	<i>17.1</i>	<i>0.8</i>	<i>8.7</i>	<i>0.6</i>	<i>12.6</i>	<i>35.9</i>	<i>17.1</i>	<i>-</i>	<i>30.7</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.3	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.3	-	-	-	0.0	-	0.1
-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	0.2	-	3.6
-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	0.2	-	3.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	0.1	-	1.4
-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	0.1	-	1.4
-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	0.1	-	1.7
-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	0.1	-	1.7
-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	1.5	-	31.3
-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	1.5	-	31.3

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,158										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,158</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	91,127										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>91,127</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,600										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,600</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	26,976										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>26,976</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	478										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>478</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	18,112										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>18,112</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	2,155										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.6
<i>Total Outer Harbor Zone1</i>		<i>2,155</i>	<i>-</i>	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	<i>-</i>	<i>0.6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,693										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.8	0.4	-	0.7
<i>Total Outer Harbor Zone2</i>		<i>2,693</i>	<i>-</i>	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.8</i>	<i>0.4</i>	<i>-</i>	<i>0.7</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	3,134										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.2	0.0	0.3	1.0	0.5	-	0.8
<i>Total Inner Harbor Zone</i>		<i>3,134</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>1.0</i>	<i>0.5</i>	<i>-</i>	<i>0.8</i>
Hoteling	Diesel Engines	80,479										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hoteling</i>		<i>80,479</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>31.4</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.1	-	0.6	-	-	0.1	26.7	-	-	-	0.0	-	0.6
-	0.1	-	0.6	-	-	0.1	26.7	-	-	-	0.0	-	0.6
-	0.1	-	0.7	-	-	0.1	33.3	-	-	-	0.0	-	0.7
-	0.1	-	0.7	-	-	0.1	33.3	-	-	-	0.0	-	0.7
-	0.1	-	0.9	-	-	0.1	38.8	-	-	-	0.0	-	0.9
-	0.1	-	0.9	-	-	0.1	38.8	-	-	-	0.0	-	0.9
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,213										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,213</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	93,447										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>93,447</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,641										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,641</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	27,662										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>27,662</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	490										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>490</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	18,573										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.3	2.0	-	3.7
<i>Total Precautionary Zone - South-Bound</i>		<i>18,573</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.3</i>	<i>2.0</i>	<i>-</i>	<i>3.7</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	2,209										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.6
<i>Total Outer Harbor Zone1</i>		<i>2,209</i>	<i>-</i>	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	<i>-</i>	<i>0.6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,762										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.9	0.4	-	0.7
<i>Total Outer Harbor Zone2</i>		<i>2,762</i>	<i>-</i>	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.9</i>	<i>0.4</i>	<i>-</i>	<i>0.7</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	3,214										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.2	0.0	0.4	1.0	0.5	-	0.9
<i>Total Inner Harbor Zone</i>		<i>3,214</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.4</i>	<i>1.0</i>	<i>0.5</i>	<i>-</i>	<i>0.9</i>
Hoteling	Diesel Engines	82,528										
Hoteling	Boiler		-	17.9	0.8	9.1	0.6	13.2	37.6	17.9	-	32.2
<i>Total Hoteling</i>		<i>82,528</i>	<i>-</i>	<i>17.9</i>	<i>0.8</i>	<i>9.1</i>	<i>0.6</i>	<i>13.2</i>	<i>37.6</i>	<i>17.9</i>	<i>-</i>	<i>32.2</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.5	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.5	-	-	-	0.0	-	0.1
-	0.3	-	3.8	-	-	0.3	171.0	-	-	-	0.2	-	3.8
-	0.3	-	3.8	-	-	0.3	171.0	-	-	-	0.2	-	3.8
-	0.1	-	0.6	-	-	0.1	27.4	-	-	-	0.0	-	0.6
-	0.1	-	0.6	-	-	0.1	27.4	-	-	-	0.0	-	0.6
-	0.1	-	0.8	-	-	0.1	34.2	-	-	-	0.0	-	0.8
-	0.1	-	0.8	-	-	0.1	34.2	-	-	-	0.0	-	0.8
-	0.1	-	0.9	-	-	0.1	39.8	-	-	-	0.0	-	0.9
-	0.1	-	0.9	-	-	0.1	39.8	-	-	-	0.0	-	0.9
-	3.0	-	32.8	-	-	3.0	1,492.1	-	-	-	1.6	-	32.8
-	3.0	-	32.8	-	-	3.0	1,492.1	-	-	-	1.6	-	32.8

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,252										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,252</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	95,104										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>95,104</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,670										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,670</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	28,153										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>28,153</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	499										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>499</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	18,903										
Precautionary Zone - South-Bound	Boiler		-	2.1	0.1	1.1	0.1	1.5	4.4	2.1	-	3.8
<i>Total Precautionary Zone - South-Bound</i>		<i>18,903</i>	<i>-</i>	<i>2.1</i>	<i>0.1</i>	<i>1.1</i>	<i>0.1</i>	<i>1.5</i>	<i>4.4</i>	<i>2.1</i>	<i>-</i>	<i>3.8</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	2,249										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.6
<i>Total Outer Harbor Zone1</i>		<i>2,249</i>	<i>-</i>	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	<i>-</i>	<i>0.6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,811										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.9	0.4	-	0.8
<i>Total Outer Harbor Zone2</i>		<i>2,811</i>	<i>-</i>	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.9</i>	<i>0.4</i>	<i>-</i>	<i>0.8</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	3,271										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.2	0.0	0.4	1.0	0.5	-	0.9
<i>Total Inner Harbor Zone</i>		<i>3,271</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.4</i>	<i>1.0</i>	<i>0.5</i>	<i>-</i>	<i>0.9</i>
Hoteling	Diesel Engines	83,991										
Hoteling	Boiler		-	18.2	0.8	9.3	0.6	13.4	38.3	18.2	-	32.8
<i>Total Hoteling</i>		<i>83,991</i>	<i>-</i>	<i>18.2</i>	<i>0.8</i>	<i>9.3</i>	<i>0.6</i>	<i>13.4</i>	<i>38.3</i>	<i>18.2</i>	<i>-</i>	<i>32.8</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.6	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.6	-	-	-	0.0	-	0.1
-	0.3	-	3.8	-	-	0.3	174.1	-	-	-	0.2	-	3.8
-	0.3	-	3.8	-	-	0.3	174.1	-	-	-	0.2	-	3.8
-	0.1	-	0.6	-	-	0.1	27.8	-	-	-	0.0	-	0.6
-	0.1	-	0.6	-	-	0.1	27.8	-	-	-	0.0	-	0.6
-	0.1	-	0.8	-	-	0.1	34.8	-	-	-	0.0	-	0.8
-	0.1	-	0.8	-	-	0.1	34.8	-	-	-	0.0	-	0.8
-	0.1	-	0.9	-	-	0.1	40.5	-	-	-	0.0	-	0.9
-	0.1	-	0.9	-	-	0.1	40.5	-	-	-	0.0	-	0.9
-	3.0	-	33.4	-	-	3.0	1,518.5	-	-	-	1.6	-	33.4
-	3.0	-	33.4	-	-	3.0	1,518.5	-	-	-	1.6	-	33.4

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 2												
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year							
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
DPM														
Sea / Fairway - North-Bound	Diesel Engines	2,220	2,024	2,024	2,111	2,111	2,111	2,111	2,158	2,158	2,158	2,158	2,158	
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	
Sea / Fairway - South-Bound	Diesel Engines	93,736	85,494	85,494	89,139	89,139	89,139	91,127	91,127	91,127	91,127	91,127	91,127	
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	
Fairway - North-Bound	Diesel Engines	1,646	1,501	1,501	1,565	1,565	1,565	1,600	1,600	1,600	1,600	1,600	1,600	
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	
Fairway - South-Bound	Diesel Engines	27,748	25,308	25,308	26,387	26,387	26,387	26,976	26,976	26,976	26,976	26,976	26,976	
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	
Precautionary Zone - North-Bound	Diesel Engines	492	449	449	468	468	468	478	478	478	478	478	478	
Precautionary Zone - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - North-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	
Precautionary Zone - South-Bound	Diesel Engines	18,631	16,993	16,993	17,717	17,717	17,717	18,112	18,112	18,112	18,112	18,112	18,112	
Precautionary Zone - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - South-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Diesel Engines	2,100	-	-	-	-	2,155	2,155	2,155	2,155	2,155	2,155	2,155	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Boiler		-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone1</i>			-	-	-	-	-	-	-	-	-	-	-	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,993	5,053	5,053	5,269	5,269	5,269	2,693	2,693	2,693	2,693	2,693	2,693	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone2</i>			-	-	-	-	-	-	-	-	-	-	-	
Inner Harbor Zone (maneuvering through main channel: inne	Diesel Engines	3,483	5,880	5,880	6,131	6,131	6,131	3,134	3,134	3,134	3,134	3,134	3,134	
Inner Harbor Zone (maneuvering through main channel: inne	Boiler		-	-	-	-	-	-	-	-	-	-	-	
<i>Total Inner Harbor Zone</i>			-	-	-	-	-	-	-	-	-	-	-	
Hotelling	Diesel Engines	82,783	75,504	75,504	78,724	78,724	78,724	80,479	80,479	80,479	80,479	80,479	80,479	
Hotelling	Boiler		-	-	-	-	-	-	-	-	-	-	-	
<i>Total Hotelling</i>			-	-	-	-	-	-	-	-	-	-	-	

San Pedro Waterfront

Evaluation Year																Evaluation Year	
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	
2,158	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,252	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
91,127	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	93,447	95,104	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1,600	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,670	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
26,976	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	27,662	28,153	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
478	490	490	490	490	490	490	490	490	490	490	490	490	490	490	490	499	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
18,112	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,573	18,903	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2,155	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,209	2,249	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2,693	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,762	2,811	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3,134	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,214	3,271	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
80,479	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	82,528	83,991	

San Pedro Waterfront

2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991

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2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252	2,252
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104	95,104
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670	1,670
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153	28,153
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499	499
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903	18,903
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249	2,249
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811	2,811
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271	3,271
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991	83,991

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 2												
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year							
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
PM from OGV boilers														
Sea / Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>														
Sea / Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>														
Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>														
Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>														
Precautionary Zone - North-Bound	Diesel Engines	18	17	17	17	17	17	18	18	18	18	18	18	18
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - North-Bound</i>														
Precautionary Zone - South-Bound	Diesel Engines	686	626	626	653	653	653	667	667	667	667	667	667	667
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - South-Bound</i>														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁶⁾	Diesel Engines	104	-	-	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁶⁾	Boiler	-	-	-	-	107	107	107	107	107	107	107	107	107
<i>Total Outer Harbor Zone1</i>														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	148	250	250	261	261	261	133	133	133	133	133	133	133
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone2</i>														
Inner Harbor Zone (maneuvering through main channel: inne	Diesel Engines	172	291	291	304	304	304	155	155	155	155	155	155	155
Inner Harbor Zone (maneuvering through main channel: inne	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Inner Harbor Zone</i>														
Hotelling	Diesel Engines	5,987	5,460	5,460	5,693	5,693	5,693	5,820	5,820	5,820	5,820	5,820	5,820	5,820
Hotelling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Hotelling</i>														

San Pedro Waterfront

Evaluation Year																Evaluation Year	
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
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667	684	684	684	684	684	684	684	684	684	684	684	684	684	684	684	696	
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107	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109	111	
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133	137	137	137	137	137	137	137	137	137	137	137	137	137	137	137	139	
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155	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	162	
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5,820	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	5,968	6,074	

San Pedro Waterfront

2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696
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111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
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139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
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696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696	696
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
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139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139
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162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074	6,074

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 2													
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year								
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
VOC from OGV boilers															
Sea / Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-		
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Total in Sea / Fairway - North-Bound</i>															
Sea / Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-		
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Total in Sea / Fairway - South-Bound</i>															
Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-		
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Total in Fairway - North-Bound</i>															
Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-		
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Total in Fairway - South-Bound</i>															
Precautionary Zone - North-Bound	Diesel Engines	2	2	2	2	2	2	2	2	2	2	2	2		
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Total Precautionary Zone - North-Bound</i>															
Precautionary Zone - South-Bound	Diesel Engines	90	82	82	86	86	86	88	88	88	88	88	88		
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Total Precautionary Zone - South-Bound</i>															
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁶⁾	Diesel Engines	14	-	-	-	-	-	-	-	-	-	-	-		
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁶⁾	Boiler	-	-	-	-	14	14	14	14	14	14	14	14		
<i>Total Outer Harbor Zone1</i>															
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	20	33	33	34	34	34	34	18	18	18	18	18		
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Total Outer Harbor Zone2</i>															
Inner Harbor Zone (maneuvering through main channel: inne	Diesel Engines	23	38	38	40	40	40	40	20	20	20	20	20		
Inner Harbor Zone (maneuvering through main channel: inne	Boiler	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Total Inner Harbor Zone</i>															
Hoteling	Diesel Engines	788	719	719	749	749	749	749	766	766	766	766	766		
Hoteling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-		
<i>Total Hotelling</i>															

San Pedro Waterfront

Evaluation Year															Evaluation Year	
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
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88	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	92
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14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	15
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
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20	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
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766	786	786	786	786	786	786	786	786	786	786	786	786	786	786	786	800

San Pedro Waterfront

2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
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15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
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21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
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800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800

San Pedro Waterfront

Unmitigated Alternative 2 Toxic Pollutant Emissions
70-Year Average

Year (lb/yr)	Spatial Allocation	Power Type	DPM	VOC								PM						
				Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium			
	Sea / Fairway - North-Bound	Diesel Engines	2,220															
	Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - North-Bound</i>		<i>2,220</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Sea / Fairway - South-Bound	Diesel Engines	93,736															
	Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - South-Bound</i>		<i>93,736</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - North-Bound	Diesel Engines	1,646															
	Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - North-Bound</i>		<i>1,646</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - South-Bound	Diesel Engines	27,748															
	Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - South-Bound</i>		<i>27,748</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Precautionary Zone - North-Bound	Diesel Engines	492															
	Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1	-	0.1	-	0.0	
	<i>Total Precautionary Zone - North-Bound</i>		<i>492</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>	<i>0.0</i>
	Precautionary Zone - South-Bound	Diesel Engines	18,631															
	Precautionary Zone - South-Bound	Boiler		-	2.1	0.1	1.0	0.1	1.5	4.3	2.1	-	3.7	-	0.3	-	0.3	
	<i>Total Precautionary Zone - South-Bound</i>		<i>18,631</i>	<i>-</i>	<i>2.1</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.3</i>	<i>2.1</i>	<i>-</i>	<i>3.7</i>	<i>-</i>	<i>0.3</i>	<i>-</i>	<i>0.3</i>	<i>0.3</i>
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	2,100															
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.6	-	0.1	-	0.1	
	<i>Total Outer Harbor Zone1</i>		<i>2,100</i>	<i>-</i>	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	<i>-</i>	<i>0.6</i>	<i>-</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>	<i>0.1</i>
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,993															
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.9	0.4	-	0.8	-	0.1	-	0.1	
	<i>Total Outer Harbor Zone2</i>		<i>2,993</i>	<i>-</i>	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.9</i>	<i>0.4</i>	<i>-</i>	<i>0.8</i>	<i>-</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>	<i>0.1</i>
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	3,483															
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	0.9	-	0.1	-	0.1	
	<i>Total Inner Harbor Zone</i>		<i>3,483</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	<i>-</i>	<i>0.9</i>	<i>-</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>	<i>0.1</i>
	Hoteling	Diesel Engines	82,783															
	Hoteling	Boiler		-	17.9	0.8	9.2	0.6	13.2	37.8	17.9	-	32.3	-	3.0	-	3.0	
	<i>Total Hoteling</i>		<i>82,783</i>	<i>-</i>	<i>17.9</i>	<i>0.8</i>	<i>9.2</i>	<i>0.6</i>	<i>13.2</i>	<i>37.8</i>	<i>17.9</i>	<i>-</i>	<i>32.3</i>	<i>-</i>	<i>3.0</i>	<i>-</i>	<i>3.0</i>	<i>3.0</i>

San Pedro Waterfront

Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	-	0.0	4.5	-	-	-	0.0	-	0.1
-	0.1	-	-	0.0	4.5	-	-	-	0.0	-	0.1
-	3.8	-	-	0.3	171.6	-	-	-	0.2	-	3.8
-	3.8	-	-	0.3	171.6	-	-	-	0.2	-	3.8
-	0.6	-	-	0.1	26.0	-	-	-	0.0	-	0.6
-	0.6	-	-	0.1	26.0	-	-	-	0.0	-	0.6
-	0.8	-	-	0.1	37.1	-	-	-	0.0	-	0.8
-	0.8	-	-	0.1	37.1	-	-	-	0.0	-	0.8
-	0.9	-	-	0.1	43.1	-	-	-	0.0	-	0.9
-	0.9	-	-	0.1	43.1	-	-	-	0.0	-	0.9
-	32.9	-	-	3.0	1,496.7	-	-	-	1.6	-	32.9
-	32.9	-	-	3.0	1,496.7	-	-	-	1.6	-	32.9

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 2 Vessel with No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>43.2</i>	<i>78.2</i>	<i>19.6</i>	<i>549.7</i>	<i>78.2</i>	<i>62.6</i>	<i>752.5</i>	<i>20.7</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.6</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
<i>Emissions = Engine Power * Load Factor * Emission Factor * Time</i>										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.										
VOC/HC =		1.053								
1 lb =		453.59								
<u>Assumptions</u>										
1. Residual fuel with 4.5% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.										
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.										
5. No VSRP										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:						3.0		Divide by 2 = Half of 2011 Type 2 vessels		

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 3 Vessel with No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	0.63
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	0.32
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	12
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

- Residual fuel with 4.5% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this unmitigated profile for the peak scenario.
- No VSRP

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0

Divide by 2 = Half of 2011 Type 3 vessels

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 2 Vessel with Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>33.0</i>	<i>59.8</i>	<i>15.0</i>	<i>420.1</i>	<i>59.8</i>	<i>47.8</i>	<i>575.1</i>	<i>15.8</i>	
Fairway - South-Bound	Diesel Engines	30.3	54.8	13.8	385.1	54.8	43.8	527.2	14.5	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>30.3</i>	<i>54.8</i>	<i>13.8</i>	<i>385.1</i>	<i>54.8</i>	<i>43.8</i>	<i>527.2</i>	<i>14.5</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.8</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

*Emissions = Engine Power * Load Factor * Emission Factor * Time*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = 1.053$$

$$1 \text{ lb} = 453.59$$

Assumptions

- 2.7% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 2 vessels will have this mitigated profile for the peak scenario.
- VSRP = 100% within 20 nm

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 Divide by 2 = Half of 2011 Type 2 vessels

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 3 Vessel with Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Fairway - North-Bound	Diesel Engines	37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	1.82
Fairway - South-Bound	Diesel Engines	34.1	61.8	15.5	434.3	61.8	49.4	594.5	16.3	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		34.1	61.8	15.5	434.3	61.8	49.4	594.5	16.3	0.92
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	0.63
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.2	338.9	49.7	39.8	502.4	12.8	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.9	16.7	13.4	171.8	4.3	0.32
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	12
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

- 2.7% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this mitigated profile for the peak scenario.
- VSRP = 100% within 20 nm

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0

Divide by 2 = Half of 2011 Type 3 vessels

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 2 Vessel No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>43.2</i>	<i>78.2</i>	<i>19.6</i>	<i>549.7</i>	<i>78.2</i>	<i>62.6</i>	<i>752.5</i>	<i>20.7</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.8</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	1.2
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

- Residual fuel with 4.5% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

1.0 Divide by 2 = Half of 2015+ Type 2 vessels

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 3 Vessel No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.9	16.7	13.4	171.8	4.3	
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12.00
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

- Residual fuel with 4.5% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this unmitigated profile for the peak scenario.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

3.0

Divide by 2 = Half of 2015+ Type 3 vessels

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 2 Vessel With Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.52
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>33.0</i>	<i>19.1</i>	<i>15.0</i>	<i>382.3</i>	<i>19.1</i>	<i>15.3</i>	<i>57.5</i>	<i>15.8</i>	
Sea / Fairway - South-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.92
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>33.0</i>	<i>19.1</i>	<i>15.0</i>	<i>382.3</i>	<i>19.1</i>	<i>15.3</i>	<i>57.5</i>	<i>15.8</i>	
Fairway - North-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>33.0</i>	<i>19.1</i>	<i>15.0</i>	<i>382.3</i>	<i>19.1</i>	<i>15.3</i>	<i>57.5</i>	<i>15.8</i>	
Fairway - South-Bound	Diesel Engines	30.3	17.5	13.8	350.4	17.5	14.0	52.7	14.5	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>30.3</i>	<i>17.5</i>	<i>13.8</i>	<i>350.4</i>	<i>17.5</i>	<i>14.0</i>	<i>52.7</i>	<i>14.5</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	11.9	9.4	238.9	11.9	9.5	35.9	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.6	0.5	0.4	3.8	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>11.9</i>	<i>9.5</i>	<i>241.5</i>	<i>12.4</i>	<i>9.9</i>	<i>39.7</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	13.5	10.6	270.8	13.5	10.8	40.7	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.0	0.5	0.4	4.3	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>13.5</i>	<i>10.8</i>	<i>273.7</i>	<i>14.0</i>	<i>11.2</i>	<i>45.0</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	5.5	3.2	2.5	63.4	3.2	2.5	9.5	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	0.9	0.2	0.1	1.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>3.2</i>	<i>2.5</i>	<i>64.4</i>	<i>3.3</i>	<i>2.7</i>	<i>10.9</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	4.0	3.1	79.3	4.0	3.2	11.9	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.2	0.2	1.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>4.0</i>	<i>3.2</i>	<i>80.4</i>	<i>4.2</i>	<i>3.3</i>	<i>13.6</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	4.6	3.6	92.3	4.6	3.7	13.9	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.3	0.2	0.2	1.9	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>4.6</i>	<i>3.7</i>	<i>93.6</i>	<i>4.8</i>	<i>3.9</i>	<i>15.8</i>	<i>3.9</i>	
Hoteling	Diesel Engines	1.4	0.8	0.6	16.5	0.8	0.7	2.5	0.7	12
Hoteling	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
<i>Total Hoteling</i>		<i>1.9</i>	<i>0.8</i>	<i>0.9</i>	<i>20.8</i>	<i>1.6</i>	<i>1.3</i>	<i>8.6</i>	<i>0.9</i>	
First Peak Hour Scenario (per vessel)		44	25	20	512	26	21	85	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		2	1	1	21	2	1	9	1	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

*Emissions = Engine Power * Load Factor * Emission Factor * Time*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

- Residual fuel with 2.7% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 2 vessels will have this mitigated profile for the peak scenario.
- AMP applied to hoteling: 80% to inner harbor; 90% to outer harbor.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

1.0 Divide by 2 = Half of 2015+ Type 2 vessels

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 3 Vessel With Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.52
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>37.2</i>	<i>21.5</i>	<i>16.9</i>	<i>431.1</i>	<i>21.5</i>	<i>17.2</i>	<i>64.9</i>	<i>17.8</i>	
Sea / Fairway - South-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.92
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>37.2</i>	<i>21.5</i>	<i>16.9</i>	<i>431.1</i>	<i>21.5</i>	<i>17.2</i>	<i>64.9</i>	<i>17.8</i>	
Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>37.2</i>	<i>21.5</i>	<i>16.9</i>	<i>431.1</i>	<i>21.5</i>	<i>17.2</i>	<i>64.9</i>	<i>17.8</i>	
Fairway - South-Bound	Diesel Engines	34.1	19.7	15.5	395.2	19.7	15.8	59.5	16.3	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>34.1</i>	<i>19.7</i>	<i>15.5</i>	<i>395.2</i>	<i>19.7</i>	<i>15.8</i>	<i>59.5</i>	<i>16.3</i>	
Precautionary Zone - North-Bound	Diesel Engines	23.3	13.5	10.6	269.4	13.5	10.8	40.5	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.6	0.5	0.4	3.8	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>23.5</i>	<i>13.5</i>	<i>10.7</i>	<i>272.1</i>	<i>13.9</i>	<i>11.1</i>	<i>44.3</i>	<i>11.3</i>	
Precautionary Zone - South-Bound	Diesel Engines	26.4	15.2	12.0	305.4	15.2	12.2	45.9	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.0	0.5	0.4	4.3	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>26.7</i>	<i>15.2</i>	<i>12.1</i>	<i>308.4</i>	<i>15.6</i>	<i>12.6</i>	<i>50.2</i>	<i>12.8</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	3.5	2.7	69.7	3.5	2.8	10.5	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	0.9	0.2	0.1	1.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>6.1</i>	<i>3.5</i>	<i>2.8</i>	<i>70.6</i>	<i>3.6</i>	<i>2.9</i>	<i>11.8</i>	<i>2.9</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	4.3	3.4	87.1	4.3	3.5	13.1	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.2	0.2	1.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.6</i>	<i>4.3</i>	<i>3.5</i>	<i>88.2</i>	<i>4.6</i>	<i>3.6</i>	<i>14.8</i>	<i>3.7</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	5.1	4.0	101.3	5.1	4.0	15.2	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.3	0.2	0.2	1.9	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.9</i>	<i>5.1</i>	<i>4.0</i>	<i>102.7</i>	<i>5.3</i>	<i>4.2</i>	<i>17.2</i>	<i>4.3</i>	
Hoteling	Diesel Engines	1.6	0.9	0.7	18.0	0.9	0.7	2.7	0.7	12.00
Hoteling	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
<i>Total Hoteling</i>		<i>2.0</i>	<i>0.9</i>	<i>0.9</i>	<i>22.2</i>	<i>1.6</i>	<i>1.3</i>	<i>8.8</i>	<i>1.0</i>	
First Peak Hour Scenario (per vessel)		49	28	22	570	29	23	94	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		2	1	1	22	2	1	9	1	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

*Emissions = Engine Power * Load Factor * Emission Factor * Time*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

- Residual fuel with 2.7% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this mitigated profile for the peak scenario.
- AMP applied to hoteling: 80% to inner harbor; 90% to outer harbor.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

3.0

Divide by 2 = Half of 2015+ Type 3 vessels

Mitigated Alternative 2 Criteria Pollutant Emissions
Year: 2011

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - North-Bound	Boiler								
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - South-Bound	Diesel Engines	115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler								
Total in Sea / Fairway - South-Bound		115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Fairway - North-Bound	Diesel Engines	62.8	113.7	28.5	799.1	113.7	90.9	1,093.9	30.1
Fairway - North-Bound	Boiler								
Total in Fairway - North-Bound		62.8	113.7	28.5	799.1	113.7	90.9	1,093.9	30.1
Fairway - South-Bound	Diesel Engines	31.7	57.4	14.4	403.2	57.4	45.9	552.0	15.2
Fairway - South-Bound	Boiler								
Total in Fairway - South-Bound		31.7	57.4	14.4	403.2	57.4	45.9	552.0	15.2
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9
Precautionary Zone - North-Bound	Boiler	0.2	-	0.1	2.4	1.4	1.2	30.8	0.1
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	264.9	38.8	31.0	390.2	10.0
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		23.7	42.3	10.8	300.8	44.3	35.5	450.3	11.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.1
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.6	2.7
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.1
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	135.9	3.3
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.1
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.3	158.2	3.9
Hotelling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.5
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
Total Hotelling		211.0	372.4	96.2	2,673.9	406.6	325.3	4,312.2	101.3
Outer Harbor Berths per Vessel - Peak Day (lb/day)		627	1,124	285	7,966	1,163	931	11,658	300
Inner Harbor Berths per Vessel - Peak Day (lb/day)		646	1,158	294	8,207	1,199	959	12,029	309
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		1,938	3,473	882	24,621	3,598	2,878	36,086	928
2011 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,305	2,356	593	16,599	2,378	1,903	23,150	625
2011 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	3	0

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions
Year: 2011

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>106.3</i>	<i>192.5</i>	<i>48.3</i>	<i>1,353.1</i>	<i>192.5</i>	<i>154.0</i>	<i>1,852.5</i>	<i>50.9</i>
Sea / Fairway - South-Bound	Diesel Engines	134.4	243.2	61.1	1,710.0	243.2	194.6	2,341.0	64.3
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>134.4</i>	<i>243.2</i>	<i>61.1</i>	<i>1,710.0</i>	<i>243.2</i>	<i>194.6</i>	<i>2,341.0</i>	<i>64.3</i>
Fairway - North-Bound	Diesel Engines	71.8	130.0	32.6	914.2	130.0	104.0	1,251.6	34.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>71.8</i>	<i>130.0</i>	<i>32.6</i>	<i>914.2</i>	<i>130.0</i>	<i>104.0</i>	<i>1,251.6</i>	<i>34.4</i>
Fairway - South-Bound	Diesel Engines	36.2	65.6	16.5	461.3	65.6	52.5	631.5	17.3
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>36.2</i>	<i>65.6</i>	<i>16.5</i>	<i>461.3</i>	<i>65.6</i>	<i>52.5</i>	<i>631.5</i>	<i>17.3</i>
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>23.5</i>	<i>42.1</i>	<i>10.7</i>	<i>299.0</i>	<i>43.9</i>	<i>35.1</i>	<i>443.3</i>	<i>11.3</i>
Precautionary Zone - South-Bound	Diesel Engines	22.5	40.8	10.2	286.6	40.8	32.6	392.4	10.8
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>22.8</i>	<i>40.8</i>	<i>10.4</i>	<i>289.9</i>	<i>42.8</i>	<i>34.2</i>	<i>435.4</i>	<i>10.9</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.1
<i>Total Outer Harbor Zone1</i>		<i>6.1</i>	<i>10.9</i>	<i>2.8</i>	<i>77.6</i>	<i>11.5</i>	<i>9.2</i>	<i>118.1</i>	<i>2.9</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.1
<i>Total Outer Harbor Zone2</i>		<i>7.6</i>	<i>13.6</i>	<i>3.5</i>	<i>97.0</i>	<i>14.4</i>	<i>11.5</i>	<i>147.7</i>	<i>3.7</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.1
<i>Total Inner Harbor Zone</i>		<i>8.9</i>	<i>15.8</i>	<i>4.0</i>	<i>112.8</i>	<i>16.7</i>	<i>13.4</i>	<i>171.8</i>	<i>4.3</i>
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	107.0
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hotelling</i>		<i>228.8</i>	<i>404.6</i>	<i>104.2</i>	<i>2,900.0</i>	<i>438.8</i>	<i>351.0</i>	<i>4,621.8</i>	<i>109.8</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		700	1,257	319	8,902	1,296	1,037	12,930	336
Inner Harbor Berths per Vessel - Peak Day (lb/day)		721	1,294	328	9,166	1,335	1,068	13,333	346
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-

Emissions = Engine Power * Load Factor * Emission Factor * Time

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC}_{\text{HC}} = \frac{1.053}{453.59} \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}$$

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels bound to Inner Harbor		Activity - Vessels bound to Outer Harbor	
	Harbor	Harbor	Harbor	Harbor
2011	0	0	0	0

Mitigated Alternative 2 Criteria Pollutant Emissions
Year: 2015+

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	59.8	91.1	27.2	745.5	91.1	72.9	823.5	28.6
Sea / Fairway - North-Bound	Boiler								
Total in Sea / Fairway - North-Bound		59.8	91.1	27.2	745.5	91.1	72.9	823.5	28.6
Sea / Fairway - South-Bound	Diesel Engines	75.6	115.1	34.4	942.2	115.1	92.1	1,040.7	36.2
Sea / Fairway - South-Bound	Boiler								
Total in Sea / Fairway - South-Bound		75.6	115.1	34.4	942.2	115.1	92.1	1,040.7	36.2
Fairway - North-Bound	Diesel Engines	62.8	89.0	28.5	776.2	89.0	71.2	780.5	30.1
Fairway - North-Bound	Boiler								
Total in Fairway - North-Bound		62.8	89.0	28.5	776.2	89.0	71.2	780.5	30.1
Fairway - South-Bound	Diesel Engines	31.7	44.9	14.4	391.6	44.9	35.9	393.8	15.2
Fairway - South-Bound	Boiler								
Total in Fairway - South-Bound		31.7	44.9	14.4	391.6	44.9	35.9	393.8	15.2
Precautionary Zone - North-Bound	Diesel Engines	20.6	24.6	9.4	250.7	24.6	19.7	197.7	9.9
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.8	1.1	0.9	20.8	0.1
Total Precautionary Zone - North-Bound		20.9	24.6	9.5	253.5	25.8	20.6	218.5	10.0
Precautionary Zone - South-Bound	Diesel Engines	23.4	27.9	10.6	284.2	27.9	22.3	224.0	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.1	1.3	1.0	23.6	0.2
Total Precautionary Zone - South-Bound		23.7	27.9	10.8	287.3	29.2	23.4	247.7	11.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	5.5	6.5	2.5	66.6	6.5	5.2	52.5	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.4	0.3	7.3	0.1
Total Outer Harbor Zone1		5.6	6.5	2.5	67.5	6.9	5.5	59.8	2.7
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	8.2	3.1	83.2	8.2	6.5	65.6	3.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.5	0.4	9.2	0.1
Total Outer Harbor Zone2		7.0	8.2	3.2	84.4	8.7	6.9	74.8	3.3
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	9.5	3.6	96.8	9.5	7.6	76.3	3.8
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.4	0.6	0.5	10.7	0.1
Total Inner Harbor Zone		8.1	9.5	3.7	98.2	10.1	8.1	87.0	3.9
Hotelling	Diesel Engines	111.4	191.2	50.7	1,408.5	191.2	152.9	1,807.3	53.3
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
Total Hotelling		116.7	191.2	53.3	1,461.5	212.7	170.2	2,207.4	56.1
Outer Harbor Berths per Vessel - Peak Day (lb/day)		452	668	206	5,608	693	555	6,465	217
Inner Harbor Berths per Vessel - Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2015 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		354	500	161	4,376	504	403	4,461	170
2015 Vessel Type 2 Hotelling Peak Day (lb/day)		117	191	53	1,462	213	170	2,207	56
2022 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		354	500	161	4,376	504	403	4,461	170
2022 Vessel Type 2 Hotelling Peak Day (lb/day)		117	191	53	1,462	213	170	2,207	56
2037 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		354	500	161	4,376	504	403	4,461	170
2037 Vessel Type 2 Hotelling Peak Day (lb/day)		117	191	53	1,462	213	170	2,207	56

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006}}{1 \text{ lb} = 453.59 \text{ grams}}$$

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	3	0
2015	1	0
2022	1	0
2037	1	0

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2015+

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	68.9	105.3	31.3	859.0	105.3	84.3	953.7	33.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		68.9	105.3	31.3	859.0	105.3	84.3	953.7	33.0
Sea / Fairway - South-Bound	Diesel Engines	87.1	133.1	39.6	1,085.6	133.1	106.5	1,205.2	41.7
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		87.1	133.1	39.6	1,085.6	133.1	106.5	1,205.2	41.7
Fairway - North-Bound	Diesel Engines	71.8	102.3	32.6	888.4	102.3	81.8	898.1	34.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		71.8	102.3	32.6	888.4	102.3	81.8	898.1	34.4
Fairway - South-Bound	Diesel Engines	36.2	51.6	16.5	448.3	51.6	41.3	453.2	17.3
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		36.2	51.6	16.5	448.3	51.6	41.3	453.2	17.3
Precautionary Zone - North-Bound	Diesel Engines	23.3	27.8	10.6	282.8	27.8	22.2	223.0	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.8	1.1	0.9	20.8	0.1
Total Precautionary Zone - North-Bound		23.5	27.8	10.7	285.5	28.9	23.1	243.8	11.3
Precautionary Zone - South-Bound	Diesel Engines	26.4	31.5	12.0	320.5	31.5	25.2	252.7	12.6
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.1	1.3	1.0	23.6	0.2
Total Precautionary Zone - South-Bound		26.7	31.5	12.2	323.6	32.8	26.2	276.3	12.8
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	6.0	7.2	2.7	73.1	7.2	5.7	57.6	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.4	0.3	7.3	0.1
Total Outer Harbor Zone1		6.1	7.2	2.8	74.1	7.6	6.1	65.0	2.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	9.0	3.4	91.4	9.0	7.2	72.1	3.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.5	0.4	9.2	0.1
Total Outer Harbor Zone2		7.6	9.0	3.5	92.6	9.5	7.6	81.2	3.7
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	10.4	4.0	106.3	10.4	8.4	83.8	4.2
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.4	0.6	0.5	10.7	0.1
Total Inner Harbor Zone		8.9	10.4	4.0	107.6	11.0	8.8	94.5	4.3
Hotelling	Diesel Engines	121.1	207.7	55.0	1,530.1	207.7	166.2	1,963.3	57.9
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
Total Hotelling		126.4	207.7	57.7	1,583.2	229.3	183.4	2,363.5	60.7
Outer Harbor Berths per Vessel - Peak Day (lb/day)		510	756	232	6,326	781	625	7,253	244
Inner Harbor Berths per Vessel - Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2015 Total Outer Harbor Berths Peak Day (lb/day)		1,020	1,512	464	12,653	1,561	1,249	14,505	489
2015 Total Inner Harbor Berths Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2022 Total Outer Harbor Berths Peak Day (lb/day)		1,020	1,512	464	12,653	1,561	1,249	14,505	489
2022 Total Inner Harbor Berths Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2037 Total Outer Harbor Berths Peak Day (lb/day)		1,020	1,512	464	12,653	1,561	1,249	14,505	489
2037 Total Inner Harbor Berths Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2015 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,171	1,669	532	14,482	1,680	1,344	14,889	561
2015 Vessel Type 3 Hotelling Peak Day (lb/day)		379	623	173	4,749	688	550	7,090	182
2022 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,171	1,669	532	14,482	1,680	1,344	14,889	561
2022 Vessel Type 3 Hotelling Peak Day (lb/day)		379	623	173	4,749	688	550	7,090	182
2037 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,171	1,669	532	14,482	1,680	1,344	14,889	561
2037 Vessel Type 3 Hotelling Peak Day (lb/day)		379	623	173	4,749	688	550	7,090	182

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels	
	bound to Inner Harbor	bound to Outer Harbor
2011	0	0
2015	1	2
2022	1	2
2037	1	2

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions
 Year: 2011, 2015, 2022, 2037

Total Peak Day (lb/day) for all Vessels

	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
2011 Transit & Maneuvering Peak Day (lb/day)	1,305	2,356	593	16,599	2,378	1,903	23,150	625
2011 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2015 Transit & Maneuvering Peak Day (lb/day)	1,525	2,168	694	18,859	2,184	1,748	19,350	730
2015 Hotelling Peak Day (lb/day)	496	814	226	6,211	901	720	9,298	238
2022 Transit & Maneuvering Peak Day (lb/day)	1,525	2,168	694	18,859	2,184	1,748	19,350	730
2022 Hotelling Peak Day (lb/day)	496	814	226	6,211	901	720	9,298	238
2037 Transit & Maneuvering Peak Day (lb/day)	1,525	2,168	694	18,859	2,184	1,748	19,350	730
2037 Hotelling Peak Day (lb/day)	496	814	226	6,211	901	720	9,298	238

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2011

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	11.5	20.8	5.2	145.9	20.8	16.6	199.8	5.5
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>11.5</i>	<i>20.8</i>	<i>5.2</i>	<i>145.9</i>	<i>20.8</i>	<i>16.6</i>	<i>199.8</i>	<i>5.5</i>
Sea / Fairway - South-Bound	Diesel Engines	14.5	26.2	6.6	184.4	26.2	21.0	252.5	6.9
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>14.5</i>	<i>26.2</i>	<i>6.6</i>	<i>184.4</i>	<i>26.2</i>	<i>21.0</i>	<i>252.5</i>	<i>6.9</i>
Fairway - North-Bound	Diesel Engines	7.8	14.2	3.6	99.9	14.2	11.4	136.7	3.8
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>7.8</i>	<i>14.2</i>	<i>3.6</i>	<i>99.9</i>	<i>14.2</i>	<i>11.4</i>	<i>136.7</i>	<i>3.8</i>
Fairway - South-Bound	Diesel Engines	4.0	7.2	1.8	50.4	7.2	5.7	69.0	1.9
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>4.0</i>	<i>7.2</i>	<i>1.8</i>	<i>50.4</i>	<i>7.2</i>	<i>5.7</i>	<i>69.0</i>	<i>1.9</i>
Precautionary Zone - North-Bound	Diesel Engines	2.6	4.7	1.2	32.8	4.7	3.7	44.9	1.2
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.2	0.1	3.8	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>4.7</i>	<i>1.2</i>	<i>33.1</i>	<i>4.9</i>	<i>3.9</i>	<i>48.8</i>	<i>1.2</i>
Precautionary Zone - South-Bound	Diesel Engines	2.9	5.3	1.3	37.2	5.3	4.2	50.9	1.4
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.3	0.2	5.4	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>2.9</i>	<i>5.3</i>	<i>1.3</i>	<i>37.6</i>	<i>5.6</i>	<i>4.4</i>	<i>56.3</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	1.2	0.3	8.7	1.2	1.0	11.9	0.3
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.1	0.1	1.7	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>8.8</i>	<i>1.3</i>	<i>1.1</i>	<i>13.6</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.5	0.4	10.9	1.5	1.2	14.9	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.5</i>	<i>0.4</i>	<i>11.0</i>	<i>1.6</i>	<i>1.3</i>	<i>17.0</i>	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.8	0.5	12.7	1.8	1.4	17.3	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.4	0.0
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.5</i>	<i>12.9</i>	<i>1.9</i>	<i>1.5</i>	<i>19.8</i>	<i>0.5</i>
Hoteling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hoteling</i>		<i>211.0</i>	<i>372.4</i>	<i>96.2</i>	<i>2,673.9</i>	<i>406.6</i>	<i>325.3</i>	<i>4,312.2</i>	<i>101.3</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2011

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>13.3</i>	<i>24.1</i>	<i>6.0</i>	<i>169.1</i>	<i>24.1</i>	<i>19.2</i>	<i>231.6</i>	<i>6.4</i>
Sea / Fairway - South-Bound	Diesel Engines	16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>16.8</i>	<i>30.4</i>	<i>7.6</i>	<i>213.7</i>	<i>30.4</i>	<i>24.3</i>	<i>292.6</i>	<i>8.0</i>
Fairway - North-Bound	Diesel Engines	9.0	16.3	4.1	114.3	16.3	13.0	156.4	4.3
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>9.0</i>	<i>16.3</i>	<i>4.1</i>	<i>114.3</i>	<i>16.3</i>	<i>13.0</i>	<i>156.4</i>	<i>4.3</i>
Fairway - South-Bound	Diesel Engines	4.5	8.2	2.1	57.7	8.2	6.6	78.9	2.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>4.5</i>	<i>8.2</i>	<i>2.1</i>	<i>57.7</i>	<i>8.2</i>	<i>6.6</i>	<i>78.9</i>	<i>2.2</i>
Precautionary Zone - North-Bound	Diesel Engines	2.9	5.3	1.3	37.0	5.3	4.2	50.7	1.4
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.2	4.7	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.94</i>	<i>5.26</i>	<i>1.34</i>	<i>37.4</i>	<i>5.5</i>	<i>4.4</i>	<i>55.4</i>	<i>1.4</i>
Precautionary Zone - South-Bound	Diesel Engines	2.8	5.1	1.3	35.8	5.1	4.1	49.1	1.3
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.3	0.2	5.4	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>2.9</i>	<i>5.1</i>	<i>1.3</i>	<i>36.2</i>	<i>5.3</i>	<i>4.3</i>	<i>54.4</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	1.4	0.3	9.6	1.4	1.1	13.1	0.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.1	0.1	0.1	1.7	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>1.4</i>	<i>0.3</i>	<i>9.7</i>	<i>1.4</i>	<i>1.2</i>	<i>14.8</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.7	0.4	12.0	1.7	1.4	16.4	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.7</i>	<i>0.4</i>	<i>12.1</i>	<i>1.8</i>	<i>1.4</i>	<i>18.5</i>	<i>0.5</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	2.0	0.5	13.9	2.0	1.6	19.1	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.4	0.0
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>2.0</i>	<i>0.5</i>	<i>14.1</i>	<i>2.1</i>	<i>1.7</i>	<i>21.5</i>	<i>0.5</i>
Hoteling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	107.0
Hoteling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hoteling</i>		<i>228.8</i>	<i>404.6</i>	<i>104.2</i>	<i>2,900.0</i>	<i>438.8</i>	<i>351.0</i>	<i>4,621.8</i>	<i>109.8</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2015+

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	7.5	11.4	3.4	93.2	11.4	9.1	102.9	3.6
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>7.5</i>	<i>11.4</i>	<i>3.4</i>	<i>93.2</i>	<i>11.4</i>	<i>9.1</i>	<i>102.9</i>	<i>3.6</i>
Sea / Fairway - South-Bound	Diesel Engines	9.5	14.4	4.3	117.8	14.4	11.5	130.1	4.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>9.5</i>	<i>14.4</i>	<i>4.3</i>	<i>117.8</i>	<i>14.4</i>	<i>11.5</i>	<i>130.1</i>	<i>4.5</i>
Fairway - North-Bound	Diesel Engines	7.8	11.1	3.6	97.0	11.1	8.9	97.6	3.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>7.8</i>	<i>11.1</i>	<i>3.6</i>	<i>97.0</i>	<i>11.1</i>	<i>8.9</i>	<i>97.6</i>	<i>3.8</i>
Fairway - South-Bound	Diesel Engines	4.0	5.6	1.8	49.0	5.6	4.5	49.2	1.9
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>4.0</i>	<i>5.6</i>	<i>1.8</i>	<i>49.0</i>	<i>5.6</i>	<i>4.5</i>	<i>49.2</i>	<i>1.9</i>
Precautionary Zone - North-Bound	Diesel Engines	2.6	3.1	1.2	31.3	3.1	2.5	24.7	1.2
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.1	0.1	2.6	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>3.1</i>	<i>1.2</i>	<i>31.7</i>	<i>3.2</i>	<i>2.6</i>	<i>27.3</i>	<i>1.2</i>
Precautionary Zone - South-Bound	Diesel Engines	2.9	3.5	1.3	35.5	3.5	2.8	28.0	1.4
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.1	3.0	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>3.5</i>	<i>1.3</i>	<i>35.9</i>	<i>3.6</i>	<i>2.9</i>	<i>31.0</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	0.8	0.3	8.3	0.8	0.7	6.6	0.3
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.0	0.0	0.9	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>0.8</i>	<i>0.3</i>	<i>8.4</i>	<i>0.9</i>	<i>0.7</i>	<i>7.5</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.0	0.4	10.4	1.0	0.8	8.2	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.0	1.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.0</i>	<i>0.4</i>	<i>10.6</i>	<i>1.1</i>	<i>0.9</i>	<i>9.3</i>	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.2	0.5	12.1	1.2	1.0	9.5	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	1.3	0.0
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.2</i>	<i>0.5</i>	<i>12.3</i>	<i>1.3</i>	<i>1.0</i>	<i>10.9</i>	<i>0.5</i>
Hoteling	Diesel Engines	111.4	191.2	50.7	1,408.5	191.2	152.9	1,807.3	53.3
Hoteling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hoteling</i>		<i>116.7</i>	<i>191.2</i>	<i>53.3</i>	<i>1,461.5</i>	<i>212.7</i>	<i>170.2</i>	<i>2,207.4</i>	<i>56.1</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except for hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2015+

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	8.6	13.2	3.9	107.4	13.2	10.5	119.2	4.1
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>8.6</i>	<i>13.2</i>	<i>3.9</i>	<i>107.4</i>	<i>13.2</i>	<i>10.5</i>	<i>119.2</i>	<i>4.1</i>
Sea / Fairway - South-Bound	Diesel Engines	10.9	16.6	4.9	135.7	16.6	13.3	150.7	5.2
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>10.9</i>	<i>16.6</i>	<i>4.9</i>	<i>135.7</i>	<i>16.6</i>	<i>13.3</i>	<i>150.7</i>	<i>5.2</i>
Fairway - North-Bound	Diesel Engines	9.0	12.8	4.1	111.0	12.8	10.2	112.3	4.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>9.0</i>	<i>12.8</i>	<i>4.1</i>	<i>111.0</i>	<i>12.8</i>	<i>10.2</i>	<i>112.3</i>	<i>4.3</i>
Fairway - South-Bound	Diesel Engines	4.5	6.5	2.1	56.0	6.5	5.2	56.6	2.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>4.5</i>	<i>6.5</i>	<i>2.1</i>	<i>56.0</i>	<i>6.5</i>	<i>5.2</i>	<i>56.6</i>	<i>2.2</i>
Precautionary Zone - North-Bound	Diesel Engines	2.9	3.5	1.3	35.3	3.5	2.8	27.9	1.4
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.1	0.1	2.6	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.94</i>	<i>3.47</i>	<i>1.34</i>	<i>35.7</i>	<i>3.6</i>	<i>2.9</i>	<i>30.5</i>	<i>1.4</i>
Precautionary Zone - South-Bound	Diesel Engines	3.3	3.9	1.5	40.1	3.9	3.1	31.6	1.6
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.1	3.0	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.3</i>	<i>3.9</i>	<i>1.5</i>	<i>40.5</i>	<i>4.1</i>	<i>3.3</i>	<i>34.5</i>	<i>1.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	0.9	0.3	9.1	0.9	0.7	7.2	0.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.0	0.0	0.9	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>0.9</i>	<i>0.3</i>	<i>9.3</i>	<i>0.9</i>	<i>0.8</i>	<i>8.1</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.1	0.4	11.4	1.1	0.9	9.0	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.0	1.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.1</i>	<i>0.4</i>	<i>11.6</i>	<i>1.2</i>	<i>0.9</i>	<i>10.2</i>	<i>0.5</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	1.3	0.5	13.3	1.3	1.0	10.5	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	1.3	0.0
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>1.3</i>	<i>0.5</i>	<i>13.5</i>	<i>1.4</i>	<i>1.1</i>	<i>11.8</i>	<i>0.5</i>
Hoteling	Diesel Engines	121.1	207.7	55.0	1,530.1	207.7	166.2	1,963.3	57.9
Hoteling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hoteling</i>		<i>126.4</i>	<i>207.7</i>	<i>57.7</i>	<i>1,583.2</i>	<i>229.3</i>	<i>183.4</i>	<i>2,363.5</i>	<i>60.7</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except for hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

San Pedro Waterfront

Alternative 2 Mitigated Criteria Pollutant Emissions

Year: 2011

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	193.6	213.3	88.0	2,300.1	213.3	170.7	1,462.0	92.7
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>193.6</i>	<i>213.3</i>	<i>88.0</i>	<i>2,300.1</i>	<i>213.3</i>	<i>170.7</i>	<i>1,462.0</i>	<i>92.7</i>
Sea / Fairway - South-Bound	Diesel Engines	244.7	269.6	111.2	2,906.7	269.6	215.7	1,847.6	117.1
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>244.7</i>	<i>269.6</i>	<i>111.2</i>	<i>2,906.7</i>	<i>269.6</i>	<i>215.7</i>	<i>1,847.6</i>	<i>117.1</i>
Fairway - North-Bound	Diesel Engines	127.6	140.6	58.0	1,515.5	140.6	112.5	963.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>127.6</i>	<i>140.6</i>	<i>58.0</i>	<i>1,515.5</i>	<i>140.6</i>	<i>112.5</i>	<i>963.3</i>	<i>61.1</i>
Fairway - South-Bound	Diesel Engines	64.4	70.9	29.3	764.7	70.9	56.7	486.1	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>64.4</i>	<i>70.9</i>	<i>29.3</i>	<i>764.7</i>	<i>70.9</i>	<i>56.7</i>	<i>486.1</i>	<i>30.8</i>
Precautionary Zone - North-Bound	Diesel Engines	43.9	48.4	20.0	521.4	48.4	38.7	331.4	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.6	1.8	1.4	32.8	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>44.4</i>	<i>48.4</i>	<i>20.2</i>	<i>527.0</i>	<i>50.1</i>	<i>40.1</i>	<i>364.2</i>	<i>21.3</i>
Precautionary Zone - South-Bound	Diesel Engines	49.7	54.8	22.6	590.9	54.8	43.8	375.6	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.4	2.0	1.6	37.2	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>50</i>	<i>55</i>	<i>23</i>	<i>597</i>	<i>57</i>	<i>45</i>	<i>413</i>	<i>24</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	12.7	5.2	136.5	12.7	10.1	86.8	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.0	0.6	0.5	11.6	0.1
<i>Total Outer Harbor Zone1</i>		<i>11.7</i>	<i>12.7</i>	<i>5.3</i>	<i>138.5</i>	<i>13.3</i>	<i>10.6</i>	<i>98.4</i>	<i>5.6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	14.4	15.8	6.5	170.6	15.8	12.7	108.5	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.5	0.8	0.6	14.4	0.1
<i>Total Outer Harbor Zone2</i>		<i>14.6</i>	<i>15.8</i>	<i>6.7</i>	<i>173.1</i>	<i>16.6</i>	<i>13.3</i>	<i>122.9</i>	<i>7.0</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	16.7	18.4	7.6	198.5	18.4	14.7	126.2	8.0
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.3	-	0.1	2.9	0.9	0.7	16.8	0.1
<i>Total Inner Harbor Zone</i>		<i>17.0</i>	<i>18.4</i>	<i>7.7</i>	<i>201.4</i>	<i>19.3</i>	<i>15.5</i>	<i>143.0</i>	<i>8.1</i>
Hoteling	Diesel Engines	155.6	171.4	70.7	1,848.3	171.4	137.1	1,174.8	74.5
Hoteling	Boiler	5.3	-	2.6	53.9	17.1	13.7	315.3	2.8
<i>Total Hoteling</i>		<i>160.9</i>	<i>171.4</i>	<i>73.4</i>	<i>1,902.2</i>	<i>188.5</i>	<i>150.8</i>	<i>1,490.1</i>	<i>77.3</i>

Alt 2 Mitigated Criteria Pollutant Emissions

Year: 2011

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	567	617	258	6,721	638	511	4,622	272
North-Bound Single Vessel Average Day (ton/day)	0.28	0.31	0.13	3.38	0.32	0.26	2.32	0.14
South-Bound Single Vessel Average Day (ton/day)	0.28	0.31	0.13	3.34	0.32	0.25	2.30	0.14
Temporal Allocation								
2011 Total Annual Emissions (ton/yr)	76	83	35	850	85	68	619	40

$Emissions (lb/yr) = Average Engine Power * Load Factor_{(VSR\ corrected)} * Fuel\ Corrected\ Emission\ Factor * Time_{(VSR\ corrected)} * 2_{(1-Way)} Trips * Vessels\ per\ Year$

$NOx\ Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO\ NOx\ Emission\ Factor * \% IMO\ vessels) + (non-IMO\ NOx\ Emission\ Factor * \% non-IMO\ vessels)) * Time * 2_{(1-Way)} Trips * Vessels\ per\ Year$

$Hoteling\ Emissions (lb/yr) = Emissions (lb/yr) for\ 1-way\ trip * AMP\ reduction * Vessels\ per\ Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 $1\ lb = 453.59\ grams$

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on 30% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = 53%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 30% compliance with VSRP to 40 nm.
- Inner Harbor AMP compliance in 2011 assumed to be 30%

San Pedro Waterfront

Alternative 2 Mitigated Criteria Pollutant Emissions

Year: 2015

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.5	61.6	48.4	1,181.9	61.6	49.3	185.6	51.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>106.5</i>	<i>61.6</i>	<i>48.4</i>	<i>1,181.9</i>	<i>61.6</i>	<i>49.3</i>	<i>185.6</i>	<i>51.0</i>
Sea / Fairway - South-Bound	Diesel Engines	134.6	77.8	61.2	1,493.6	77.8	62.3	234.5	64.4
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>134.6</i>	<i>77.8</i>	<i>61.2</i>	<i>1,493.6</i>	<i>77.8</i>	<i>62.3</i>	<i>234.5</i>	<i>64.4</i>
Fairway - North-Bound	Diesel Engines	127.6	73.8	58.0	1,415.7	73.8	59.0	222.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>127.6</i>	<i>73.8</i>	<i>58.0</i>	<i>1,415.7</i>	<i>73.8</i>	<i>59.0</i>	<i>222.3</i>	<i>61.1</i>
Fairway - South-Bound	Diesel Engines	64.4	37.2	29.3	714.3	37.2	29.8	112.2	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>64.4</i>	<i>37.2</i>	<i>29.3</i>	<i>714.3</i>	<i>37.2</i>	<i>29.8</i>	<i>112.2</i>	<i>30.8</i>
Precautionary Zone - North-Bound	Diesel Engines	43.9	25.4	20.0	487.0	25.4	20.3	76.5	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>44.4</i>	<i>25.4</i>	<i>20.2</i>	<i>492.3</i>	<i>26.3</i>	<i>21.1</i>	<i>84.1</i>	<i>21.3</i>
Precautionary Zone - South-Bound	Diesel Engines	49.7	28.8	22.6	552.0	28.8	23.0	86.7	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>50</i>	<i>29</i>	<i>23</i>	<i>558</i>	<i>30</i>	<i>24</i>	<i>95</i>	<i>24</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	6.6	5.2	127.5	6.6	5.3	20.0	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
<i>Total Outer Harbor Zone1</i>		<i>12</i>	<i>7</i>	<i>5</i>	<i>129</i>	<i>7</i>	<i>6</i>	<i>23</i>	<i>6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	14.4	8.3	6.5	159.4	8.3	6.6	25.0	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
<i>Total Outer Harbor Zone2</i>		<i>14.6</i>	<i>8.3</i>	<i>6.7</i>	<i>161.7</i>	<i>8.7</i>	<i>7.0</i>	<i>28.4</i>	<i>7.0</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	16.7	9.7	7.6	185.5	9.7	7.7	29.1	8.0
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
<i>Total Inner Harbor Zone</i>		<i>17.0</i>	<i>9.7</i>	<i>7.7</i>	<i>188.2</i>	<i>10.1</i>	<i>8.1</i>	<i>33.0</i>	<i>8.1</i>
Hoteling	Diesel Engines	40.5	23.4	18.4	449.5	23.4	18.7	70.6	19.4
Hoteling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
<i>Total Hoteling</i>		<i>45.8</i>	<i>23.4</i>	<i>21.1</i>	<i>500.0</i>	<i>32.4</i>	<i>25.9</i>	<i>143.3</i>	<i>22.2</i>

Alt 2 Mitigated Criteria Pollutant Emissions

Year: 2015

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	321	182	146	3,557	193	154	633	154
Inner Harbor Berths per Vessel - Average Day (lb/day)	353	200	161	3,907	211	169	694	169
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	1.99	0.11	0.09	0.35	0.09
South-Bound Single Vessel Average Day (ton/day)	0.16	0.09	0.08	1.83	0.10	0.08	0.33	0.08
Temporal Allocation								
2015 Total Annual Emissions (ton/yr)	45	26	21	500	27	22	90	22

$Emissions (lb/yr) = Average Engine Power * Load Factor_{(VSR\ corrected)} * Fuel\ Corrected\ Emission\ Factor * Time_{(VSR\ corrected)} * 2_{(1-way)} Trips * Vessels\ per\ Year$

$NOx\ Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO\ NOx\ Emission\ Factor * \% IMO\ vessels) + (non-IMO\ NOx\ Emission\ Factor * \% non-IMO\ vessels)) * Time * 2_{(1-way)} Trips * Vessels\ per\ Year$

$Hoteling\ Emissions (lb/yr) = Emissions (lb/yr)\ for\ 1-way\ trip * AMP\ reduction * Vessels\ per\ Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.

$1\ lb = 453.59\ grams$

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = 59%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 100% compliance with VSRP to 40 nm.
- Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Alternative 2 Mitigated Criteria Pollutant Emissions
Year: 2022

Note: for 2022, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.5	61.6	48.4	1,174.4	61.6	49.3	185.6	51.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.5	61.6	48.4	1,174.4	61.6	49.3	185.6	51.0
Sea / Fairway - South-Bound	Diesel Engines	134.6	77.8	61.2	1,484.1	77.8	62.3	234.5	64.4
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.6	77.8	61.2	1,484.1	77.8	62.3	234.5	64.4
Fairway - North-Bound	Diesel Engines	127.6	73.8	58.0	1,406.6	73.8	59.0	222.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		127.6	73.8	58.0	1,406.6	73.8	59.0	222.3	61.1
Fairway - South-Bound	Diesel Engines	64.4	37.2	29.3	709.8	37.2	29.8	112.2	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		64.4	37.2	29.3	709.8	37.2	29.8	112.2	30.8
Precautionary Zone - North-Bound	Diesel Engines	43.9	25.4	20.0	483.9	25.4	20.3	76.5	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		44.4	25.4	20.2	489.2	26.3	21.1	84.1	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	28.8	22.6	548.5	28.8	23.0	86.7	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		50	29	23	554	30	24	95	24
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	6.6	5.2	126.7	6.6	5.3	20.0	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		12	7	5	129	7	6	23	6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	14.4	8.3	6.5	158.4	8.3	6.6	25.0	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		14.6	8.3	6.7	160.7	8.7	7.0	28.4	7.0
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Diesel Engines	16.7	9.7	7.6	184.3	9.7	7.7	29.1	8.0
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		17.0	9.7	7.7	187.0	10.1	8.1	33.0	8.1
Hotelling	Diesel Engines	40.5	23.4	18.4	446.6	23.4	18.7	70.6	19.4
Hotelling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
Total Hotelling		45.8	23.4	21.1	497.2	32.4	25.9	143.3	22.2

Alt 2 Mitigated Criteria Pollutant Emissions
Year: 2022

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	321	182	146	3,535	193	154	633	154
Inner Harbor Berths per Vessel - Average Day (lb/day)	353	200	161	3,883	211	169	694	169
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	1.98	0.11	0.09	0.35	0.09
South-Bound Single Vessel Average Day (ton/day)	0.16	0.09	0.08	1.81	0.10	0.08	0.33	0.08
Temporal Allocation								
2022 Total Annual Emissions (ton/yr)	47	26	21	513	26	22	92	22

Emissions (lb/yr) = Average Engine Power * Load Factor_(VSR corrected) * Fuel Corrected Emission Factor * Time_(VSR corrected) * 2^(1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2^(1-Way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NOx = 67%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 100% compliance with VSRP to 40 nm.
- Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Alternative 2 Mitigated Criteria Pollutant Emissions

Year: 2037

Note: for 2037, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.5	61.6	48.4	1,167.5	61.6	49.3	185.6	51.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.5	61.6	48.4	1,167.5	61.6	49.3	185.6	51.0
Sea / Fairway - South-Bound	Diesel Engines	134.6	77.8	61.2	1,475.4	77.8	62.3	234.5	64.4
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.6	77.8	61.2	1,475.4	77.8	62.3	234.5	64.4
Fairway - North-Bound	Diesel Engines	127.6	73.8	58.0	1,398.4	73.8	59.0	222.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		127.6	73.8	58.0	1,398.4	73.8	59.0	222.3	61.1
Fairway - South-Bound	Diesel Engines	64.4	37.2	29.3	705.6	37.2	29.8	112.2	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		64.4	37.2	29.3	705.6	37.2	29.8	112.2	30.8
Precautionary Zone - North-Bound	Diesel Engines	43.9	25.4	20.0	481.1	25.4	20.3	76.5	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		44.4	25.4	20.2	486.4	26.3	21.1	84.1	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	28.8	22.6	545.3	28.8	23.0	86.7	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		50	29	23	551	30	24	95	24
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	11.5	6.6	5.2	126.0	6.6	5.3	20.0	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		12	7	5	128	7	6	23	6
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	14.4	8.3	6.5	157.4	8.3	6.6	25.0	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		14.6	8.3	6.7	159.8	8.7	7.0	28.4	7.0
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	16.7	9.7	7.6	183.2	9.7	7.7	29.1	8.0
Inner Harbor Zone (maneuvering through main channel)	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		17.0	9.7	7.7	185.9	10.1	8.1	33.0	8.1
Hoteling	Diesel Engines	40.5	23.4	18.4	444.0	23.4	18.7	70.6	19.4
Hoteling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
Total Hoteling		45.8	23.4	21.1	494.6	32.4	25.9	143.3	22.2

Alt 2 Mitigated Criteria Pollutant Emissions

Year: 2037

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	321	182	146	3,515	193	154	633	154
Inner Harbor Berths per Vessel - Average Day (lb/day)	353	200	161	3,860	211	169	694	169
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	1.96	0.11	0.09	0.35	0.09
South-Bound Single Vessel Average Day (ton/day)	0.16	0.09	0.08	1.80	0.10	0.08	0.33	0.08
Temporal Allocation								
2037 Total Annual Emissions (ton/yr)	47	27	22	519	28	23	94	23

$Emissions (lb/yr) = Average Engine Power * Load Factor_{VSR corrected} * Fuel Corrected Emission Factor * Time_{VSR corrected} * 2_{(1-Way)} Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2_{(1-Way)} Trips * Vessels per Year$

$Hoteling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 $1 lb = 453.59$ grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NO_x = 75%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,513	1,667	688	17,978	1,667	1,334	11,427	724
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		1,513	1,667	688	17,978	1,667	1,334	11,427	724
Sea / Fairway - South-Bound	Diesel Engines	63,910	70,418	29,050	759,190	70,418	56,334	482,556	30,590
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		63,910	70,418	29,050	759,190	70,418	56,334	482,556	30,590
Fairway - North-Bound	Diesel Engines	997	1,099	453	11,845	1,099	879	7,529	477
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		997	1,099	453	11,845	1,099	879	7,529	477
Fairway - South-Bound	Diesel Engines	16,814	18,526	7,643	199,731	18,526	14,821	126,953	8,048
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		16,814	18,526	7,643	199,731	18,526	14,821	126,953	8,048
Precautionary Zone - North-Bound	Diesel Engines	343	378	156	4,075	378	302	2,590	164
Precautionary Zone - North-Bound	Boiler	4	-	2	44	14	11	257	2
Total Precautionary Zone - North-Bound		347	378	158	4,119	392	314	2,847	166
Precautionary Zone - South-Bound	Diesel Engines	12,993	14,315	5,906	154,338	14,315	11,452	98,100	6,219
Precautionary Zone - South-Bound	Boiler	163	-	82	1,662	527	422	9,721	86
Total Precautionary Zone - South-Bound		13,156	14,315	5,987	155,999	14,843	11,874	107,821	6,305
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	-	-	-	-	-	-	-	-
Total Outer Harbor Zone1		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	3,864	4,257	1,756	45,899	4,257	3,406	29,174	1,849
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	65	-	33	664	211	169	3,887	34
Total Outer Harbor Zone2		3,929	4,257	1,789	46,563	4,468	3,575	33,061	1,884
Inner Harbor Zone (maneuvering through main channel: inn	Diesel Engines	4,496	4,954	2,044	53,410	4,954	3,963	33,948	2,152
Inner Harbor Zone (maneuvering through main channel: inn	Boiler	76	-	38	773	245	196	4,523	40
Total Inner Harbor Zone		4,572	4,954	2,082	54,183	5,199	4,159	38,471	2,192
Hotelling	Diesel Engines	41,855	46,116	19,025	497,191	46,116	36,893	316,024	20,033
Hotelling	Boiler	1,423	-	712	14,496	4,600	3,680	84,805	749
Total Hotelling		43,278	46,116	19,737	511,687	50,716	40,573	400,829	20,783
Total (lb/yr)		148,517	161,730	67,586	1,761,296	167,328	133,862	1,211,494	71,169
boilers only						5,598			912
Average Day (lb/day) - Transit		288.3	316.8	131.1	3,423.6	319.5	255.6	2,221.0	138.0
Average Day (lb/day) - Hotelling		118.6	126.3	54.1	1401.9	138.9	111.2	1098.2	56.9

$Emissions (lb/yr) = Average Engine Power * Load Factor_{(PSR corrected)} * Fuel Corrected Emission Factor * Time_{(PSR corrected)} * 2_{(1-Way)} Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2_{(1-Way)} Trips * Vessels per Year$

$Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 $1 lb = 453.59$ grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
 - 2. All berths occupied.
 - 3. Annual emissions are based on 30% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm.
 - 4. Maximum of 2 one-way trips per vessel.
 - 5. IMO compliance rate for NOx = 53%
 - 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
 - 7. Annual emissions assume 30% compliance with VSRP to 40 nm.
 - 8. Inner Harbor AMP compliance in 2011 assumed to be 30%
- | | | | |
|---------------------------------|-------|----------------------|---|
| Total Vessels in 2011: | 269 | | |
| Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: | 3 |
| Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: | 0 |

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	851	492	387	9,444	492	394	1,483	407
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		851	492	387	9,444	492	394	1,483	407
Sea / Fairway - South-Bound	Diesel Engines	35,940	20,780	16,337	398,806	20,780	16,624	62,623	17,202
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		35,940	20,780	16,337	398,806	20,780	16,624	62,623	17,202
Fairway - North-Bound	Diesel Engines	1,019	589	463	11,312	589	472	1,776	488
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,019	589	463	11,312	589	472	1,776	488
Fairway - South-Bound	Diesel Engines	17,189	9,938	7,813	190,733	9,938	7,951	29,950	8,227
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		17,189	9,938	7,813	190,733	9,938	7,951	29,950	8,227
Precautionary Zone - North-Bound	Diesel Engines	351	203	159	3,892	203	162	611	168
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
Total Precautionary Zone - North-Bound		355	203	162	3,934	210	168	672	170
Precautionary Zone - South-Bound	Diesel Engines	13,282	7,680	6,037	147,385	7,680	6,144	23,143	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
Total Precautionary Zone - South-Bound		13,449	7,680	6,121	148,978	7,963	6,370	25,437	6,445
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	1,580	914	718	17,533	914	731	2,753	756
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	27	-	13	255	45	36	367	14
Total Outer Harbor Zone1		1,607	914	732	17,787	959	767	3,120	770
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	1,975	1,142	898	21,916	1,142	914	3,441	945
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	33	-	17	319	57	45	458	18
Total Outer Harbor Zone2		2,008	1,142	914	22,234	1,198	959	3,900	963
Inner Harbor Zone (maneuvering through main channel: in)	Diesel Engines	2,298	1,329	1,045	25,502	1,329	1,063	4,004	1,100
Inner Harbor Zone (maneuvering through main channel: in)	Boiler	39	-	19	371	66	53	534	20
Total Inner Harbor Zone		2,337	1,329	1,064	25,873	1,395	1,116	4,538	1,120
Hotelling	Diesel Engines	11,140	6,441	5,063	123,610	6,441	5,153	19,410	5,332
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
Total Hotelling		12,595	6,441	5,791	137,513	8,909	7,127	39,417	6,098
Total (lb/yr)		87,351	49,507	39,783	966,614	52,433	41,946	172,916	41,892
boilers only						2,926			908
Average Day (lb/day) - Transit		204.8	118.0	93.1	2,271.5	119.2	95.4	365.8	98.1
Average Day (lb/day) - Hotelling		34.5	17.6	15.9	376.7	24.4	19.5	108.0	16.7

$Emissions (lb/yr) = Average Engine Power * Load Factor_{(PSR corrected)} * Fuel Corrected Emission Factor * Time_{(PSR corrected)} * 2_{(1-Way)} Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2_{(1-Way)} Trips * Vessels per Year$

$Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- | | | | |
|---|---------------------------------|-------|------------------------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2015: | 275 | |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: 2 |
| 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals. | Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: 2 |
| 4. Maximum of 2 one-way trips per vessel. | | | |
| 5. IMO compliance rate for NOx = | 59% | | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | |
| 7. Annual emissions assume 100% compliance with VSRP to 40 nm. | | | |
| 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%. | | | |

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2022

Note: for 2022, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	873	505	397	9,622	505	404	1,521	418
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		873	505	397	9,622	505	404	1,521	418
Sea / Fairway - South-Bound	Diesel Engines	36,855	21,309	16,752	406,348	21,309	17,047	64,217	17,640
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		36,855	21,309	16,752	406,348	21,309	17,047	64,217	17,640
Fairway - North-Bound	Diesel Engines	1,045	604	475	11,526	604	484	1,821	500
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,045	604	475	11,526	604	484	1,821	500
Fairway - South-Bound	Diesel Engines	17,626	10,191	8,012	194,341	10,191	8,153	30,713	8,437
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		17,626	10,191	8,012	194,341	10,191	8,153	30,713	8,437
Precautionary Zone - North-Bound	Diesel Engines	360	208	163	3,965	208	166	627	172
Precautionary Zone - North-Bound	Boiler	5	-	2	43	8	6	62	2
Total Precautionary Zone - North-Bound		364	208	166	4,008	216	172	689	175
Precautionary Zone - South-Bound	Diesel Engines	13,620	7,875	6,191	150,172	7,875	6,300	23,733	6,519
Precautionary Zone - South-Bound	Boiler	171	-	86	1,634	290	232	2,352	90
Total Precautionary Zone - South-Bound		13,791	7,875	6,277	151,806	8,165	6,532	26,084	6,609
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	1,620	937	736	17,864	937	749	2,823	776
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Boiler	27	-	14	261	46	37	376	14
Total Outer Harbor Zone1		1,648	937	750	18,125	983	787	3,199	790
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,025	1,171	921	22,330	1,171	937	3,529	969
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	34	-	17	327	58	46	470	18
Total Outer Harbor Zone2		2,060	1,171	938	22,657	1,229	983	3,999	987
Inner Harbor Zone (maneuvering through main channel: Inner Harbor)	Diesel Engines	2,357	1,363	1,071	25,984	1,363	1,090	4,106	1,128
Inner Harbor Zone (maneuvering through main channel: Inner Harbor)	Boiler	40	-	20	380	67	54	547	21
Total Inner Harbor Zone		2,397	1,363	1,091	26,364	1,430	1,144	4,654	1,149
Hotelling	Diesel Engines	11,423	6,605	5,192	125,947	6,605	5,284	19,904	5,468
Hotelling	Boiler	1,492	-	746	14,257	2,531	2,024	20,516	786
Total Hotelling		12,915	6,605	5,938	140,204	9,135	7,308	40,420	6,253
Total (lb/yr)		89,574	50,767	40,796	985,003	53,768	43,014	177,317	42,958
boilers only						3,000			931
Average Day (lb/day) - Transit		210.0	121.0	95.5	2,314.5	122.3	97.8	375.1	100.8
Average Day (lb/day) - Hotelling		35.4	18.1	16.3	384.1	25.0	20.0	110.7	17.1

Emissions (lb/yr) = Average Engine Power * Load Factor_(PSR corrected) * Fuel Corrected Emission Factor * Time_(PSR corrected) * 2_(1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2_(1-Way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) - Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 67%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Mitigated Alternative 2 Criteria Pollutant Emissions

Year: 2037

Note: for 2037, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Year (lb/yr)		CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Spatial Allocation	Power Type								
Sea / Fairway - North-Bound	Diesel Engines	888	514	404	9,736	514	411	1,548	425
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>888</i>	<i>514</i>	<i>404</i>	<i>9,736</i>	<i>514</i>	<i>411</i>	<i>1,548</i>	<i>425</i>
Sea / Fairway - South-Bound	Diesel Engines	37,509	21,687	17,049	411,134	21,687	17,349	65,356	17,953
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>37,509</i>	<i>21,687</i>	<i>17,049</i>	<i>411,134</i>	<i>21,687</i>	<i>17,349</i>	<i>65,356</i>	<i>17,953</i>
Fairway - North-Bound	Diesel Engines	1,064	615	484	11,661	615	492	1,854	509
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,064</i>	<i>615</i>	<i>484</i>	<i>11,661</i>	<i>615</i>	<i>492</i>	<i>1,854</i>	<i>509</i>
Fairway - South-Bound	Diesel Engines	17,939	10,372	8,154	196,629	10,372	8,298	31,257	8,586
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>17,939</i>	<i>10,372</i>	<i>8,154</i>	<i>196,629</i>	<i>10,372</i>	<i>8,298</i>	<i>31,257</i>	<i>8,586</i>
Precautionary Zone - North-Bound	Diesel Engines	366	212	166	4,012	212	169	638	175
Precautionary Zone - North-Bound	Boiler	5	-	2	44	8	6	63	2
<i>Total Precautionary Zone - North-Bound</i>		<i>371</i>	<i>212</i>	<i>169</i>	<i>4,056</i>	<i>219</i>	<i>176</i>	<i>701</i>	<i>178</i>
Precautionary Zone - South-Bound	Diesel Engines	13,862	8,015	6,301	151,941	8,015	6,412	24,153	6,635
Precautionary Zone - South-Bound	Boiler	174	-	87	1,663	295	236	2,393	92
<i>Total Precautionary Zone - South-Bound</i>		<i>14,036</i>	<i>8,015</i>	<i>6,388</i>	<i>153,604</i>	<i>8,310</i>	<i>6,648</i>	<i>26,547</i>	<i>6,726</i>
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	1,649	953	750	18,074	953	763	2,873	789
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	28	-	14	266	47	38	383	15
<i>Total Outer Harbor Zone1</i>		<i>1,677</i>	<i>953</i>	<i>763</i>	<i>18,340</i>	<i>1,001</i>	<i>800</i>	<i>3,256</i>	<i>804</i>
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	2,061	1,192	937	22,593	1,192	953	3,592	987
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	35	-	17	333	59	47	478	18
<i>Total Outer Harbor Zone2</i>		<i>2,096</i>	<i>1,192</i>	<i>954</i>	<i>22,926</i>	<i>1,251</i>	<i>1,001</i>	<i>4,070</i>	<i>1,005</i>
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	2,399	1,387	1,090	26,290	1,387	1,109	4,179	1,148
Inner Harbor Zone (maneuvering through main channel)	Boiler	40	-	20	387	69	55	557	21
<i>Total Inner Harbor Zone</i>		<i>2,439</i>	<i>1,387</i>	<i>1,110</i>	<i>26,677</i>	<i>1,455</i>	<i>1,164</i>	<i>4,736</i>	<i>1,169</i>
Hotelling	Diesel Engines	11,626	6,722	5,284	127,431	6,722	5,377	20,257	5,565
Hotelling	Boiler	1,519	-	759	14,510	2,575	2,060	20,880	800
<i>Total Hotelling</i>		<i>13,144</i>	<i>6,722</i>	<i>6,044</i>	<i>141,940</i>	<i>9,297</i>	<i>7,438</i>	<i>41,137</i>	<i>6,364</i>
Total (lb/yr)		91,162	51,668	41,519	996,704	54,721	43,777	180,461	43,720
boilers only						3,053			948
Average Day (lb/day) - Transit		213.7	123.1	97.2	2,341.8	124.4	99.6	381.7	102.3
Average Day (lb/day) - Hotelling		36.0	18.4	16.6	388.9	25.5	20.4	112.7	17.4

$Emissions (lb/yr) = Average Engine Power * Load Factor^{(VSR corrected)} * Fuel Corrected Emission Factor * Time^{(VSR corrected)} * 2^{(1-Way)} Trips * Vessels per Year$
 $NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2^{(1-Way)} Trips * Vessels per Year$
 $Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 75%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

Total Vessels in 2037:	287		
Percent of North-Bound Vessels:	2.9%	Inner Harbor Berths:	2
Percent of South-Bound Vessels:	97.1%	Outer Harbor Berths:	2

San Pedro Waterfront

Mitigated Alternative 2 Toxic Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	
Sea / Fairway - North-Bound	Diesel Engines	3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083		0.00299	0.00664
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083		0.00299	0.00664
Sea / Fairway - South-Bound	Diesel Engines	4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098		0.00353	0.00785
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098		0.00353	0.00785
Fairway - North-Bound	Diesel Engines	2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.31908	0.00047		0.00169	0.00375
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.31908	0.00047		0.00169	0.00375
Fairway - South-Bound	Diesel Engines	1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.22603	0.00033		0.00120	0.00266
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.22603	0.00033		0.00120	0.00266
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.12697	0.00019		0.00067	0.00149
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	0.00605	0.00001		0.00003	0.00007
Total Precautionary Zone - North-Bound		0.83167	0.22807	1.68596	0.11407	0.00966	0.02042	0.29916	0.17188	0.13302	0.00020		0.00070	0.00156
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.14390	0.00021		0.00076	0.00169
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	0.00686	0.00001		0.00004	0.00008
Total Precautionary Zone - South-Bound		0.94255	0.25849	1.91076	0.12928	0.01095	0.02314	0.33905	0.19480	0.15075	0.00022		0.00080	0.00177
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07753	0.04475	0.03371	0.00005		0.00018	0.00040
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	0.00213	0.00000		0.00001	0.00003
Total Outer Harbor Zone1		0.22079	0.06083	0.44759	0.03043	0.00258	0.00563	0.08000	0.04591	0.03584	0.00005		0.00019	0.00043
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.04213	0.00006		0.00022	0.00050
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	0.00266	0.00000		0.00001	0.00003
Total Outer Harbor Zone2		0.27599	0.07604	0.55950	0.03804	0.00322	0.00704	0.10003	0.05740	0.04480	0.00007		0.00024	0.00053
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.04903	0.00007		0.00026	0.00058
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	0.00310	0.00000		0.00002	0.00004
Total Inner Harbor Zone		0.32115	0.08849	0.65105	0.04426	0.00374	0.00819	0.11640	0.06679	0.05213	0.00008		0.00028	0.00061
Holding	Diesel Engines	0.69121	0.18681	1.40109	0.09341	0.00794	0.01494	0.24286	0.14011	0.10553	0.00016		0.00056	0.00124
Holding	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	0.00968	0.00001		0.00005	0.00011
Total Holding		0.69121	0.19210	1.40134	0.09611	0.00811	0.01884	0.25398	0.14539	0.11521	0.00017		0.00061	0.00135

First Peak Hour Scenario (per vessel) 1.760 0.484 3.569 0.242 0.020 0.044 0.635 0.365 0.284 0.000 0.002 0.003
 First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.
 Second Peak Hour Scenario (per vessel) 0.691 0.192 1.401 0.096 0.008 0.019 0.254 0.145 0.115 0.000 0.001 0.001
 Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels: 3.0 2011 year

San Pedro Waterfront

Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc	
0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	-	0.02109	0.07274
0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	-	0.02109	0.07274
0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	-	0.02491	0.08593
0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	-	0.02491	0.08593
0.00235	0.00394	0.00375	0.00282	0.00178	1.63294	0.00272	0.00338	-	0.00006	-	0.01192	0.04111
0.00235	0.00394	0.00375	0.00282	0.00178	1.63294	0.00272	0.00338	-	0.00006	-	0.01192	0.04111
0.00166	0.00279	0.00266	0.00199	0.00126	1.15674	0.00193	0.00239	-	0.00004	-	0.00844	0.02912
0.00166	0.00279	0.00266	0.00199	0.00126	1.15674	0.00193	0.00239	-	0.00004	-	0.00844	0.02912
0.00093	0.00157	0.00149	0.00112	0.00071	0.64978	0.00108	0.00134	-	0.00002	-	0.00474	0.01636
0.00004	0.00007	0.00007	0.00005	0.00003	0.03096	0.00005	0.00006	-	0.00000	-	0.00023	0.00078
0.00098	0.00164	0.00156	0.00117	0.00074	0.68074	0.00113	0.00141	-	0.00002	-	0.00497	0.01714
0.00106	0.00178	0.00169	0.00127	0.00080	0.73642	0.00123	0.00152	-	0.00003	-	0.00538	0.01854
0.00005	0.00008	0.00008	0.00006	0.00004	0.03509	0.00006	0.00007	-	0.00000	-	0.00026	0.00088
0.00111	0.00186	0.00177	0.00133	0.00084	0.77151	0.00129	0.00160	-	0.00003	-	0.00563	0.01942
0.00025	0.00042	0.00040	0.00030	0.00019	0.17250	0.00029	0.00036	-	0.00001	-	0.00126	0.00434
0.00002	0.00003	0.00003	0.00002	0.00001	0.01090	0.00002	0.00002	-	0.00000	-	0.00008	0.00027
0.00025	0.00042	0.00042	0.00032	0.00020	0.18340	0.00031	0.00038	-	0.00001	-	0.00132	0.00462
0.00031	0.00052	0.00050	0.00037	0.00024	0.21563	0.00036	0.00045	-	0.00001	-	0.00157	0.00543
0.00002	0.00003	0.00003	0.00002	0.00001	0.01362	0.00002	0.00003	-	0.00000	-	0.00010	0.00034
0.00033	0.00055	0.00053	0.00040	0.00025	0.22925	0.00038	0.00047	-	0.00001	-	0.00167	0.00577
0.00036	0.00061	0.00058	0.00043	0.00027	0.25091	0.00042	0.00052	-	0.00001	-	0.00183	0.00632
0.00002	0.00004	0.00004	0.00003	0.00002	0.01585	0.00003	0.00003	-	0.00000	-	0.00012	0.00040
0.00038	0.00064	0.00061	0.00046	0.00029	0.26677	0.00044	0.00055	-	0.00001	-	0.00195	0.00672
0.00078	0.00130	0.00124	0.00093	0.00059	0.54004	0.00090	0.00112	-	0.00002	-	0.00394	0.01359
0.00007	0.00012	0.00011	0.00009	0.00005	0.04954	0.00008	0.00010	-	0.00000	-	0.00036	0.00125
0.00085	0.00142	0.00136	0.00102	0.00064	0.58958	0.00098	0.00122	-	0.00002	-	0.00431	0.01484
0.002	0.004	0.003	0.003	0.002	1.451	0.002	0.003	-	0.000	-	0.011	0.037
0.001	0.001	0.001	0.001	0.001	0.590	0.001	0.001	-	0.000	-	0.004	0.015

San Pedro Waterfront

Mitigated Alternative 2 Toxic Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346
Sea / Fairway - South-Bound	Diesel Engines	5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409
Fairway - North-Bound	Diesel Engines	2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.36506	0.00054	0.00193
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.36506	0.00054	0.00193
Fairway - South-Bound	Diesel Engines	1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.25810	0.00038	0.00137
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.25810	0.00038	0.00137
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.14320	0.00021	0.00076
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00605	0.00001	0.00003
Total Precautionary Zone - North-Bound		0.95019	0.25681	1.92607	0.12840	0.01091	0.02054	0.33385	0.19261	0.14925	0.00022	0.00079
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.16229	0.00024	0.00086
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00686	0.00001	0.00004
Total Precautionary Zone - South-Bound		1.07689	0.29105	2.18288	0.14553	0.01237	0.02328	0.37837	0.21829	0.16915	0.00025	0.00090
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.03702	0.00005	0.00020
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00213	0.00000	0.00001
Total Outer Harbor Zone1		0.24681	0.06670	0.50029	0.03335	0.00284	0.00533	0.08671	0.05003	0.03915	0.00005	0.00021
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.04628	0.00007	0.00025
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00266	0.00000	0.00001
Total Outer Harbor Zone2		0.30851	0.08338	0.62536	0.04169	0.00354	0.00667	0.10840	0.06254	0.04894	0.00007	0.00026
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.05385	0.00008	0.00029
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00310	0.00000	0.00002
Total Inner Harbor Zone		0.35899	0.09703	0.72769	0.04852	0.00412	0.00776	0.12613	0.07277	0.05695	0.00008	0.00031
Hotelling	Diesel Engines	0.75090	0.20295	1.52210	0.10147	0.00863	0.01624	0.26383	0.15221	0.11464	0.00017	0.00061
Hotelling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00968	0.00001	0.00005
Total Hotelling		0.77045	0.20823	1.56174	0.10412	0.00885	0.01666	0.27070	0.15617	0.12432	0.00018	0.00066
First Peak Hour Scenario (per vessel)		1.991	0.538	4.036	0.269	0.023	0.043	0.700	0.404	0.314	0.000	0.002
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors		0.770	0.208	1.562	0.104	0.009	0.017	0.271	0.156	0.124	0.000	0.001
Second Peak Hour Scenario (per vessel)		0.770	0.208	1.562	0.104	0.009	0.017	0.271	0.156	0.124	0.000	0.001
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity		0.770	0.208	1.562	0.104	0.009	0.017	0.271	0.156	0.124	0.000	0.001

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0 2011 year

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00429	0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311	0.00387	-	0.00006	0.01364	0.04703
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00429	0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311	0.00387	-	0.00006	0.01364	0.04703
0.00304	0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220	0.00273	-	0.00005	0.00964	0.03325
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00304	0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220	0.00273	-	0.00005	0.00964	0.03325
0.00168	0.00105	0.00117	0.00168	0.00126	0.00080	0.73284	0.00122	0.00152	-	0.00003	0.00535	0.01845
0.00007	0.00004	0.00007	0.00007	0.00005	0.00003	0.03096	0.00005	0.00006	-	0.00000	0.00023	0.00078
0.00176	0.00110	0.00184	0.00176	0.00132	0.00083	0.76380	0.00127	0.00158	-	0.00003	0.00557	0.01923
0.00191	0.00119	0.00200	0.00191	0.00143	0.00091	0.83055	0.00138	0.00172	-	0.00003	0.00606	0.02091
0.00008	0.00005	0.00008	0.00008	0.00006	0.00004	0.03509	0.00006	0.00007	-	0.00000	0.00026	0.00088
0.00199	0.00124	0.00209	0.00199	0.00149	0.00095	0.86564	0.00144	0.00179	-	0.00003	0.00632	0.02179
0.00044	0.00027	0.00046	0.00044	0.00033	0.00021	0.18917	0.00032	0.00039	-	0.00001	0.00138	0.00477
0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01090	0.00002	0.00002	-	0.00000	0.00008	0.00027
0.00246	0.00039	0.00048	0.00246	0.00035	0.00022	0.20017	0.00032	0.00041	-	0.00001	0.00146	0.00500
0.00054	0.00034	0.00057	0.00054	0.00041	0.00026	0.23684	0.00039	0.00049	-	0.00001	0.00173	0.00596
0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01362	0.00002	0.00003	-	0.00000	0.00010	0.00034
0.00258	0.00036	0.00060	0.00258	0.00043	0.00027	0.25046	0.00042	0.00052	-	0.00001	0.00183	0.00630
0.00063	0.00040	0.00067	0.00063	0.00048	0.00030	0.27559	0.00046	0.00057	-	0.00001	0.00201	0.00694
0.00004	0.00002	0.00004	0.00004	0.00003	0.00002	0.01585	0.00003	0.00003	-	0.00000	0.00012	0.00040
0.00067	0.00042	0.00070	0.00067	0.00050	0.00032	0.29745	0.00045	0.00060	-	0.00001	0.00213	0.00734
0.00135	0.00084	0.00142	0.00135	0.00101	0.00064	0.58668	0.00098	0.00121	-	0.00002	0.00428	0.01477
0.00011	0.00007	0.00012	0.00011	0.00009	0.00005	0.04954	0.00008	0.00010	-	0.00000	0.00036	0.00125
0.00148	0.00091	0.00134	0.00148	0.00110	0.00069	0.63622	0.00108	0.00132	-	0.00002	0.00464	0.01688
0.004	0.002	0.004	0.004	0.003	0.002	1.608	0.003	0.003	-	0.000	0.012	0.040
0.001	0.001	0.002	0.001	0.001	0.001	0.636	0.001	0.001	-	0.000	0.005	0.016

San Pedro Waterfront

Mitigated Alternative 2 Toxic Pollutant Emissions

Year: 2015-

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	
Sea / Fairway - North-Bound	Diesel Engines	2.51453	0.67960	5.09701	0.33980	0.02888	0.05437	0.88348	0.50970	0.31475	0.00046		0.00167	0.00370
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		2.51453	0.67960	5.09701	0.33980	0.02888	0.05437	0.88348	0.50970	0.31475	0.00046		0.00167	0.00370
Sea / Fairway - South-Bound	Diesel Engines	2.84982	0.77022	5.77666	0.38511	0.03273	0.06162	1.00129	0.57767	0.36594	0.00054		0.00194	0.00431
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		2.84982	0.77022	5.77666	0.38511	0.03273	0.06162	1.00129	0.57767	0.36594	0.00054		0.00194	0.00431
Fairway - North-Bound	Diesel Engines	2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.24995	0.00037		0.00132	0.00294
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.24995	0.00037		0.00132	0.00294
Fairway - South-Bound	Diesel Engines	1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.16266	0.00024		0.00086	0.00191
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.16266	0.00024		0.00086	0.00191
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.08376	0.00012		0.00044	0.00099
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00382	0.00001		0.00002	0.00004
Total Precautionary Zone - North-Bound		0.84389	0.22808	1.71058	0.11404	0.00969	0.01825	0.29650	0.17106	0.08758	0.00013		0.00046	0.00103
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.09493	0.00014		0.00050	0.00112
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00433	0.00001		0.00002	0.00005
Total Precautionary Zone - South-Bound		0.95641	0.25849	1.93866	0.12924	0.01099	0.02068	0.33603	0.19387	0.09926	0.00015		0.00052	0.00117
Outer Harbor Zone1 (vessels bound to outer harbor berths) ²⁰	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.02224	0.00003		0.00012	0.00026
Outer Harbor Zone1 (vessels bound to outer harbor berths) ²⁰	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00134	0.00000		0.00001	0.00002
Total Outer Harbor Zone1		0.22509	0.06084	0.45626	0.03042	0.00259	0.00487	0.07909	0.04563	0.02358	0.00003		0.00012	0.00028
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²⁰	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.02780	0.00004		0.00015	0.00033
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²⁰	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00168	0.00000		0.00001	0.00002
Total Outer Harbor Zone2		0.28136	0.07604	0.57033	0.03802	0.00323	0.00608	0.09886	0.05703	0.02948	0.00004		0.00016	0.00035
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.03224	0.00005		0.00017	0.00038
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00196	0.00000		0.00001	0.00002
Total Inner Harbor Zone		0.32740	0.08849	0.66366	0.04424	0.00376	0.00708	0.11503	0.06637	0.03420	0.00005		0.00018	0.00040
Hotelling	Diesel Engines	0.37440	0.10119	0.75893	0.05060	0.00430	0.00810	0.13155	0.07589	0.05417	0.00008		0.00029	0.00064
Hotelling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00398	0.00611	0.00001		0.00003	0.00007
Total Hotelling		0.39395	0.10648	0.79858	0.05324	0.00452	0.00852	0.13842	0.07987	0.06028	0.00009		0.00032	0.00071

First Peak Hour Scenario (per vessel) 1.790 0.484 3.629 0.242 0.021 0.039 0.629 0.363 0.187 0.000 0.001 0.002
 First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.
 Second Peak Hour Scenario (per vessel) 0.394 0.106 0.799 0.053 0.005 0.009 0.138 0.080 0.060 0.000 0.000 0.001

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.
 For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

1.0 2015+ years

San Pedro Waterfront

Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc	
0.00231	0.00389	0.00370	0.00278	0.00176	1.61080	0.00268	0.00333	-	0.00006		0.01176	0.04055
0.00231	0.00389	0.00370	0.00278	0.00176	1.61080	0.00268	0.00333	-	0.00006		0.01176	0.04055
0.00269	0.00452	0.00431	0.00323	0.00204	1.87276	0.00312	0.00387	-	0.00006		0.01367	0.04714
0.00269	0.00452	0.00431	0.00323	0.00204	1.87276	0.00312	0.00387	-	0.00006		0.01367	0.04714
0.00184	0.00309	0.00294	0.00221	0.00140	1.27913	0.00213	0.00265	-	0.00004		0.00934	0.03220
0.00184	0.00309	0.00294	0.00221	0.00140	1.27913	0.00213	0.00265	-	0.00004		0.00934	0.03220
0.00120	0.00201	0.00191	0.00144	0.00091	0.83242	0.00139	0.00172	-	0.00003		0.00608	0.02095
0.00120	0.00201	0.00191	0.00144	0.00091	0.83242	0.00139	0.00172	-	0.00003		0.00608	0.02095
0.00062	0.00103	0.00099	0.00074	0.00047	0.42865	0.00071	0.00089	-	0.00001		0.00313	0.01079
0.00003	0.00005	0.00004	0.00003	0.00002	0.01955	0.00003	0.00004	-	0.00000		0.00014	0.00049
0.00064	0.00108	0.00103	0.00077	0.00049	0.44820	0.00075	0.00093	-	0.00002		0.00327	0.01128
0.00070	0.00117	0.00112	0.00084	0.00053	0.48581	0.00081	0.00101	-	0.00002		0.00355	0.01223
0.00003	0.00005	0.00005	0.00004	0.00002	0.02215	0.00004	0.00005	-	0.00000		0.00016	0.00056
0.00073	0.00123	0.00117	0.00088	0.00055	0.50796	0.00085	0.00105	-	0.00002		0.00371	0.01279
0.00016	0.00027	0.00026	0.00020	0.00012	0.11380	0.00019	0.00024	-	0.00000		0.00083	0.00286
0.00001	0.00002	0.00002	0.00001	0.00001	0.00488	0.00001	0.00001	-	0.00000		0.00005	0.00017
0.00017	0.00029	0.00028	0.00021	0.00013	0.12068	0.00020	0.00025	-	0.00000		0.00088	0.00304
0.00020	0.00034	0.00033	0.00025	0.00016	0.14225	0.00024	0.00029	-	0.00000		0.00104	0.00358
0.00001	0.00002	0.00002	0.00001	0.00001	0.00860	0.00001	0.00002	-	0.00000		0.00006	0.00022
0.00022	0.00036	0.00035	0.00026	0.00016	0.15085	0.00025	0.00031	-	0.00001		0.00110	0.00380
0.00024	0.00040	0.00038	0.00029	0.00018	0.16552	0.00028	0.00034	-	0.00001		0.00121	0.00417
0.00001	0.00002	0.00002	0.00002	0.00001	0.01001	0.00002	0.00002	-	0.00000		0.00007	0.00025
0.00025	0.00042	0.00040	0.00030	0.00019	0.17553	0.00029	0.00036	-	0.00001		0.00128	0.00442
0.00040	0.00067	0.00064	0.00048	0.00030	0.27721	0.00046	0.00057	-	0.00001		0.00202	0.00698
0.00004	0.00008	0.00007	0.00005	0.00003	0.03128	0.00005	0.00006	-	0.00000		0.00023	0.00079
0.00004	0.00004	0.00003	0.00002	0.00001	0.00860	0.00001	0.00001	-	0.00000		0.00006	0.00022
0.001	0.002	0.002	0.002	0.001	0.955	0.002	0.002	-	0.000		0.007	0.024
0.000	0.001	0.001	0.001	0.000	0.308	0.001	0.001	-	0.000		0.002	0.008

San Pedro Waterfront

Mitigated Alternative 1 Toxic Pollutant Emissions

Year: 2015-

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium	Copper
Sea / Fairway - North-Bound	Diesel Engines	2.89357	0.78205	5.86535	0.39102	0.03324	0.06256	1.01666	0.58654	0.36379	0.00053	0.00193	0.00428	0.00267
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		2.89357	0.78205	5.86535	0.39102	0.03324	0.06256	1.01666	0.58654	0.36379	0.00053	0.00193	0.00428	0.00267
Sea / Fairway - South-Bound	Diesel Engines	3.28217	0.88707	6.65306	0.44354	0.03770	0.07097	1.15320	0.66531	0.42311	0.00062	0.00224	0.00498	0.00311
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		3.28217	0.88707	6.65306	0.44354	0.03770	0.07097	1.15320	0.66531	0.42311	0.00062	0.00224	0.00498	0.00311
Fairway - North-Bound	Diesel Engines	2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.28709	0.00042	0.00152	0.00338	0.00211
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.28709	0.00042	0.00152	0.00338	0.00211
Fairway - South-Bound	Diesel Engines	1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.18662	0.00027	0.00099	0.00220	0.00137
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.18662	0.00027	0.00099	0.00220	0.00137
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.09447	0.00014	0.00050	0.00111	0.00069
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00382	0.00001	0.00002	0.00004	0.00003
Total Precautionary Zone - North-Bound		0.95019	0.25681	1.92607	0.12840	0.01091	0.02054	0.33385	0.19261	0.09829	0.00014	0.00052	0.00116	0.00072
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.10706	0.00016	0.00057	0.00126	0.00079
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00433	0.00001	0.00002	0.00005	0.00003
Total Precautionary Zone - South-Bound		1.07689	0.29105	2.18288	0.14552	0.01237	0.02328	0.37837	0.21829	0.11139	0.00016	0.00059	0.00131	0.00082
Outer Harbor Zone1 (vessels bound to outer harbor berths) ²⁰	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.02442	0.00004	0.00013	0.00029	0.00018
Outer Harbor Zone1 (vessels bound to outer harbor berths) ²⁰	Boiler	0.00430	0.00116	0.00972	0.00058	0.00005	0.00009	0.00151	0.00087	0.00134	0.00000	0.00001	0.00002	0.00001
Total Outer Harbor Zone1		0.24681	0.06671	0.50029	0.03335	0.00283	0.00534	0.08672	0.05003	0.02577	0.00004	0.00014	0.00030	0.00019
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²⁰	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.03053	0.00004	0.00016	0.00036	0.00022
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²⁰	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00168	0.00000	0.00001	0.00002	0.00001
Total Outer Harbor Zone2		0.30851	0.08338	0.62536	0.04169	0.00354	0.00667	0.10840	0.06254	0.03221	0.00005	0.00017	0.00038	0.00024
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.03553	0.00005	0.00019	0.00042	0.00026
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00196	0.00000	0.00001	0.00002	0.00001
Total Inner Harbor Zone		0.35899	0.09703	0.72769	0.04852	0.00412	0.00776	0.12613	0.07277	0.03748	0.00005	0.00020	0.00044	0.00028
Hotelling	Diesel Engines	0.40674	0.10993	0.82447	0.05496	0.00467	0.00879	0.14291	0.08245	0.05885	0.00009	0.00031	0.00069	0.00043
Hotelling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00611	0.00001	0.00003	0.00007	0.00004
Total Hotelling		0.42629	0.11522	0.86411	0.05760	0.00489	0.00921	0.14978	0.08641	0.06496	0.00010	0.00034	0.00076	0.00048
First Peak Hour Scenario (per vessel)		1.991	0.538	4.036	0.269	0.023	0.043	0.700	0.404	0.207	0.000	0.001	0.002	0.002
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.														
Second Peak Hour Scenario (per vessel)		0.426	0.115	0.864	0.058	0.005	0.009	0.150	0.086	0.065	0.000	0.000	0.001	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.														

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels: 3.0 2015- years

San Pedro Waterfront

Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00449	0.00428	0.00321	0.00203	1.86172	0.00310	0.00385	-	0.00006	0.01359	0.04686
-	-	-	-	-	-	-	-	-	-	-
0.00449	0.00428	0.00321	0.00203	1.86172	0.00310	0.00385	-	0.00006	0.01359	0.04686
0.00523	0.00498	0.00373	0.00236	2.16534	0.00361	0.00448	-	0.00007	0.01580	0.05451
-	-	-	-	-	-	-	-	-	-	-
0.00523	0.00498	0.00373	0.00236	2.16534	0.00361	0.00448	-	0.00007	0.01580	0.05451
0.00355	0.00338	0.00253	0.00160	1.46922	0.00245	0.00304	-	0.00005	0.01072	0.03698
-	-	-	-	-	-	-	-	-	-	-
0.00355	0.00338	0.00253	0.00160	1.46922	0.00245	0.00304	-	0.00005	0.01072	0.03698
0.00231	0.00220	0.00165	0.00104	0.95507	0.00159	0.00198	-	0.00003	0.00697	0.02404
-	-	-	-	-	-	-	-	-	-	-
0.00231	0.00220	0.00165	0.00104	0.95507	0.00159	0.00198	-	0.00003	0.00697	0.02404
0.00117	0.00111	0.00083	0.00053	0.48345	0.00081	0.00100	-	0.00002	0.00353	0.01217
0.00005	0.00004	0.00003	0.00002	0.01955	0.00003	0.00004	-	0.00000	0.00014	0.00049
-	-	-	-	-	-	-	-	-	-	-
0.00121	0.00116	0.00087	0.00055	0.50299	0.00084	0.00104	-	0.00002	0.00367	0.01266
0.00132	0.00126	0.00094	0.00060	0.54790	0.00091	0.00113	-	0.00002	0.00400	0.01379
0.00005	0.00005	0.00004	0.00002	0.02215	0.00004	0.00005	-	0.00000	0.00016	0.00056
0.00138	0.00131	0.00098	0.00062	0.57006	0.00095	0.00118	-	0.00002	0.00416	0.01425
0.00030	0.00029	0.00022	0.00014	0.12499	0.00021	0.00026	-	0.00000	0.00091	0.00315
0.00002	0.00002	0.00001	0.00001	0.00688	0.00001	0.00001	-	0.00000	0.00005	0.00017
0.00032	0.00030	0.00023	0.00014	0.13187	0.00022	0.00027	-	0.00000	0.00096	0.00332
0.00038	0.00036	0.00027	0.00017	0.15624	0.00026	0.00032	-	0.00001	0.00114	0.00293
0.00002	0.00002	0.00001	0.00001	0.00860	0.00001	0.00002	-	0.00000	0.00006	0.00022
0.00040	0.00038	0.00028	0.00018	0.16484	0.00027	0.00034	-	0.00001	0.00120	0.00415
0.00044	0.00042	0.00031	0.00020	0.18181	0.00030	0.00038	-	0.00001	0.00133	0.00458
0.00002	0.00002	0.00002	0.00001	0.01001	0.00002	0.00002	-	0.00000	0.00007	0.00025
0.00046	0.00044	0.00033	0.00021	0.19181	0.00032	0.00040	-	0.00001	0.00140	0.00483
0.00073	0.00069	0.00052	0.00033	0.30115	0.00050	0.00062	-	0.00001	0.00220	0.00758
0.00008	0.00007	0.00005	0.00003	0.03128	0.00005	0.00006	-	0.00000	0.00023	0.00079
0.00088	0.00086	0.00065	0.00046	0.33242	0.00065	0.00081	-	0.00001	0.00242	0.00807
0.003	0.002	0.002	0.001	1.059	0.002	0.002	-	0.000	0.008	0.027
0.001	0.001	0.001	0.000	0.332	0.001	0.001	-	0.000	0.002	0.008

San Pedro Waterfront

Mitigated Alternative 2 Toxic Pollutant Emissions

Year: 2011

Year (b/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	1,667										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,667</i>	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	70,418										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>70,418</i>	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	1,099										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,099</i>	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	18,526										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>18,526</i>	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	378										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>378</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	14,315										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.4	4.1	2.0	-	2.8
<i>Total Precautionary Zone - South-Bound</i>		<i>14,315</i>	-	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>4.1</i>	<i>2.0</i>	-	<i>2.8</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	4,257										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.6	0.8	-	1.1
<i>Total Outer Harbor Zone2</i>		<i>4,257</i>	-	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.8</i>	-	<i>1.1</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,954										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	1.9	0.9	-	1.3
<i>Total Inner Harbor Zone</i>		<i>4,954</i>	-	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>1.9</i>	<i>0.9</i>	-	<i>1.3</i>
Hoteling	Diesel Engines	46,116										
Hoteling	Boiler		-	17.1	0.8	8.7	0.6	12.6	35.9	17.1	-	24.8
<i>Total Hoteling</i>		<i>46,116</i>	-	<i>17.1</i>	<i>0.8</i>	<i>8.7</i>	<i>0.6</i>	<i>12.6</i>	<i>35.9</i>	<i>17.1</i>	-	<i>24.8</i>
		161,730	-	21	1	11	1	15	44	21	-	30

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	3.5	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	3.5	-	-	-	0.0	-	0.1
-	0.3	-	2.9	-	-	0.3	131.8	-	-	-	0.1	-	2.9
-	0.3	-	2.9	-	-	0.3	131.8	-	-	-	0.1	-	2.9
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.2	-	-	0.1	52.7	-	-	-	0.1	-	1.2
-	0.1	-	1.2	-	-	0.1	52.7	-	-	-	0.1	-	1.2
-	0.1	-	1.3	-	-	0.1	61.3	-	-	-	0.1	-	1.3
-	0.1	-	1.3	-	-	0.1	61.3	-	-	-	0.1	-	1.3
-	2.3	-	25.3	-	-	2.3	1,150.0	-	-	-	1.2	-	25.3
-	2.3	-	25.3	-	-	2.3	1,150.0	-	-	-	1.2	-	25.3
-	3	-	31	-	-	3	1,399	-	-	-	2	-	31

San Pedro Waterfront

Mitigated Alternative 2 Toxic Pollutant Emissions
Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	492										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>			492	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	20,780										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>			20,780	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	589										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>			589	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	9,938										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>			9,938	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	203										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
<i>Total Precautionary Zone - North-Bound</i>			203	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
Precautionary Zone - South-Bound	Diesel Engines	7,680										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5
<i>Total Precautionary Zone - South-Bound</i>			7,680	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	914										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.2
<i>Total Outer Harbor Zone1</i>			914	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.2
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,142										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.8	0.4	-	0.3
<i>Total Outer Harbor Zone2</i>			1,142	0.4	0.0	0.2	0.0	0.3	0.8	0.4	-	0.3
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,329										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.2	0.0	0.3	1.0	0.5	-	0.4
<i>Total Inner Harbor Zone</i>			1,329	0.5	0.0	0.2	0.0	0.3	1.0	0.5	-	0.4
Hoteling	Diesel Engines	6,441										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3
<i>Total Hoteling</i>			6,441	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3
			49,507	-	21	1	11	1	15	44	21	16

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.0	-	0.2	-	-	0.0	11.3	-	-	-	0.0	-	0.2
-	0.0	-	0.2	-	-	0.0	11.3	-	-	-	0.0	-	0.2
-	0.0	-	0.3	-	-	0.0	14.1	-	-	-	0.0	-	0.3
-	0.0	-	0.3	-	-	0.0	14.1	-	-	-	0.0	-	0.3
-	0.0	-	0.4	-	-	0.0	16.5	-	-	-	0.0	-	0.4
-	0.0	-	0.4	-	-	0.0	16.5	-	-	-	0.0	-	0.4
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1	-	16	-	-	1	731	-	-	-	1	-	16

San Pedro Waterfront

Mitigated Alternative 2 Toxic Pollutant Emissions

Year: 2022

Year (b/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	505										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>			<i>505</i>									
Sea / Fairway - South-Bound	Diesel Engines	21,309										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>			<i>21,309</i>									
Fairway - North-Bound	Diesel Engines	604										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>			<i>604</i>									
Fairway - South-Bound	Diesel Engines	10,191										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>			<i>10,191</i>									
Precautionary Zone - North-Bound	Diesel Engines	208										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
<i>Total Precautionary Zone - North-Bound</i>			<i>208</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>
Precautionary Zone - South-Bound	Diesel Engines	7,875										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.3	2.0	-	1.6
<i>Total Precautionary Zone - South-Bound</i>			<i>7,875</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.3</i>	<i>2.0</i>	<i>-</i>	<i>1.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	937										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.3
<i>Total Outer Harbor Zone1</i>			<i>937</i>	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	<i>-</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,171										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.9	0.4	-	0.3
<i>Total Outer Harbor Zone2</i>			<i>1,171</i>	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.9</i>	<i>0.4</i>	<i>-</i>	<i>0.3</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,363										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.2	0.0	0.4	1.0	0.5	-	0.4
<i>Total Inner Harbor Zone</i>			<i>1,363</i>	<i>0.5</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.4</i>	<i>1.0</i>	<i>0.5</i>	<i>-</i>	<i>0.4</i>
Hoteling	Diesel Engines	6,605										
Hoteling	Boiler		-	17.9	0.8	9.1	0.6	13.2	37.6	17.9	-	13.7
<i>Total Hoteling</i>			<i>6,605</i>	<i>17.9</i>	<i>0.8</i>	<i>9.1</i>	<i>0.6</i>	<i>13.2</i>	<i>37.6</i>	<i>17.9</i>	<i>-</i>	<i>13.7</i>
			50,767	-	21	1	11	1	16	45	21	-

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	72.5	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	72.5	-	-	-	0.1	-	1.6
-	0.0	-	0.3	-	-	0.0	11.6	-	-	-	0.0	-	0.3
-	0.0	-	0.3	-	-	0.0	11.6	-	-	-	0.0	-	0.3
-	0.0	-	0.3	-	-	0.0	14.5	-	-	-	0.0	-	0.3
-	0.0	-	0.3	-	-	0.0	14.5	-	-	-	0.0	-	0.3
-	0.0	-	0.4	-	-	0.0	16.9	-	-	-	0.0	-	0.4
-	0.0	-	0.4	-	-	0.0	16.9	-	-	-	0.0	-	0.4
-	1.3	-	13.9	-	-	1.3	632.6	-	-	-	0.7	-	13.9
-	1.3	-	13.9	-	-	1.3	632.6	-	-	-	0.7	-	13.9
-	2	-	17	-	-	2	750	-	-	-	1	-	17

San Pedro Waterfront

Mitigated Alternative 2 Toxic Pollutant Emissions

Year: 2037

Year (b/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	514										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>			<i>514</i>									
Sea / Fairway - South-Bound	Diesel Engines	21,687										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>			<i>21,687</i>									
Fairway - North-Bound	Diesel Engines	615										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>			<i>615</i>									
Fairway - South-Bound	Diesel Engines	10,372										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>			<i>10,372</i>									
Precautionary Zone - North-Bound	Diesel Engines	212										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
<i>Total Precautionary Zone - North-Bound</i>			<i>212</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>
Precautionary Zone - South-Bound	Diesel Engines	8,015										
Precautionary Zone - South-Bound	Boiler		-	2.1	0.1	1.1	0.1	1.5	4.4	2.1	-	1.6
<i>Total Precautionary Zone - South-Bound</i>			<i>8,015</i>	<i>2.1</i>	<i>0.1</i>	<i>1.1</i>	<i>0.1</i>	<i>1.5</i>	<i>4.4</i>	<i>2.1</i>	<i>-</i>	<i>1.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	953										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.3
<i>Total Outer Harbor Zone1</i>			<i>953</i>	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	<i>-</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,192										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.9	0.4	-	0.3
<i>Total Outer Harbor Zone2</i>			<i>1,192</i>	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.9</i>	<i>0.4</i>	<i>-</i>	<i>0.3</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,387										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.2	0.0	0.4	1.0	0.5	-	0.4
<i>Total Inner Harbor Zone</i>			<i>1,387</i>	<i>0.5</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.4</i>	<i>1.0</i>	<i>0.5</i>	<i>-</i>	<i>0.4</i>
Hoteling	Diesel Engines	6,722										
Hoteling	Boiler		-	18.2	0.8	9.3	0.6	13.4	38.3	18.2	-	13.9
<i>Total Hoteling</i>			<i>6,722</i>	<i>18.2</i>	<i>0.8</i>	<i>9.3</i>	<i>0.6</i>	<i>13.4</i>	<i>38.3</i>	<i>18.2</i>	<i>-</i>	<i>13.9</i>
		51,668	-	22	1	11	1	16	45	22	-	16

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Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	73.8	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	73.8	-	-	-	0.1	-	1.6
-	0.0	-	0.3	-	-	0.0	11.8	-	-	-	0.0	-	0.3
-	0.0	-	0.3	-	-	0.0	11.8	-	-	-	0.0	-	0.3
-	0.0	-	0.3	-	-	0.0	14.8	-	-	-	0.0	-	0.3
-	0.0	-	0.3	-	-	0.0	14.8	-	-	-	0.0	-	0.3
-	0.0	-	0.4	-	-	0.0	17.2	-	-	-	0.0	-	0.4
-	0.0	-	0.4	-	-	0.0	17.2	-	-	-	0.0	-	0.4
-	1.3	-	14.2	-	-	1.3	643.9	-	-	-	0.7	-	14.2
-	1.3	-	14.2	-	-	1.3	643.9	-	-	-	0.7	-	14.2
-	2	-	17	-	-	2	763	-	-	-	1	-	17

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70-Year Average Calculations		Mitigated Alternative 2															
		70-year average	Project Start Year	Evaluation Year				Evaluation Year				Evaluation Year				Evaluation Year	
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
DPM																	
Sea / Fairway - North-Bound	Diesel Engines	585	2,024	2,024	1,667	1,667	492	492	492	492	492	492	492	492	492	505	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>																	
Sea / Fairway - South-Bound	Diesel Engines	24,705	85,494	85,494	70,418	70,418	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	21,309	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>																	
Fairway - North-Bound	Diesel Engines	649	1,501	1,501	1,099	1,099	589	589	589	589	589	589	589	589	589	604	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>																	
Fairway - South-Bound	Diesel Engines	10,937	25,308	25,308	18,526	18,526	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	10,191	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>																	
Precautionary Zone - North-Bound	Diesel Engines	221	449	449	378	378	203	203	203	203	203	203	203	203	203	208	
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - North-Bound</i>																	
Precautionary Zone - South-Bound	Diesel Engines	8,378	16,993	16,993	14,315	14,315	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,875	
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - South-Bound</i>																	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁰	Diesel Engines	890	-	-	-	-	914	914	914	914	914	914	914	914	914	937	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁰	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone1</i>																	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹¹	Diesel Engines	1,379	5,053	5,053	4,257	4,257	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,171	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹¹	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone2</i>																	
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines	1,604	5,880	5,880	4,954	4,954	1,329	1,329	1,329	1,329	1,329	1,329	1,329	1,329	1,329	1,363	
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Inner Harbor Zone</i>																	
Hoteling	Diesel Engines	9,751	75,504	75,504	46,116	46,116	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,605	
Hoteling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Hoteling</i>																	

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2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	Evaluation Year		2038	2039	2040	2041
													2036	2037				
505	505	505	505	505	505	505	505	505	505	505	505	505	505	514	514	514	514	514
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21,309	21,309	21,309	21,309	21,309	21,309	21,309	21,309	21,309	21,309	21,309	21,309	21,309	21,309	21,687	21,687	21,687	21,687	21,687
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
604	604	604	604	604	604	604	604	604	604	604	604	604	604	615	615	615	615	615
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10,191	10,191	10,191	10,191	10,191	10,191	10,191	10,191	10,191	10,191	10,191	10,191	10,191	10,191	10,372	10,372	10,372	10,372	10,372
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
208	208	208	208	208	208	208	208	208	208	208	208	208	208	212	212	212	212	212
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,875	7,875	7,875	7,875	7,875	7,875	7,875	7,875	7,875	7,875	7,875	7,875	7,875	7,875	8,015	8,015	8,015	8,015	8,015
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
937	937	937	937	937	937	937	937	937	937	937	937	937	937	953	953	953	953	953
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,171	1,192	1,192	1,192	1,192	1,192
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,387	1,387	1,387	1,387	1,387
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,605	6,605	6,605	6,605	6,605	6,605	6,605	6,605	6,605	6,605	6,605	6,605	6,605	6,605	6,722	6,722	6,722	6,722	6,722

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2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
615	615	615	615	615	615	615	615	615	615	615	615	615	615	615	615	615	615	615	615
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722

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2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	End of 70 years	
															2077	2078
514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514	514
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687	21,687
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
615	615	615	615	615	615	615	615	615	615	615	615	615	615	615	615	615
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372	10,372
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015	8,015
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953	953
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387	1,387
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722	6,722

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70-Year Average Calculations		Mitigated Alternative 2														
		70-year average	Project Start Year	Evaluation Year					Evaluation Year					Evaluation Year		
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
PM from OGV boilers																
Sea / Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>																
Sea / Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>																
Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>																
Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>																
Precautionary Zone - North-Bound	Diesel Engines	8	17	17	14	14	7	7	7	7	7	7	7	7	7	8
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - North-Bound</i>																
Precautionary Zone - South-Bound	Diesel Engines	309	626	626	527	527	283	283	283	283	283	283	283	283	283	290
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - South-Bound</i>																
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁸	Diesel Engines	44	-	-	-	-	45	45	45	45	45	45	45	45	45	46
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁸	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>																
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹²	Diesel Engines	68	250	250	211	211	57	57	57	57	57	57	57	57	57	58
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹²	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone2</i>																
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines	79	291	291	245	245	66	66	66	66	66	66	66	66	66	67
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Inner Harbor Zone</i>																
Hotelling	Diesel Engines	2,692	5,460	5,460	4,600	4,600	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,531
Hotelling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Hotelling</i>																

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													Evaluation Year					
2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
290	290	290	290	290	290	290	290	290	290	290	290	290	290	295	295	295	295	295
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	46	46	46	46	46	46	46	46	46	46	46	46	46	47	47	47	47	47
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58	58	58	58	58	58	58	58	58	58	58	58	58	58	59	59	59	59	59
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	67	67	67	67	67	67	67	67	67	67	67	67	67	69	69	69	69	69
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,531	2,531	2,531	2,531	2,531	2,531	2,531	2,531	2,531	2,531	2,531	2,531	2,531	2,531	2,575	2,575	2,575	2,575	2,575

San Pedro Waterfront

2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575

San Pedro Waterfront

2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	End of 70 years	
															2077	2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575	2,575

San Pedro Waterfront

70-Year Average Calculations		Mitigated Alternative 2														
		70-year average	Project Start Year	Evaluation Year					Evaluation Year					Evaluation Year		
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
VOC from OGV boilers																
Sea / Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>																
Sea / Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>																
Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>																
Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>																
Precautionary Zone - North-Bound	Diesel Engines	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - North-Bound</i>																
Precautionary Zone - South-Bound	Diesel Engines	90	82	82	86	86	88	88	88	88	88	88	88	88	88	90
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - South-Bound</i>																
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁸	Diesel Engines	14	-	-	-	-	14	14	14	14	14	14	14	14	14	14
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁸	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>																
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹²	Diesel Engines	19	33	33	34	34	18	18	18	18	18	18	18	18	18	18
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹²	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone2</i>																
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines	22	38	38	40	40	20	20	20	20	20	20	20	20	20	21
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Inner Harbor Zone</i>																
Hotelling	Diesel Engines	788	719	719	749	749	766	766	766	766	766	766	766	766	766	786
Hotelling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Hotelling</i>																

San Pedro Waterfront

													Evaluation Year					
2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90	90	90	90	90	90	90	90	90	90	90	90	90	90	92	92	92	92	92
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14	14	14	14	14	14	14	14	14	14	14	14	14	14	15	15	15	15	15
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
786	786	786	786	786	786	786	786	786	786	786	786	786	786	800	800	800	800	800

San Pedro Waterfront

2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800

San Pedro Waterfront

2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	End of 70 years	
															2077	2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
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15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
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21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800

San Pedro Waterfront

Mitigated Alternative 2 Toxic Pollutant Emissions
70-Year Average

Year (t/yr)	Spatial Allocation	Power Type	VOC								PM					
			DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine		
	Sea / Fairway - North-Bound	Diesel Engines	585													
	Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - North-Bound</i>		<i>585</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Sea / Fairway - South-Bound	Diesel Engines	24,705													
	Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - South-Bound</i>		<i>24,705</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - North-Bound	Diesel Engines	649													
	Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - North-Bound</i>		<i>649</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - South-Bound	Diesel Engines	10,937													
	Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - South-Bound</i>		<i>10,937</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Precautionary Zone - North-Bound	Diesel Engines	221													
	Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0	-	-	-
	<i>Total Precautionary Zone - North-Bound</i>		<i>221</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Precautionary Zone - South-Bound	Diesel Engines	8,378													
	Precautionary Zone - South-Bound	Boiler		-	2.1	0.1	1.1	0.1	1.5	4.3	2.1	-	1.7	-	-	-
	<i>Total Precautionary Zone - South-Bound</i>		<i>8,378</i>	<i>-</i>	<i>2.1</i>	<i>0.1</i>	<i>1.1</i>	<i>0.1</i>	<i>1.5</i>	<i>4.3</i>	<i>2.1</i>	<i>-</i>	<i>1.7</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	890													
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.3	0.0	0.2	0.0	0.2	0.7	0.3	-	0.2	-	-	-
	<i>Total Outer Harbor Zone1</i>		<i>890</i>	<i>-</i>	<i>0.3</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.2</i>	<i>0.7</i>	<i>0.3</i>	<i>-</i>	<i>0.2</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,379													
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.4	0.0	0.2	0.0	0.3	0.9	0.4	-	0.4	-	-	-
	<i>Total Outer Harbor Zone2</i>		<i>1,379</i>	<i>-</i>	<i>0.4</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.9</i>	<i>0.4</i>	<i>-</i>	<i>0.4</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,604													
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	0.4	-	-	-
	<i>Total Inner Harbor Zone</i>		<i>1,604</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	<i>-</i>	<i>0.4</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Hoteling	Diesel Engines	9,751													
	Hoteling	Boiler		-	17.9	0.8	9.2	0.6	13.2	37.8	17.9	-	14.5	-	-	-
	<i>Total Hoteling</i>		<i>9,751</i>	<i>-</i>	<i>17.9</i>	<i>0.8</i>	<i>9.2</i>	<i>0.6</i>	<i>13.2</i>	<i>37.8</i>	<i>17.9</i>	<i>-</i>	<i>14.5</i>	<i>-</i>	<i>-</i>	<i>-</i>

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
0.0	-	0.0	-	-	0.0	2.0	-	-	-	0.0	-	0.0
0.0	-	0.0	-	-	0.0	2.0	-	-	-	0.0	-	0.0
0.2	-	1.7	-	-	0.2	77.2	-	-	-	0.1	-	1.7
0.2	-	1.7	-	-	0.2	77.2	-	-	-	0.1	-	1.7
0.0	-	0.2	-	-	0.0	11.0	-	-	-	0.0	-	0.2
0.0	-	0.2	-	-	0.0	11.0	-	-	-	0.0	-	0.2
0.0	-	0.4	-	-	0.0	17.1	-	-	-	0.0	-	0.4
0.0	-	0.4	-	-	0.0	17.1	-	-	-	0.0	-	0.4
0.0	-	0.4	-	-	0.0	19.9	-	-	-	0.0	-	0.4
0.0	-	0.4	-	-	0.0	19.9	-	-	-	0.0	-	0.4
1.3	-	14.8	-	-	1.3	673.1	-	-	-	0.7	-	14.8
1.3	-	14.8	-	-	1.3	673.1	-	-	-	0.7	-	14.8

San Pedro Waterfront

Unmitigated Alternative 3 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>43.2</i>	<i>78.2</i>	<i>19.6</i>	<i>549.7</i>	<i>78.2</i>	<i>62.6</i>	<i>752.5</i>	<i>20.7</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.8</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = 1.053$$

$$1 \text{ lb} = 453.59$$

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3 Year 2011 only
1 All other years

San Pedro Waterfront

Unmitigated Alternative 3 Criteria Pollutant Emissions

Year: 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.6	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.2	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.6	16.7	13.4	171.8	4.3	
Hotelling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
Emissions = Engine Power * Load Factor * Emission Factor * Time										

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 - (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
1 lb = 453.59

Assumptions

- 1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
- 2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- 3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- 4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0 Prior to 2013
2 All other years

San Pedro Waterfront

Unmitigated Alternative 3 Criteria Pollutant Emissions
Year: 2011, 2015, 2022, 2037

Peak Day (lb/day) for Single Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - South-Bound	Diesel Engines	115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Fairway - North-Bound	Diesel Engines	85.6	155.0	38.9	1,089.4	155.0	124.0	1,491.4	41.0
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		85.6	155.0	38.9	1,089.4	155.0	124.0	1,491.4	41.0
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		24	42	11	301	44	35	450	11
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
Total Outer Harbor Zone1		6	10	3	71	11	8	109	3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	135.9	3.3
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.81
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.3	158.2	3.9
Hotelling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.47
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.79
Total Hotelling		211.0	372.4	96.2	2,674.0	406.6	325.3	4,312.2	101.3
Outer Harbor Berths per Vessel - Peak Day (lb/day)		673	1,207	306	8,547	1,246	997	12,453	322
Inner Harbor Berths per Vessel - Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2011 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304
2015 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		481	868	218	6,114	875	700	8,511	230
2015 Vessel Type 2 Hotelling Peak Day (lb/day)		211	372	96	2,674	407	325	4,312	101
2022 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		481	868	218	6,114	875	700	8,511	230
2022 Vessel Type 2 Hotelling Peak Day (lb/day)		211	372	96	2,674	407	325	4,312	101
2037 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		481	868	218	6,114	875	700	8,511	230
2037 Vessel Type 2 Hotelling Peak Day (lb/day)		211	372	96	2,674	407	325	4,312	101

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels	
	bound to Inner Harbor	bound to Outer Harbor
2011	3	0
2015	1	0
2022	1	0
2037	1	0

San Pedro Waterfront

Unmitigated Alternative 3 Criteria Pollutant Emissions
Year: 2015, 2022, 2037

Peak Day (lb/day) for Single Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - South-Bound	Diesel Engines	134.4	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.4	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Fairway - North-Bound	Diesel Engines	98.6	178.5	44.8	1,254.6	178.5	142.8	1,717.7	47.2
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		98.6	178.5	44.8	1,254.6	178.5	142.8	1,717.7	47.2
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		27	48	12	339	50	40	502	13
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
Total Outer Harbor Zone1		6	11	3	78	12	9	118	3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.60
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.19
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
Total Inner Harbor Zone		8.9	15.8	4.0	112.6	16.7	13.4	171.8	4.3
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	106.97
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.79
Total Hotelling		228.8	404.6	104.2	2,900.0	438.8	351.0	4,621.8	109.8
Outer Harbor Berths per Vessel - Peak Day (lb/day)		760	1,299	329	9,193	1,338	1,070	13,338	347
Inner Harbor Berths per Vessel - Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Outer Harbor Berths Peak Day (lb/day)		760	1,299	329	9,193	1,338	1,070	13,338	347
2015 Total Inner Harbor Berths Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2022 Total Outer Harbor Berths Peak Day (lb/day)		760	1,299	329	9,193	1,338	1,070	13,338	347
2022 Total Inner Harbor Berths Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2037 Total Outer Harbor Berths Peak Day (lb/day)		760	1,299	329	9,193	1,338	1,070	13,338	347
2037 Total Inner Harbor Berths Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2011 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,084	1,825	459	12,850	1,838	1,470	17,835	484
2015 Vessel Type 3 Hotelling Peak Day (lb/day)		458	809	208	5,800	878	702	9,244	220
2022 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,084	1,825	459	12,850	1,838	1,470	17,835	484
2022 Vessel Type 3 Hotelling Peak Day (lb/day)		458	809	208	5,800	878	702	9,244	220
2037 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		1,084	1,825	459	12,850	1,838	1,470	17,835	484
2037 Vessel Type 3 Hotelling Peak Day (lb/day)		458	809	208	5,800	878	702	9,244	220

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels	
	bound to Inner Harbor	bound to Outer Harbor
2011	0	1
2015	1	1
2022	1	1
2037	1	1

San Pedro Waterfront

Unmitigated Alternative 3 Criteria Pollutant Emissions
 Year: 2011, 2015, 2022, 2037

Total Peak Day (lb/day) for all Vessels

	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
2011 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2015 Transit & Maneuvering Peak Day (lb/day)	1,564	2,693	678	18,964	2,713	2,170	26,346	714
2015 Hotelling Peak Day (lb/day)	669	1,182	305	8,474	1,284	1,027	13,556	321
2022 Transit & Maneuvering Peak Day (lb/day)	1,564	2,693	678	18,964	2,713	2,170	26,346	714
2022 Hotelling Peak Day (lb/day)	669	1,182	305	8,474	1,284	1,027	13,556	321
2037 Transit & Maneuvering Peak Day (lb/day)	1,564	2,693	678	18,964	2,713	2,170	26,346	714
2037 Hotelling Peak Day (lb/day)	669	1,182	305	8,474	1,284	1,027	13,556	321

San Pedro Waterfront

Unmitigated Alternative 3 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

8-Hour (lb/8-hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	11.5	20.8	5.2	145.9	20.8	16.6	199.8	5.5	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>11.5</i>	<i>20.8</i>	<i>5.2</i>	<i>145.9</i>	<i>20.8</i>	<i>16.6</i>	<i>199.8</i>	<i>5.5</i>	0.85
Sea / Fairway - South-Bound	Diesel Engines	14.5	26.2	6.6	184.4	26.2	21.0	252.5	6.9	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>14.5</i>	<i>26.2</i>	<i>6.6</i>	<i>184.4</i>	<i>26.2</i>	<i>21.0</i>	<i>252.5</i>	<i>6.9</i>	1.07
Fairway - North-Bound	Diesel Engines	10.7	19.4	4.9	136.2	19.4	15.5	186.4	5.1	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>10.7</i>	<i>19.4</i>	<i>4.9</i>	<i>136.2</i>	<i>19.4</i>	<i>15.5</i>	<i>186.4</i>	<i>5.1</i>	1.21
Fairway - South-Bound	Diesel Engines	5.4	9.8	2.5	68.7	9.8	7.8	94.1	2.6	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>5.4</i>	<i>9.8</i>	<i>2.5</i>	<i>68.7</i>	<i>9.8</i>	<i>7.8</i>	<i>94.1</i>	<i>2.6</i>	0.61
Precautionary Zone - North-Bound	Diesel Engines	2.6	4.7	1.2	32.8	4.7	3.7	44.9	1.2	
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.0	
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>4.7</i>	<i>1.2</i>	<i>33.2</i>	<i>4.9</i>	<i>3.9</i>	<i>49.7</i>	<i>1.3</i>	0.63
Precautionary Zone - South-Bound	Diesel Engines	2.9	5.3	1.3	37.2	5.3	4.2	50.9	1.4	
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.4	0.3	0.2	5.4	0.0	
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>5.3</i>	<i>1.3</i>	<i>37.6</i>	<i>5.5</i>	<i>4.4</i>	<i>56.3</i>	<i>1.4</i>	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	1.2	0.3	8.7	1.2	1.0	11.9	0.3	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.01	-	0.006	0.1	0.08	0.06	1.7	0.01	
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>8.8</i>	<i>1.3</i>	<i>1.1</i>	<i>13.6</i>	<i>0.3</i>	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.5	0.4	10.9	1.5	1.2	14.9	0.4	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.5</i>	<i>0.4</i>	<i>11.0</i>	<i>1.6</i>	<i>1.3</i>	<i>17.0</i>	<i>0.4</i>	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.8	0.5	12.7	1.8	1.4	17.3	0.5	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.5</i>	<i>12.9</i>	<i>1.9</i>	<i>1.5</i>	<i>19.8</i>	<i>0.5</i>	0.32
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	12
First Max 8-Hour Scenario (per vessel)		50	91	23	639	91	73	889	24	
First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Max 8-Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	
Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.										

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = \frac{1.053}{1 \text{ lb} = 453.59}$$

Assumptions

1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.
3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak 8-hour emissions assume no VSRP.

For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 2 vessels:

3 Year 2011 only
1 All other years

San Pedro Waterfront

Unmitigated Alternative 3 Criteria Pollutant Emissions

Year: 2015, 2022, 2037

8-Hour (lb/8-hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>13.3</i>	<i>24.1</i>	<i>6.0</i>	<i>169.1</i>	<i>24.1</i>	<i>19.2</i>	<i>231.6</i>	<i>6.4</i>	0.85
Sea / Fairway - South-Bound	Diesel Engines	16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>16.8</i>	<i>30.4</i>	<i>7.6</i>	<i>213.7</i>	<i>30.4</i>	<i>24.3</i>	<i>292.6</i>	<i>8.0</i>	1.07
Fairway - North-Bound	Diesel Engines	12.3	22.3	5.6	156.8	22.3	17.8	214.7	5.9	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>12.3</i>	<i>22.3</i>	<i>5.6</i>	<i>156.8</i>	<i>22.3</i>	<i>17.8</i>	<i>214.7</i>	<i>5.9</i>	1.21
Fairway - South-Bound	Diesel Engines	6.2	11.3	2.8	79.1	11.3	9.0	108.3	3.0	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>6.2</i>	<i>11.3</i>	<i>2.8</i>	<i>79.1</i>	<i>11.3</i>	<i>9.0</i>	<i>108.3</i>	<i>3.0</i>	0.61
Precautionary Zone - North-Bound	Diesel Engines	2.9	5.3	1.3	37.0	5.3	4.2	50.7	1.4	
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.0	
<i>Total Precautionary Zone - North-Bound</i>		<i>2.9</i>	<i>5.3</i>	<i>1.3</i>	<i>37.4</i>	<i>5.5</i>	<i>4.4</i>	<i>55.4</i>	<i>1.4</i>	0.63
Precautionary Zone - South-Bound	Diesel Engines	3.3	6.0	1.5	41.9	6.0	4.8	57.4	1.6	
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.4	0.3	0.2	5.4	0.0	
<i>Total Precautionary Zone - South-Bound</i>		<i>3.3</i>	<i>6.0</i>	<i>1.5</i>	<i>42.4</i>	<i>6.2</i>	<i>5.0</i>	<i>62.8</i>	<i>1.6</i>	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.8	1.4	0.3	9.6	1.4	1.1	13.1	0.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.01	-	0.006	0.1	0.08	0.06	1.7	0.01	
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>1.4</i>	<i>0.3</i>	<i>9.7</i>	<i>1.4</i>	<i>1.2</i>	<i>14.8</i>	<i>0.4</i>	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.7	0.4	12.0	1.7	1.4	16.4	0.4	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.7</i>	<i>0.4</i>	<i>12.1</i>	<i>1.8</i>	<i>1.4</i>	<i>18.5</i>	<i>0.5</i>	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	2.0	0.5	13.9	2.0	1.6	19.1	0.5	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>2.0</i>	<i>0.5</i>	<i>14.1</i>	<i>2.1</i>	<i>1.7</i>	<i>21.5</i>	<i>0.5</i>	0.32
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>19.1</i>	<i>33.7</i>	<i>8.7</i>	<i>241.7</i>	<i>36.6</i>	<i>29.3</i>	<i>385.1</i>	<i>9.1</i>	12

First Max 8-Hour Scenario (per vessel)

58 104 26 734 105 84 1,020 28

First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors

Second Max 8-Hour Scenario (per vessel)

19 34 9 242 37 29 385 9

Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = \frac{1.053}{1 \text{ lb} = 453.59}$$

Assumptions

- 1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.
- 2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.
- 3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.
- 4. Peak 8-hour emissions assume no VSRP.

For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 3 vessels:

0 Prior to 2013
2 All other years

San Pedro Waterfront

Alternative 3 Unmitigated Criteria Pollutant Emissions

Year: 2011

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,425.4	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		198.0	270.1	90.0	2,425.4	270.1	216.1	2,070.5	94.8
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,065.0	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		250.3	341.3	113.8	3,065.0	341.3	273.0	2,616.5	119.8
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,798.1	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		146.8	200.2	66.7	1,798.1	200.2	160.2	1,535.0	70.3
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	907.3	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		74.1	101.0	33.7	907.3	101.0	80.8	774.6	35.5
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	537.5	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		44.4	59.9	20.2	543.3	62.1	49.6	504.3	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	609.2	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		50.3	67.8	23.1	615.8	70.3	56.3	571.6	24.1
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.5	15.7	5.2	140.7	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		11.7	15.7	5.3	142.7	16.5	13.1	136.1	5.6
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	14.4	19.6	6.5	175.9	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		14.6	19.6	6.7	178.4	20.6	16.4	170.2	7.0
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines	16.7	22.8	7.6	204.7	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		17.0	22.8	7.7	207.7	23.9	19.1	198.0	8.1
Hoteling	Diesel Engines	214.6	292.7	97.6	2,628.2	292.7	234.1	2,243.7	102.7
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hoteling		219.9	292.7	100.2	2,683.8	313.8	251.0	2,680.2	105.5

Alternative 3 Unmitigated Criteria Pollutant Emissions

Year: 2011

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,890	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.33	0.44	0.15	3.99	0.45	0.36	3.65	0.16
South-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.90	0.44	0.35	3.57	0.15
Temporal Allocation								
2011 Total Annual Emissions (ton/yr)	86	116	39	1,050	119	96	962	41

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 $1 lb = 453.59$ grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x - 53%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 3 Unmitigated Criteria Pollutant Emissions

Year: 2015

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,414.9	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>198.0</i>	<i>270.1</i>	<i>90.0</i>	<i>2,414.9</i>	<i>270.1</i>	<i>216.1</i>	<i>2,070.5</i>	<i>94.8</i>
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,051.8	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>250.3</i>	<i>341.3</i>	<i>113.8</i>	<i>3,051.8</i>	<i>341.3</i>	<i>273.0</i>	<i>2,616.5</i>	<i>119.8</i>
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,790.4	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>146.8</i>	<i>200.2</i>	<i>66.7</i>	<i>1,790.4</i>	<i>200.2</i>	<i>160.2</i>	<i>1,535.0</i>	<i>70.3</i>
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	903.4	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>74.1</i>	<i>101.0</i>	<i>33.7</i>	<i>903.4</i>	<i>101.0</i>	<i>80.8</i>	<i>774.6</i>	<i>35.5</i>
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	535.2	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>44.4</i>	<i>59.9</i>	<i>20.2</i>	<i>541.0</i>	<i>62.1</i>	<i>49.6</i>	<i>504.3</i>	<i>21.3</i>
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	606.6	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>50.3</i>	<i>67.8</i>	<i>23.1</i>	<i>613.2</i>	<i>70.3</i>	<i>56.3</i>	<i>571.6</i>	<i>24.1</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.5	15.7	5.2	140.1	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
<i>Total Outer Harbor Zone1</i>		<i>11.7</i>	<i>15.7</i>	<i>5.3</i>	<i>142.1</i>	<i>16.5</i>	<i>13.1</i>	<i>136.1</i>	<i>5.6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	14.4	19.6	6.5	175.1	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
<i>Total Outer Harbor Zone2</i>		<i>14.6</i>	<i>19.6</i>	<i>6.6</i>	<i>177.6</i>	<i>20.6</i>	<i>16.5</i>	<i>170.2</i>	<i>7.0</i>
Inner Harbor Zone (maneuvering through main channel: in)	Diesel Engines	16.7	22.8	7.6	203.8	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel: in)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
<i>Total Inner Harbor Zone</i>		<i>17.0</i>	<i>22.8</i>	<i>7.7</i>	<i>206.8</i>	<i>23.9</i>	<i>19.1</i>	<i>198.0</i>	<i>8.1</i>
Hotelling	Diesel Engines	214.6	292.7	97.6	2,616.9	292.7	234.1	2,243.7	102.7
Hotelling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
<i>Total Hotelling</i>		<i>219.9</i>	<i>292.7</i>	<i>100.2</i>	<i>2,672.5</i>	<i>313.9</i>	<i>251.0</i>	<i>2,680.2</i>	<i>105.5</i>

Alternative 3 Unmitigated Criteria Pollutant Emissions

Year: 2015

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	614	828	279	7,472	853	682	6,853	294
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,856	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.92	0.45	0.36	3.60	0.15
South-Bound Single Vessel Average Day (ton/day)	0.31	0.42	0.14	3.83	0.44	0.35	3.52	0.15
Temporal Allocation								
<i>2015 Total Annual Emissions (ton/yr)</i>	<i>81</i>	<i>111</i>	<i>38</i>	<i>1,058</i>	<i>120</i>	<i>91</i>	<i>900</i>	<i>41</i>

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 $1 lb = 453.59$ grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = 59%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 3 Unmitigated Criteria Pollutant Emissions
Year: 2022

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,396.4	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		198.0	270.1	90.0	2,396.4	270.1	216.1	2,070.5	94.8
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,028.5	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		250.3	341.3	113.8	3,028.5	341.3	273.0	2,616.5	119.8
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,776.7	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		146.8	200.2	66.7	1,776.7	200.2	160.2	1,535.0	70.3
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	896.5	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		74.1	101.0	33.7	896.5	101.0	80.8	774.6	35.5
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	531.1	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		44.4	59.9	20.2	536.9	62.7	49.6	504.3	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	601.9	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		50.3	68	23	608	70	56	572	24
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.5	15.7	5.2	139.0	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		11.7	15.7	5.3	141	16.5	13.1	136.1	5.6
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	14.4	19.6	6.5	173.8	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		14.6	19.6	6.7	176.4	20.6	16.4	170.2	7.0
Inner Harbor Zone (maneuvering through main channel: in)	Diesel Engines	16.7	22.8	7.6	202.3	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel: in)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		17.0	22.8	7.7	205.2	23.9	19.1	198.0	8.1
Hotelling	Diesel Engines	214.6	292.7	97.6	2,596.9	292.7	234.1	2,243.7	102.7
Hotelling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hotelling		219.9	292.7	100.2	2,652.4	313.8	251.1	2,680.2	105.5

Alternative 3 Unmitigated Criteria Pollutant Emissions
Year: 2022

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	614	828	279	7,415	853	682	6,853	294
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,797	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.89	0.45	0.36	3.60	0.15
South-Bound Single Vessel Average Day (ton/day)	0.31	0.42	0.14	3.80	0.44	0.35	3.52	0.15
Temporal Allocation								
2022 Total Annual Emissions (ton/yr)	87	117	39	1,041	120	96	970	41

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NOx = 69%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 3 Unmitigated Criteria Pollutant Emissions
Year: 2037

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,380.9	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>198.0</i>	<i>270.1</i>	<i>90.0</i>	<i>2,380.9</i>	<i>270.1</i>	<i>216.1</i>	<i>2,070.5</i>	<i>94.8</i>
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,008.8	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>250.3</i>	<i>341.3</i>	<i>113.8</i>	<i>3,008.8</i>	<i>341.3</i>	<i>273.0</i>	<i>2,616.5</i>	<i>119.8</i>
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,765.1	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>146.8</i>	<i>200.2</i>	<i>66.7</i>	<i>1,765.1</i>	<i>200.2</i>	<i>160.2</i>	<i>1,535.0</i>	<i>70.3</i>
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	890.7	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>74.1</i>	<i>101.0</i>	<i>33.7</i>	<i>890.7</i>	<i>101.0</i>	<i>80.8</i>	<i>774.6</i>	<i>35.5</i>
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	527.7	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>44.4</i>	<i>59.9</i>	<i>20.2</i>	<i>533.5</i>	<i>62.1</i>	<i>49.6</i>	<i>504.3</i>	<i>21.3</i>
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	598.0	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>50</i>	<i>68</i>	<i>23</i>	<i>605</i>	<i>70</i>	<i>56</i>	<i>572</i>	<i>24</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.5	15.7	5.2	138.1	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
<i>Total Outer Harbor Zone1</i>		<i>12</i>	<i>16</i>	<i>5</i>	<i>140</i>	<i>16</i>	<i>13</i>	<i>136</i>	<i>6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	14.4	19.6	6.5	172.7	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
<i>Total Outer Harbor Zone2</i>		<i>14.6</i>	<i>19.6</i>	<i>6.7</i>	<i>175.2</i>	<i>20.6</i>	<i>16.4</i>	<i>170.2</i>	<i>7.0</i>
Inner Harbor Zone (maneuvering through main channel: in)	Diesel Engines	16.7	22.8	7.6	200.9	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel: in)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
<i>Total Inner Harbor Zone</i>		<i>17.0</i>	<i>22.8</i>	<i>7.7</i>	<i>203.9</i>	<i>23.9</i>	<i>19.1</i>	<i>198.0</i>	<i>8.1</i>
Hoteling	Diesel Engines	214.6	292.7	97.6	2,580.0	292.7	234.1	2,243.7	102.7
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
<i>Total Hoteling</i>		<i>219.9</i>	<i>292.7</i>	<i>100.2</i>	<i>2,635.6</i>	<i>313.8</i>	<i>251.1</i>	<i>2,680.2</i>	<i>105.5</i>

Alternative 3 Unmitigated Criteria Pollutant Emissions
Year: 2037

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	614	828	279	7,367	853	682	6,853	294
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,747	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.87	0.45	0.36	3.60	0.15
South-Bound Single Vessel Average Day (ton/day)	0.31	0.42	0.14	3.78	0.44	0.35	3.52	0.15
Temporal Allocation								
2037 Total Annual Emissions (ton/yr)	87	117	35	1,040	120	96	970	41

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NO_x = 78%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 3 Unmitigated Criteria Pollutant Emissions

Year: 2037

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	198.0	270.1	90.0	2,380.9	270.1	216.1	2,070.5	94.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>198.0</i>	<i>270.1</i>	<i>90.0</i>	<i>2,380.9</i>	<i>270.1</i>	<i>216.1</i>	<i>2,070.5</i>	<i>94.8</i>
Sea / Fairway - South-Bound	Diesel Engines	250.3	341.3	113.8	3,008.8	341.3	273.0	2,616.5	119.8
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>250.3</i>	<i>341.3</i>	<i>113.8</i>	<i>3,008.8</i>	<i>341.3</i>	<i>273.0</i>	<i>2,616.5</i>	<i>119.8</i>
Fairway - North-Bound	Diesel Engines	146.8	200.2	66.7	1,765.1	200.2	160.2	1,535.0	70.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>146.8</i>	<i>200.2</i>	<i>66.7</i>	<i>1,765.1</i>	<i>200.2</i>	<i>160.2</i>	<i>1,535.0</i>	<i>70.3</i>
Fairway - South-Bound	Diesel Engines	74.1	101.0	33.7	890.7	101.0	80.8	774.6	35.5
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>74.1</i>	<i>101.0</i>	<i>33.7</i>	<i>890.7</i>	<i>101.0</i>	<i>80.8</i>	<i>774.6</i>	<i>35.5</i>
Precautionary Zone - North-Bound	Diesel Engines	43.9	59.9	20.0	527.7	59.9	47.9	458.9	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>44.4</i>	<i>59.9</i>	<i>20.2</i>	<i>533.5</i>	<i>62.1</i>	<i>49.6</i>	<i>504.3</i>	<i>21.3</i>
Precautionary Zone - South-Bound	Diesel Engines	49.7	67.8	22.6	598.0	67.8	54.3	520.1	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>50</i>	<i>68</i>	<i>23</i>	<i>605</i>	<i>70</i>	<i>56</i>	<i>572</i>	<i>24</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	15.7	5.2	138.1	15.7	12.5	120.1	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
<i>Total Outer Harbor Zone1</i>		<i>12</i>	<i>16</i>	<i>5</i>	<i>140</i>	<i>16</i>	<i>13</i>	<i>136</i>	<i>6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	14.4	19.6	6.5	172.7	19.6	15.7	150.2	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
<i>Total Outer Harbor Zone2</i>		<i>14.6</i>	<i>19.6</i>	<i>6.7</i>	<i>175.2</i>	<i>20.6</i>	<i>16.4</i>	<i>170.2</i>	<i>7.0</i>
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	16.7	22.8	7.6	200.9	22.8	18.2	174.7	8.0
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
<i>Total Inner Harbor Zone</i>		<i>17.0</i>	<i>22.8</i>	<i>7.7</i>	<i>203.9</i>	<i>23.9</i>	<i>19.1</i>	<i>198.0</i>	<i>8.1</i>
Hoteling	Diesel Engines	214.6	292.7	97.6	2,580.0	292.7	234.1	2,243.7	102.7
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
<i>Total Hoteling</i>		<i>219.9</i>	<i>292.7</i>	<i>100.2</i>	<i>2,635.6</i>	<i>313.8</i>	<i>251.1</i>	<i>2,680.2</i>	<i>105.5</i>

Alternative 3 Unmitigated Criteria Pollutant Emissions

Year: 2037

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	614	828	279	7,367	853	682	6,853	294
Inner Harbor Berths per Vessel - Average Day (lb/day)	645	871	294	7,747	897	718	7,221	309
North-Bound Single Vessel Average Day (ton/day)	0.32	0.43	0.15	3.87	0.45	0.36	3.60	0.15
South-Bound Single Vessel Average Day (ton/day)	0.31	0.42	0.14	3.78	0.44	0.35	3.52	0.15
Temporal Allocation								
<i>2037 Total Annual Emissions (ton/yr)</i>	<i>87</i>	<i>111</i>	<i>39</i>	<i>1,040</i>	<i>120</i>	<i>90</i>	<i>970</i>	<i>41</i>

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NO_x Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NO_x Emission Factor * % IMO vessels) + (non-IMO NO_x Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{453.59 \text{ grams}} \times 1 \text{ lb} =$$

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = 78%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Unmitigated Alternative 3 Criteria Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,548	2,111	704	18,956	2,111	1,689	16,183	741
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,548</i>	<i>2,111</i>	<i>704</i>	<i>18,956</i>	<i>2,111</i>	<i>1,689</i>	<i>16,183</i>	<i>741</i>
Sea / Fairway - South-Bound	Diesel Engines	65,369	89,139	29,713	800,530	89,139	71,311	683,400	31,288
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>65,369</i>	<i>89,139</i>	<i>29,713</i>	<i>800,530</i>	<i>89,139</i>	<i>71,311</i>	<i>683,400</i>	<i>31,288</i>
Fairway - North-Bound	Diesel Engines	1,148	1,565	522	14,054	1,565	1,252	11,998	549
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,148</i>	<i>1,565</i>	<i>522</i>	<i>14,054</i>	<i>1,565</i>	<i>1,252</i>	<i>11,998</i>	<i>549</i>
Fairway - South-Bound	Diesel Engines	19,350	26,387	8,796	236,973	26,387	21,110	202,301	9,262
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>19,350</i>	<i>26,387</i>	<i>8,796</i>	<i>236,973</i>	<i>26,387</i>	<i>21,110</i>	<i>202,301</i>	<i>9,262</i>
Precautionary Zone - North-Bound	Diesel Engines	343	468	156	4,201	468	374	3,587	164
Precautionary Zone - North-Bound	Boiler	4	-	2	45	17	14	355	2
<i>Total Precautionary Zone - North-Bound</i>		<i>347</i>	<i>468</i>	<i>158</i>	<i>4,246</i>	<i>485</i>	<i>388</i>	<i>3,942</i>	<i>166</i>
Precautionary Zone - South-Bound	Diesel Engines	12,993	17,717	5,906	159,111	17,717	14,174	135,831	6,219
Precautionary Zone - South-Bound	Boiler	163	-	82	1,713	653	522	13,460	86
<i>Total Precautionary Zone - South-Bound</i>		<i>13,156</i>	<i>17,717</i>	<i>5,987</i>	<i>160,824</i>	<i>18,370</i>	<i>14,696</i>	<i>149,290</i>	<i>6,305</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	3,864	5,269	1,756	47,319	5,269	4,215	40,395	1,849
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	65	-	33	685	261	209	5,382	34
<i>Total Outer Harbor Zone2</i>		<i>3,929</i>	<i>5,269</i>	<i>1,789</i>	<i>48,004</i>	<i>5,530</i>	<i>4,424</i>	<i>45,777</i>	<i>1,884</i>
Inner Harbor Zone (maneuvering through main channel: inn	Diesel Engines	4,496	6,131	2,044	55,062	6,131	4,905	47,005	2,152
Inner Harbor Zone (maneuvering through main channel: inn	Boiler	76	-	38	797	304	243	6,263	40
<i>Total Inner Harbor Zone</i>		<i>4,572</i>	<i>6,131</i>	<i>2,082</i>	<i>55,859</i>	<i>6,435</i>	<i>5,148</i>	<i>53,268</i>	<i>2,192</i>
Hotelling	Diesel Engines	57,731	78,724	26,241	706,990	78,724	62,979	603,547	27,632
Hotelling	Boiler	1,423	-	712	14,945	5,693	4,555	117,423	749
<i>Total Hotelling</i>		<i>59,154</i>	<i>78,724</i>	<i>26,953</i>	<i>721,935</i>	<i>84,417</i>	<i>67,533</i>	<i>720,970</i>	<i>28,381</i>
<i>Total (lb/yr)</i>		<i>168,573</i>	<i>227,510</i>	<i>76,703</i>	<i>2,061,382</i>	<i>234,438</i>	<i>187,550</i>	<i>1,887,129</i>	<i>80,768</i>
boilers only						6,928			912
Average Day (lb/day) - Transit		299.8	407.6	136.3	3,669.7	411.0	328.8	3,195.0	143.5
Average Day (lb/day) - Hotelling		162.1	215.7	73.8	1977.9	231.3	185.0	1975.3	77.8

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- 1. Maximum of 1 ship per day per berth.
 - 2. All berths occupied.
 - 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
 - 4. Maximum of 2 one-way trips per vessel.
 - 5. IMO compliance rate for NOx = 53%
 - 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
 - 7. Annual emissions assume 80% compliance with VSRP to 20 nm.
- | | | | |
|---------------------------------|-------|----------------------|---|
| Total Vessels in 2011: | 269 | | |
| Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: | 3 |
| Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: | 0 |

San Pedro Waterfront

Unmitigated Alternative 3 Criteria Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,582	2,158	719	19,296.1	2,158	1,726	16,544	757
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,582</i>	<i>2,158</i>	<i>719</i>	<i>19,296.1</i>	<i>2,158</i>	<i>1,726</i>	<i>16,544</i>	<i>757</i>
Sea / Fairway - South-Bound	Diesel Engines	66,827	91,127	30,376	814,870.0	91,127	72,902	698,644	31,986
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>66,827</i>	<i>91,127</i>	<i>30,376</i>	<i>814,870.0</i>	<i>91,127</i>	<i>72,902</i>	<i>698,644</i>	<i>31,986</i>
Fairway - North-Bound	Diesel Engines	1,173	1,600	533	14,305.8	1,600	1,280	12,265	562
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,173</i>	<i>1,600</i>	<i>533</i>	<i>14,305.8</i>	<i>1,600</i>	<i>1,280</i>	<i>12,265</i>	<i>562</i>
Fairway - South-Bound	Diesel Engines	19,782	26,976	8,992	241,218.2	26,976	21,580	206,813	9,468
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>19,782</i>	<i>26,976</i>	<i>8,992</i>	<i>241,218.2</i>	<i>26,976</i>	<i>21,580</i>	<i>206,813</i>	<i>9,468</i>
Precautionary Zone - North-Bound	Diesel Engines	351	478	159	4,276.5	478	383	3,667	168
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
<i>Total Precautionary Zone - North-Bound</i>		<i>355</i>	<i>478</i>	<i>162</i>	<i>4,322.6</i>	<i>496</i>	<i>397</i>	<i>4,030</i>	<i>170</i>
Precautionary Zone - South-Bound	Diesel Engines	13,282	18,112	6,037	161,961.3	18,112	14,490	138,861	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
<i>Total Precautionary Zone - South-Bound</i>		<i>13,449</i>	<i>18,112</i>	<i>6,121</i>	<i>163,713</i>	<i>18,779</i>	<i>15,024</i>	<i>152,620</i>	<i>6,445</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	1,053	1,436	479	12,844.3	1,436	1,149	11,012	504
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	18	-	9	373.5	71	57	1,467	9
<i>Total Outer Harbor Zone1</i>		<i>1,071</i>	<i>1,436</i>	<i>488</i>	<i>13,218</i>	<i>1,506</i>	<i>1,206</i>	<i>12,479</i>	<i>514</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	2,633	3,591	1,197	32,110.8	3,591	2,873	27,531	1,260
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	44	-	22	466.8	178	142	3,668	23
<i>Total Outer Harbor Zone2</i>		<i>2,676</i>	<i>3,591</i>	<i>1,219</i>	<i>32,577.6</i>	<i>3,769</i>	<i>3,015</i>	<i>31,199</i>	<i>1,284</i>
Inner Harbor Zone (maneuvering through main channel: in)	Diesel Engines	3,064	4,179	1,393	37,365.3	4,179	3,343	32,036	1,467
Inner Harbor Zone (maneuvering through main channel: in)	Boiler	52	-	26	543.2	207	166	4,268	27
<i>Total Inner Harbor Zone</i>		<i>3,116</i>	<i>4,179</i>	<i>1,419</i>	<i>37,908.5</i>	<i>4,386</i>	<i>3,508</i>	<i>36,304</i>	<i>1,494</i>
Hotelling	Diesel Engines	59,018	80,479	26,826	719,654.7	80,479	64,384	617,009	28,248
Hotelling	Boiler	1,455	-	728	15,278.0	5,820	4,656	120,042	766
<i>Total Hotelling</i>		<i>60,473</i>	<i>80,479</i>	<i>27,554</i>	<i>734,932.6</i>	<i>86,300</i>	<i>69,040</i>	<i>737,051</i>	<i>29,014</i>
<i>Total (lb/yr)</i>		<i>170,507</i>	<i>230,137</i>	<i>77,582</i>	<i>2,076,362</i>	<i>237,097</i>	<i>189,678</i>	<i>1,907,949</i>	<i>81,694</i>
boilers only						6,961			916
Average Day (lb/day) - Transit		301.5	410.0	137.1	3,675.1	413.1	330.5	3,207.9	144.3
Average Day (lb/day) - Hotelling		165.7	220.5	75.5	2,013.5	236.4	189.1	2,019.3	79.5

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOCHC} = 1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}$$

$$1 \text{ lb} = 453.59 \text{ grams}$$

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NOx = 59%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed
- Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2015:	275		
Percent of North-Bound Vessels:	2.9%	Inner Harbor Berths:	2
Percent of South-Bound Vessels:	97.1%	Outer Harbor Berths:	1

San Pedro Waterfront

Unmitigated Alternative 3 Criteria Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,582	2,158	719	19,148.3	2,158	1,726	16,544	757
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		1,582	2,158	719	19,148.3	2,158	1,726	16,544	757
Sea / Fairway - South-Bound	Diesel Engines	66,827	91,127	30,376	808,631.6	91,127	72,902	698,644	31,986
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		66,827	91,127	30,376	808,631.6	91,127	72,902	698,644	31,986
Fairway - North-Bound	Diesel Engines	1,173	1,600	533	14,196.2	1,600	1,280	12,265	562
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,173	1,600	533	14,196.2	1,600	1,280	12,265	562
Fairway - South-Bound	Diesel Engines	19,782	26,976	8,992	239,371.5	26,976	21,580	206,813	9,468
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		19,782	26,976	8,992	239,371.5	26,976	21,580	206,813	9,468
Precautionary Zone - North-Bound	Diesel Engines	351	478	159	4,243.8	478	383	3,667	168
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
Total Precautionary Zone - North-Bound		355	478	162	4,290.0	496	397	4,030	170
Precautionary Zone - South-Bound	Diesel Engines	13,282	18,112	6,037	160,721.4	18,112	14,490	138,861	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
Total Precautionary Zone - South-Bound		13,449	18,112	6,121	162,473	18,779	15,024	152,620	6,445
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	1,053	1,436	479	12,746.0	1,436	1,149	11,012	504
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	18	-	9	186.7	71	57	1,467	9
Total Outer Harbor Zone1		1,071	1,436	488	12,933	1,508	1,206	12,479	514
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	2,633	3,591	1,197	31,865.0	3,591	2,873	27,531	1,260
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	44	-	22	466.8	178	142	3,668	23
Total Outer Harbor Zone2		2,678	3,591	1,219	32,331.8	3,769	3,015	31,199	1,284
Inner Harbor Zone (maneuvering through main channel: in	Diesel Engines	3,064	4,179	1,393	37,079.2	4,179	3,343	32,036	1,467
Inner Harbor Zone (maneuvering through main channel: in	Boiler	52	-	26	543.2	207	166	4,268	27
Total Inner Harbor Zone		3,116	4,179	1,419	37,622.5	4,386	3,509	36,304	1,494
Hotelling	Diesel Engines	59,018	80,479	26,826	714,145	80,479	64,384	617,009	28,248
Hotelling	Boiler	1,455	-	728	15,278	5,820	4,656	120,042	766
Total Hotelling		60,473	80,479	27,554	729,423.3	86,300	69,040	737,051	29,014
Total (lb/yr)		170,507	230,137	77,582	2,060,421	237,097	189,678	1,907,949	81,694
boilers only						6,961			916
Average Day (lb/day) - Transit		301.5	410.0	137.1	3,646.6	413.1	330.5	3,207.9	144.3
Average Day (lb/day) - Hotelling		165.7	220.5	75.5	1998.4	236.4	189.1	2019.3	79.5

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 69%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Unmitigated Alternative 3 Criteria Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,582	2,158	719	19,023.9	2,158	1,726	16,544	757
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,582</i>	<i>2,158</i>	<i>719</i>	<i>19,023.9</i>	<i>2,158</i>	<i>1,726</i>	<i>16,544</i>	<i>757</i>
Sea / Fairway - South-Bound	Diesel Engines	66,827	91,127	30,376	803,376.8	91,127	72,902	698,644	31,986
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>66,827</i>	<i>91,127</i>	<i>30,376</i>	<i>803,376.8</i>	<i>91,127</i>	<i>72,902</i>	<i>698,644</i>	<i>31,986</i>
Fairway - North-Bound	Diesel Engines	1,173	1,600	533	14,104.0	1,600	1,280	12,265	562
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,173</i>	<i>1,600</i>	<i>533</i>	<i>14,104.0</i>	<i>1,600</i>	<i>1,280</i>	<i>12,265</i>	<i>562</i>
Fairway - South-Bound	Diesel Engines	19,782	26,976	8,992	237,816.0	26,976	21,580	206,813	9,468
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>19,782</i>	<i>26,976</i>	<i>8,992</i>	<i>237,816.0</i>	<i>26,976</i>	<i>21,580</i>	<i>206,813</i>	<i>9,468</i>
Precautionary Zone - North-Bound	Diesel Engines	351	478	159	4,216.2	478	383	3,667	168
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
<i>Total Precautionary Zone - North-Bound</i>		<i>355</i>	<i>478</i>	<i>162</i>	<i>4,262.4</i>	<i>496</i>	<i>397</i>	<i>4,030</i>	<i>170</i>
Precautionary Zone - South-Bound	Diesel Engines	13,282	18,112	6,037	159,677.0	18,112	14,490	138,861	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
<i>Total Precautionary Zone - South-Bound</i>		<i>13,449</i>	<i>18,112</i>	<i>6,121</i>	<i>161,428</i>	<i>18,779</i>	<i>15,024</i>	<i>152,620</i>	<i>6,445</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	1,053	1,436	479	12,663.2	1,436	1,149	11,012	504
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	18	-	9	186.7	71	57	1,467	9
<i>Total Outer Harbor Zone1</i>		<i>1,071</i>	<i>1,436</i>	<i>488</i>	<i>12,850</i>	<i>1,508</i>	<i>1,206</i>	<i>12,479</i>	<i>514</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,633	3,591	1,197	31,657.9	3,591	2,873	27,531	1,260
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	44	-	22	466.8	178	142	3,668	23
<i>Total Outer Harbor Zone2</i>		<i>2,678</i>	<i>3,591</i>	<i>1,219</i>	<i>32,124.7</i>	<i>3,769</i>	<i>3,015</i>	<i>31,199</i>	<i>1,284</i>
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	3,064	4,179	1,393	36,838.3	4,179	3,343	32,036	1,467
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	52	-	26	543.2	207	166	4,268	27
<i>Total Inner Harbor Zone</i>		<i>3,116</i>	<i>4,179</i>	<i>1,419</i>	<i>37,381.5</i>	<i>4,386</i>	<i>3,508</i>	<i>36,304</i>	<i>1,494</i>
Hoteling	Diesel Engines	59,018	80,479	26,826	709,504.5	80,479	64,384	617,009	28,248
Hoteling	Boiler	1,455	-	728	15,278.0	5,820	4,656	120,042	766
<i>Total Hotelling</i>		<i>60,473</i>	<i>80,479</i>	<i>27,554</i>	<i>724,782.6</i>	<i>86,300</i>	<i>69,040</i>	<i>737,051</i>	<i>29,014</i>
Total (lb/yr)		170,507	230,137	77,582	2,047,150	237,097	189,678	1,907,949	81,694
boilers only						6,961			916
Average Day (lb/day) - Transit		301.5	410.0	137.1	3,622.9	413.1	330.5	3,207.9	144.3
Average Day (lb/day) - Hotelling		165.7	220.5	75.5	1985.7	236.4	189.1	2019.3	79.5

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$VOCHC = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

1. Maximum of 1 ship per day per berth.

2. All berths occupied.

3. Annual emissions are based on residual fuel with 2.7% sulfur content.

4. Maximum of 2 one-way trips per vessel.

5. IMO compliance rate for NO_x = 78%

6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.

7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2037:	275		
Percent of North-Bound Vessels:	2.9%	Inner Harbor Berths:	2
Percent of South-Bound Vessels:	97.1%	Outer Harbor Berths:	1

San Pedro Waterfront

Unmitigated Alternative 3 Toxic Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083	0.00299
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>3.69839</i>	<i>0.99956</i>	<i>7.49673</i>	<i>0.49978</i>	<i>0.04248</i>	<i>0.07997</i>	<i>1.29943</i>	<i>0.74967</i>	<i>0.56463</i>	<i>0.00083</i>	<i>0.00299</i>
Sea / Fairway - South-Bound	Diesel Engines	4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098	0.00353
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>4.36897</i>	<i>1.18080</i>	<i>8.85602</i>	<i>0.59040</i>	<i>0.05018</i>	<i>0.09446</i>	<i>1.53504</i>	<i>0.88560</i>	<i>0.66700</i>	<i>0.00098</i>	<i>0.00353</i>
Fairway - North-Bound	Diesel Engines	2.84938	0.77010	5.77577	0.38505	0.03273	0.06161	1.00113	0.57758	0.43501	0.00064	0.00230
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.84938</i>	<i>0.77010</i>	<i>5.77577</i>	<i>0.38505</i>	<i>0.03273</i>	<i>0.06161</i>	<i>1.00113</i>	<i>0.57758</i>	<i>0.43501</i>	<i>0.00064</i>	<i>0.00230</i>
Fairway - South-Bound	Diesel Engines	1.74129	0.47062	3.52964	0.23531	0.02000	0.03765	0.61180	0.35296	0.26584	0.00039	0.00141
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.74129</i>	<i>0.47062</i>	<i>3.52964</i>	<i>0.23531</i>	<i>0.02000</i>	<i>0.03765</i>	<i>0.61180</i>	<i>0.35296</i>	<i>0.26584</i>	<i>0.00039</i>	<i>0.00141</i>
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.12697	0.00019	0.00067
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	-	0.00961	-
<i>Total Precautionary Zone - North-Bound</i>		<i>0.83167</i>	<i>0.22808</i>	<i>1.68596</i>	<i>0.11407</i>	<i>0.00966</i>	<i>0.02042</i>	<i>0.29916</i>	<i>0.17188</i>	<i>0.12697</i>	<i>0.00980</i>	<i>0.00067</i>
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.14390	0.00021	0.00076
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	-	0.01089	-
<i>Total Precautionary Zone - South-Bound</i>		<i>0.94255</i>	<i>0.25849</i>	<i>1.91076</i>	<i>0.12928</i>	<i>0.01095</i>	<i>0.02314</i>	<i>0.33905</i>	<i>0.19480</i>	<i>0.14390</i>	<i>0.01110</i>	<i>0.00076</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.03371	0.00005	0.00018
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	-	0.00338	-
<i>Total Outer Harbor Zone1</i>		<i>0.22079</i>	<i>0.06084</i>	<i>0.44760</i>	<i>0.03043</i>	<i>0.00257</i>	<i>0.00563</i>	<i>0.08002</i>	<i>0.04592</i>	<i>0.03371</i>	<i>0.00343</i>	<i>0.00018</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.04213	0.00006	0.00022
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	-	0.00423	-
<i>Total Outer Harbor Zone2</i>		<i>0.27599</i>	<i>0.07604</i>	<i>0.55950</i>	<i>0.03804</i>	<i>0.00322</i>	<i>0.00704</i>	<i>0.10003</i>	<i>0.05740</i>	<i>0.04213</i>	<i>0.00429</i>	<i>0.00022</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.04903	0.00007	0.00026
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	-	0.00492	-
<i>Total Inner Harbor Zone</i>		<i>0.32115</i>	<i>0.08849</i>	<i>0.65105</i>	<i>0.04426</i>	<i>0.00374</i>	<i>0.00819</i>	<i>0.11640</i>	<i>0.06679</i>	<i>0.04903</i>	<i>0.00499</i>	<i>0.00026</i>
Hotelling	Diesel Engines	0.69121	0.18681	1.40109	0.09341	0.00794	0.01494	0.24286	0.14011	0.10553	0.00016	0.00056
Hotelling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	-	0.01537	-
<i>Total Hotelling</i>		<i>0.69121</i>	<i>0.19210</i>	<i>1.40134</i>	<i>0.09610</i>	<i>0.00811</i>	<i>0.01883</i>	<i>0.25398</i>	<i>0.14539</i>	<i>0.10553</i>	<i>0.01553</i>	<i>0.00056</i>
First Peak Hour Scenario (per vessel)		1.760	0.484	3.569	0.242	0.020	0.044	0.635	0.365	0.269	0.024	0.001
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors												
Second Peak Hour Scenario (per vessel)		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.106	0.016	0.001
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity												

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3 Year 2011 only
1 All other years

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
0.00512	0.00320	0.00537	0.00512	0.00384	0.00243	2.22623	0.00371	0.00461	-	0.00008	0.01625	0.05604
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00512	0.00320	0.00537	0.00512	0.00384	0.00243	2.22623	0.00371	0.00461	-	0.00008	0.01625	0.05604
0.00313	0.00195	0.00328	0.00313	0.00235	0.00149	1.36047	0.00227	0.00281	-	0.00005	0.00993	0.03425
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00313	0.00195	0.00328	0.00313	0.00235	0.00149	1.36047	0.00227	0.00281	-	0.00005	0.00993	0.03425
0.00149	0.00093	0.00157	0.00149	0.00112	0.00071	0.64978	0.00108	0.00134	-	0.00002	0.00474	0.01636
0.00089	-	0.00979	-	-	0.00089	0.44485	-	-	-	0.00048	-	0.00979
0.00238	0.00093	0.01136	0.00149	0.00112	0.00160	1.09463	0.00108	0.00134	-	0.00050	0.00474	0.02614
0.00169	0.00106	0.00178	0.00169	0.00127	0.00080	0.73642	0.00123	0.00152	-	0.00003	0.00538	0.01854
0.00101	-	0.01109	-	-	0.00101	0.50417	-	-	-	0.00054	-	0.01109
0.00270	0.00106	0.01287	0.00169	0.00127	0.00181	1.24059	0.00123	0.00152	-	0.00057	0.00538	0.02963
0.00040	0.00025	0.00042	0.00040	0.00030	0.00019	0.17250	0.00029	0.00036	-	0.00001	0.00126	0.00434
0.00031	-	0.00344	-	-	0.00031	0.15659	-	-	-	0.00017	-	0.00344
0.00071	0.00025	0.00386	0.00040	0.00030	0.00050	0.32909	0.00029	0.00036	-	0.00018	0.00126	0.00779
0.00050	0.00031	0.00052	0.00050	0.00037	0.00024	0.21563	0.00036	0.00045	-	0.00001	0.00157	0.00543
0.00039	-	0.00431	-	-	0.00039	0.19573	-	-	-	0.00021	-	0.00431
0.00089	0.00031	0.00483	0.00050	0.00037	0.00063	0.47136	0.00036	0.00045	-	0.00022	0.00157	0.00973
0.00058	0.00036	0.00061	0.00058	0.00043	0.00027	0.25091	0.00042	0.00052	-	0.00001	0.00183	0.00632
0.00046	-	0.00501	-	-	0.00046	0.22776	-	-	-	0.00025	-	0.00501
0.00103	0.00036	0.00562	0.00058	0.00043	0.00073	0.47868	0.00042	0.00052	-	0.00025	0.00183	0.01133
0.00124	0.00078	0.00130	0.00124	0.00093	0.00059	0.54004	0.00090	0.00112	-	0.00002	0.00394	0.01359
0.00142	-	0.01566	-	-	0.00142	0.71176	-	-	-	0.00077	-	0.01566
0.00286	0.00078	0.01696	0.00124	0.00093	0.00201	1.25180	0.00090	0.00112	-	0.00079	0.00394	0.02925
0.005	0.002	0.027	0.003	0.002	0.004	2.460	0.002	0.003	-	0.001	0.010	0.058
0.003	0.001	0.017	0.001	0.001	0.002	1.252	0.001	0.001	-	0.001	0.004	0.020

San Pedro Waterfront

Unmitigated Alternative 3 Toxic Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	Cadmium
Sea / Fairway - North-Bound	Diesel Engines	4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346	0.00770
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346	0.00770
Sea / Fairway - South-Bound	Diesel Engines	5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409	0.00909
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409	0.00909
Fairway - North-Bound	Diesel Engines	3.28166	0.88693	6.65201	0.44347	0.03769	0.07095	1.15302	0.66520	0.50101	0.00074	0.00265	0.00589
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		3.28166	0.88693	6.65201	0.44347	0.03769	0.07095	1.15302	0.66520	0.50101	0.00074	0.00265	0.00589
Fairway - South-Bound	Diesel Engines	2.00546	0.54202	4.06512	0.27101	0.02304	0.04336	0.70462	0.40651	0.30617	0.00045	0.00162	0.00360
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		2.00546	0.54202	4.06512	0.27101	0.02304	0.04336	0.70462	0.40651	0.30617	0.00045	0.00162	0.00360
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.14320	0.00021	0.00076	0.00168
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	-	0.00961	-	0.00089
Total Precautionary Zone - North-Bound		0.93797	0.25681	1.90145	0.12844	0.01088	0.02271	0.33651	0.19343	0.14320	0.00982	0.00076	0.00257
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.16229	0.00024	0.00086	0.00191
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	-	0.01089	-	0.00101
Total Precautionary Zone - South-Bound		1.06304	0.29105	2.15498	0.14556	0.01233	0.02574	0.38138	0.21922	0.16229	0.01113	0.00086	0.00292
Outer Harbor Zone1 (vessels bound to outer harbor berths) ³⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.03702	0.00005	0.00020	0.00044
Outer Harbor Zone1 (vessels bound to outer harbor berths) ³⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	-	0.00338	-	0.00031
Total Outer Harbor Zone1		0.24251	0.06670	0.49162	0.03336	0.00282	0.00610	0.08765	0.05032	0.03702	0.00344	0.00020	0.00075
Outer Harbor Zone2 (vessels bound to inner harbor berths) ³⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.04628	0.00007	0.00025	0.00054
Outer Harbor Zone2 (vessels bound to inner harbor berths) ³⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	-	0.00423	-	0.00039
Total Outer Harbor Zone2		0.30313	0.08338	0.61453	0.04171	0.00353	0.00762	0.10957	0.06290	0.04628	0.00430	0.00025	0.00094
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.05385	0.00008	0.00029	0.00063
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	-	0.00492	-	0.00046
Total Inner Harbor Zone		0.35274	0.09703	0.71509	0.04853	0.00411	0.00887	0.12749	0.07319	0.05385	0.00500	0.00029	0.00109
Hoteling	Diesel Engines	0.75090	0.20295	1.52210	0.10147	0.00863	0.01624	0.26383	0.15221	0.11464	0.00017	0.00061	0.00135
Hoteling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	-	0.01537	-	0.00142
Total Hoteling		0.75090	0.20823	1.52235	0.10417	0.00880	0.02013	0.27496	0.15749	0.11464	0.01554	0.00061	0.00277
First Peak Hour Scenario (per vessel)		1.961	0.538	3.976	0.269	0.023	0.048	0.706	0.406	0.299	0.024	0.002	0.006
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors		0.761	0.208	1.522	0.104	0.009	0.020	0.275	0.157	0.115	0.016	0.001	0.003
Second Peak Hour Scenario (per vessel)		0.761	0.208	1.522	0.104	0.009	0.020	0.275	0.157	0.115	0.016	0.001	0.003
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity		0.761	0.208	1.522	0.104	0.009	0.020	0.275	0.157	0.115	0.016	0.001	0.003

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0 Year 2011 only
2 All other years

San Pedro Waterfront

Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
-	-	-	-	-	-	-	-	-	-	-	-
0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
-	-	-	-	-	-	-	-	-	-	-	-
0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00368	0.00619	0.00589	0.00442	0.00280	2.56397	0.00427	0.00530	-	0.00009	0.01871	0.06454
-	-	-	-	-	-	-	-	-	-	-	-
0.00368	0.00619	0.00589	0.00442	0.00280	2.56397	0.00427	0.00530	-	0.00009	0.01871	0.06454
0.00225	0.00378	0.00360	0.00270	0.00171	1.56687	0.00261	0.00324	-	0.00005	0.01144	0.03944
-	-	-	-	-	-	-	-	-	-	-	-
0.00225	0.00378	0.00360	0.00270	0.00171	1.56687	0.00261	0.00324	-	0.00005	0.01144	0.03944
0.00105	0.00177	0.00168	0.00126	0.00080	0.73284	0.00122	0.00152	-	0.00003	0.00535	0.01845
-	0.00979	-	-	0.00089	0.44485	-	-	-	0.00048	-	0.00979
0.00105	0.01156	0.00168	0.00126	0.00169	1.17769	0.00122	0.00152	-	0.00051	0.00535	0.02823
0.00119	0.00200	0.00191	0.00143	0.00091	0.83055	0.00138	0.00172	-	0.00003	0.00606	0.02091
-	0.01109	-	-	0.00101	0.50417	-	-	-	0.00054	-	0.01109
0.00119	0.01310	0.00191	0.00143	0.00192	1.33472	0.00138	0.00172	-	0.00057	0.00606	0.02200
0.00027	0.00046	0.00044	0.00033	0.00021	0.18947	0.00032	0.00039	-	0.00001	0.00138	0.00477
-	0.00344	-	-	0.00031	0.15659	-	-	-	0.00017	-	0.00344
0.00027	0.00390	0.00044	0.00033	0.00052	0.34606	0.00032	0.00039	-	0.00018	0.00138	0.00827
0.00034	0.00057	0.00054	0.00041	0.00026	0.23684	0.00039	0.00049	-	0.00001	0.00173	0.00596
-	0.00431	-	-	0.00039	0.19573	-	-	-	0.00021	-	0.00431
0.00034	0.00488	0.00054	0.00041	0.00065	0.43257	0.00039	0.00049	-	0.00022	0.00173	0.01027
0.00040	0.00067	0.00063	0.00048	0.00030	0.27559	0.00046	0.00057	-	0.00001	0.00201	0.00694
-	0.00501	-	-	0.00046	0.22776	-	-	-	0.00025	-	0.00501
0.00040	0.00568	0.00063	0.00048	0.00076	0.50336	0.00046	0.00057	-	0.00026	0.00201	0.01195
0.00084	0.00142	0.00135	0.00101	0.00064	0.58668	0.00098	0.00121	-	0.00002	0.00428	0.01477
-	0.01566	-	-	0.00142	0.71176	-	-	-	0.00077	-	0.01566
0.00084	0.01707	0.00135	0.00101	0.00206	1.29895	0.00098	0.00121	-	0.00079	0.00428	0.02643
0.002	0.028	0.004	0.003	0.004	2.617	0.003	0.003	-	0.001	0.011	0.062
0.001	0.017	0.001	0.001	0.002	1.298	0.001	0.001	-	0.001	0.004	0.030

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2011

Year (t/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,111										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,111</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	89,139										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>89,139</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,565										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,565</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	26,387										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>26,387</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	468										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>468</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	17,717										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.4	4.1	2.0	-	3.5
<i>Total Precautionary Zone - South-Bound</i>		<i>17,717</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>4.1</i>	<i>2.0</i>	<i>-</i>	<i>3.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,269										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.6	0.8	-	1.4
<i>Total Outer Harbor Zone2</i>		<i>5,269</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.8</i>	<i>-</i>	<i>1.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	6,131										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	1.9	0.9	-	1.6
<i>Total Inner Harbor Zone</i>		<i>6,131</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>1.9</i>	<i>0.9</i>	<i>-</i>	<i>1.6</i>
Hotelling	Diesel Engines	78,724										
Hotelling	Boiler		-	17.1	0.8	8.7	0.6	12.6	35.9	17.1	-	30.7
<i>Total Hotelling</i>		<i>78,724</i>	<i>-</i>	<i>17.1</i>	<i>0.8</i>	<i>8.7</i>	<i>0.6</i>	<i>12.6</i>	<i>35.9</i>	<i>17.1</i>	<i>-</i>	<i>30.7</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.3	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.3	-	-	-	0.0	-	0.1
-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	0.2	-	3.6
-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	0.2	-	3.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	0.1	-	1.4
-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	0.1	-	1.4
-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	0.1	-	1.7
-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	0.1	-	1.7
-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	1.5	-	31.3
-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	1.5	-	31.3

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,158										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,158</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	91,127										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>91,127</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,600										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,600</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	26,976										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>26,976</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	478										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>478</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	18,112										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>18,112</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	1,436										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.2	0.4	0.2	-	0.4
<i>Total Outer Harbor Zone1</i>		<i>1,436</i>	<i>-</i>	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.4</i>	<i>0.2</i>	<i>-</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,591										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	1.0
<i>Total Outer Harbor Zone2</i>		<i>3,591</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	<i>-</i>	<i>1.0</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,179										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	1.1
<i>Total Inner Harbor Zone</i>		<i>4,179</i>	<i>-</i>	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.3</i>	<i>0.6</i>	<i>-</i>	<i>1.1</i>
Hotelling	Diesel Engines	80,479										
Hotelling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hotelling</i>		<i>80,479</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>31.4</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.0	-	0.4	-	-	0.0	17.8	-	-	-	0.0	-	0.4
-	0.0	-	0.4	-	-	0.0	17.8	-	-	-	0.0	-	0.4
-	0.1	-	1.0	-	-	0.1	44.5	-	-	-	0.0	-	1.0
-	0.1	-	1.0	-	-	0.1	44.5	-	-	-	0.0	-	1.0
-	0.1	-	1.1	-	-	0.1	51.7	-	-	-	0.1	-	1.1
-	0.1	-	1.1	-	-	0.1	51.7	-	-	-	0.1	-	1.1
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,158										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,158</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	91,127										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>91,127</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,600										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,600</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	26,976										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>26,976</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	478										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>478</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	18,112										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>18,112</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	1,436										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.2	0.4	0.2	-	0.4
<i>Total Outer Harbor Zone1</i>		<i>1,436</i>	<i>-</i>	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.4</i>	<i>0.2</i>	<i>-</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,591										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	1.0
<i>Total Outer Harbor Zone2</i>		<i>3,591</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	<i>-</i>	<i>1.0</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,179										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	1.1
<i>Total Inner Harbor Zone</i>		<i>4,179</i>	<i>-</i>	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.3</i>	<i>0.6</i>	<i>-</i>	<i>1.1</i>
Hotelling	Diesel Engines	80,479										
Hotelling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hotelling</i>		<i>80,479</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>31.4</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.0	-	0.4	-	-	0.0	17.8	-	-	-	0.0	-	0.4
-	0.0	-	0.4	-	-	0.0	17.8	-	-	-	0.0	-	0.4
-	0.1	-	1.0	-	-	0.1	44.5	-	-	-	0.0	-	1.0
-	0.1	-	1.0	-	-	0.1	44.5	-	-	-	0.0	-	1.0
-	0.1	-	1.1	-	-	0.1	51.7	-	-	-	0.1	-	1.1
-	0.1	-	1.1	-	-	0.1	51.7	-	-	-	0.1	-	1.1
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2,158										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2,158</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	91,127										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>91,127</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,600										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,600</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	26,976										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>26,976</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	478										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>478</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	18,112										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>18,112</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	1,436										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.2	0.4	0.2	-	0.4
<i>Total Outer Harbor Zone1</i>		<i>1,436</i>	<i>-</i>	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.4</i>	<i>0.2</i>	<i>-</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,591										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	1.0
<i>Total Outer Harbor Zone2</i>		<i>3,591</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	<i>-</i>	<i>1.0</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,179										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	1.1
<i>Total Inner Harbor Zone</i>		<i>4,179</i>	<i>-</i>	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.3</i>	<i>0.6</i>	<i>-</i>	<i>1.1</i>
Hotelling	Diesel Engines	80,479										
Hotelling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hotelling</i>		<i>80,479</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>31.4</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.0	-	0.4	-	-	0.0	17.8	-	-	-	0.0	-	0.4
-	0.0	-	0.4	-	-	0.0	17.8	-	-	-	0.0	-	0.4
-	0.1	-	1.0	-	-	0.1	44.5	-	-	-	0.0	-	1.0
-	0.1	-	1.0	-	-	0.1	44.5	-	-	-	0.0	-	1.0
-	0.1	-	1.1	-	-	0.1	51.7	-	-	-	0.1	-	1.1
-	0.1	-	1.1	-	-	0.1	51.7	-	-	-	0.1	-	1.1
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0

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70-Year Average Calculations		Unmitigated Alternative 3												
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year							
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
DPM														
Sea / Fairway - North-Bound	Diesel Engines	2,151	2,024	2,024	2,111	2,111	2,111	2,111	2,158	2,158	2,158	2,158	2,158	2,158
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>														
Sea / Fairway - South-Bound	Diesel Engines	90,853	85,494	85,494	89,139	89,139	89,139	89,139	91,127	91,127	91,127	91,127	91,127	91,127
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>														
Fairway - North-Bound	Diesel Engines	1,595	1,501	1,501	1,565	1,565	1,565	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>														
Fairway - South-Bound	Diesel Engines	26,894	25,308	25,308	26,387	26,387	26,387	26,976	26,976	26,976	26,976	26,976	26,976	26,976
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>														
Precautionary Zone - North-Bound	Diesel Engines	477	449	449	468	468	468	478	478	478	478	478	478	478
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - North-Bound</i>														
Precautionary Zone - South-Bound	Diesel Engines	18,058	16,993	16,993	17,717	17,717	17,717	18,112	18,112	18,112	18,112	18,112	18,112	18,112
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - South-Bound</i>														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	1,354	-	-	-	-	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,729	5,053	5,053	5,269	5,269	5,269	5,269	3,591	3,591	3,591	3,591	3,591	3,591
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone2</i>														
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	4,339	5,880	5,880	6,131	6,131	6,131	6,131	4,179	4,179	4,179	4,179	4,179	4,179
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Inner Harbor Zone</i>														
Hotelling	Diesel Engines	80,237	75,504	75,504	78,724	78,724	78,724	80,479	80,479	80,479	80,479	80,479	80,479	80,479
Hotelling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Hotelling</i>														

San Pedro Waterfront

Evaluation Year 2022															Evaluation Year	
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479

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2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158	2,158
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127	91,127
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976	26,976
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478	478
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112	18,112
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436	1,436
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591	3,591
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179	4,179
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479	80,479

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70-Year Average Calculations		Unmitigated Alternative 3												
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year							
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
PM from OGV boilers														
Sea / Fairway - North-Bound	Diesel Engines													
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>														
Sea / Fairway - South-Bound	Diesel Engines													
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>														
Fairway - North-Bound	Diesel Engines													
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>														
Fairway - South-Bound	Diesel Engines													
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>														
Precautionary Zone - North-Bound	Diesel Engines													
Precautionary Zone - North-Bound	Boiler	18	17	17	17	17	17	18	18	18	18	18	18	18
<i>Total Precautionary Zone - North-Bound</i>														
Precautionary Zone - South-Bound	Diesel Engines													
Precautionary Zone - South-Bound	Boiler	665	626	626	653	653	653	667	667	667	667	667	667	667
<i>Total Precautionary Zone - South-Bound</i>														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines													
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	67	-	-	-	71	71	71	71	71	71	71	71	71
<i>Total Outer Harbor Zone1</i>														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines													
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	185	250	250	261	261	261	178	178	178	178	178	178	178
<i>Total Outer Harbor Zone2</i>														
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines													
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	215	291	291	304	304	304	207	207	207	207	207	207	207
<i>Total Inner Harbor Zone</i>														
Hotelling	Diesel Engines													
Hotelling	Boiler	5,803	5,460	5,460	5,693	5,693	5,693	5,820	5,820	5,820	5,820	5,820	5,820	5,820
<i>Total Hotelling</i>														

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Evaluation Year															Evaluation Year	
2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

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2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178	178
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207	207
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 3												
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year							
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
VOC from OGV boilers														
Sea / Fairway - North-Bound	Diesel Engines													
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>														
Sea / Fairway - South-Bound	Diesel Engines													
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>														
Fairway - North-Bound	Diesel Engines													
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>														
Fairway - South-Bound	Diesel Engines													
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>														
Precautionary Zone - North-Bound	Diesel Engines													
Precautionary Zone - North-Bound	Boiler	2	2	2	2	2	2	2	2	2	2	2	2	2
<i>Total Precautionary Zone - North-Bound</i>														
Precautionary Zone - South-Bound	Diesel Engines													
Precautionary Zone - South-Bound	Boiler	88	82	82	86	86	86	88	88	88	88	88	88	88
<i>Total Precautionary Zone - South-Bound</i>														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines													
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	9	-	-	-	9	9	9	9	9	9	9	9	9
<i>Total Outer Harbor Zone1</i>														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines													
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	24	33	33	34	34	34	23	23	23	23	23	23	23
<i>Total Outer Harbor Zone2</i>														
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines													
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	28	38	38	40	40	40	27	27	27	27	27	27	27
<i>Total Inner Harbor Zone</i>														
Hotelling	Diesel Engines													
Hotelling	Boiler	764	719	719	749	749	749	766	766	766	766	766	766	766
<i>Total Hotelling</i>														

San Pedro Waterfront

Evaluation Year														Evaluation Year		
2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

Unmitigated Alternative 3 Toxic Pollutant Emissions
70-Year Average

Year (t/yr)	Spatial Allocation	Power Type	VOC							PM				
			DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	
	Sea / Fairway - North-Bound	Diesel Engines	2,151											
	Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - North-Bound</i>		<i>2,151</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Sea / Fairway - South-Bound	Diesel Engines	90,853											
	Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - South-Bound</i>		<i>90,853</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - North-Bound	Diesel Engines	1,595											
	Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - North-Bound</i>		<i>1,595</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - South-Bound	Diesel Engines	26,894											
	Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - South-Bound</i>		<i>26,894</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Precautionary Zone - North-Bound	Diesel Engines	477											
	Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1	
	<i>Total Precautionary Zone - North-Bound</i>		<i>477</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>	
	Precautionary Zone - South-Bound	Diesel Engines	18,058											
	Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6	
	<i>Total Precautionary Zone - South-Bound</i>		<i>18,058</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>3.6</i>	
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	1,354											
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.1	0.4	0.2	-	0.4	
	<i>Total Outer Harbor Zone1</i>		<i>1,354</i>	<i>-</i>	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.1</i>	<i>0.4</i>	<i>0.2</i>	<i>-</i>	<i>0.4</i>	
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,729											
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.6	0.0	0.3	0.0	0.4	1.2	0.6	-	1.0	
	<i>Total Outer Harbor Zone2</i>		<i>3,729</i>	<i>-</i>	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.2</i>	<i>0.6</i>	<i>-</i>	<i>1.0</i>	
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,339											
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.4	0.6	-	1.2	
	<i>Total Inner Harbor Zone</i>		<i>4,339</i>	<i>-</i>	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.4</i>	<i>0.6</i>	<i>-</i>	<i>1.2</i>	
	Hoteling	Diesel Engines	80,237											
	Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.6	17.4	-	31.3	
	<i>Total Hoteling</i>		<i>80,237</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.6</i>	<i>17.4</i>	<i>-</i>	<i>31.3</i>	

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.3	-	3.7	-	-	0.3	166.3	-	-	-	0.2	-	3.7
-	0.3	-	3.7	-	-	0.3	166.3	-	-	-	0.2	-	3.7
-	0.0	-	0.4	-	-	0.0	16.8	-	-	-	0.0	-	0.4
-	0.0	-	0.4	-	-	0.0	16.8	-	-	-	0.0	-	0.4
-	0.1	-	1.0	-	-	0.1	46.2	-	-	-	0.0	-	1.0
-	0.1	-	1.0	-	-	0.1	46.2	-	-	-	0.0	-	1.0
-	0.1	-	1.2	-	-	0.1	53.7	-	-	-	0.1	-	1.2
-	0.1	-	1.2	-	-	0.1	53.7	-	-	-	0.1	-	1.2
-	2.9	-	31.9	-	-	2.9	1,450.7	-	-	-	1.6	-	31.9
-	2.9	-	31.9	-	-	2.9	1,450.7	-	-	-	1.6	-	31.9

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 2 Vessel with No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		23.7	42.3	10.8	300.8	44.3	35.5	450.3	11.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.8	2.7	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	135.9	3.3	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.3	158.2	3.9	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		17.6	31.0	8.0	222.8	33.9	27.1	359.3	8.4	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
<i>Emissions = Engine Power * Load Factor * Emission Factor * Time</i>										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.										
VOC/HC = 1.053										
1 lb = 453.59										
<u>Assumptions</u>										
1. Residual fuel with 4.5% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.										
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.										
5. No VSRP										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels: 3.0 Divide by 2 = Half of 2011 Type 2 vessels										

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 3 Vessel with No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽¹⁰⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽¹⁰⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hotelling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 3 vessels will have this unmitigated profile for the peak scenario.
5. No VSRP

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0 Divide by 2 = Half of 2011 Type 3 vessels

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 2 Vessel with Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	
Fairway - North-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	
Fairway - South-Bound	Diesel Engines	30.3	54.8	13.8	385.1	54.8	43.8	527.2	14.5	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		30.3	54.8	13.8	385.1	54.8	43.8	527.2	14.5	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		23.7	42.3	10.8	300.8	44.3	35.5	450.3	11.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.8	2.7	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	135.9	3.3	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.3	158.2	3.9	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		17.6	31.0	8.0	222.8	33.9	27.1	359.3	8.4	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
Emissions = Engine Power * Load Factor * Emission Factor * Time										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.										
VOC/HC =		1.053								
1 lb =		453.59								
Assumptions										
1. 2.7% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.										
4. Half of all Type 2 vessels will have this mitigated profile for the peak scenario.										
5. VSRP = 100% within 20 nm										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:						3.0	Divide by 2 = Half of 2011 Type 2 vessels			

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 3 Vessel with Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	
Fairway - South-Bound	Diesel Engines	34.1	61.8	15.5	434.3	61.8	49.4	594.5	16.3	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		34.1	61.8	15.5	434.3	61.8	49.4	594.5	16.3	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hotelling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.
Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 - (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
 1 lb = 453.59

Assumptions

- 2.7% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this mitigated profile for the peak scenario.
- VSRP = 100% within 20 nm

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0 Divide by 2 = Half of 2011 Type 3 vessels

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 2 Vessel No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)	
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-		
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9		
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-		
Total in Sea / Fairway - South-Bound		108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9		
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-		
Total in Fairway - North-Bound		70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8		
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-		
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7		
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63	
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1		
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0		
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71	
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2		
Total Precautionary Zone - South-Bound		23.7	42.3	10.8	300.8	44.3	35.5	450.3	11.4		
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05		
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.8	2.7		
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06		
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	135.9	3.3		
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07		
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.3	158.2	3.9		
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23		
Total Hoteling		17.6	31.0	8.0	222.8	33.9	27.1	359.3	8.4		
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21		
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.											
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8		
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.											
Emissions = Engine Power * Load Factor * Emission Factor * Time											
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.											
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.											
VOC/HC = 1.053											
1 lb = 453.59											
<u>Assumptions</u>											
1. Residual fuel with 4.5% sulfur content.											
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.											
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.											
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.											
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:							1.0	Divide by 2 = Half of 2015+ Type 2 vessels			

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 3 Vessel No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽¹⁰⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽¹⁰⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hotelling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12.00
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.
*Emissions = Engine Power * Load Factor * Emission Factor * Time*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 - (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
 1 lb = 453.59

Assumptions

- Residual fuel with 4.5% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this unmitigated profile for the peak scenario.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

2.0 Divide by 2 = Half of 2015+ Type 3 vessels

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 2 Vessel With Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.52
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	
Sea / Fairway - South-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.92
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	
Fairway - North-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	
Fairway - South-Bound	Diesel Engines	30.3	17.5	13.8	350.4	17.5	14.0	52.7	14.5	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		30.3	17.5	13.8	350.4	17.5	14.0	52.7	14.5	
Precautionary Zone - North-Bound	Diesel Engines	20.6	11.9	9.4	238.9	11.9	9.5	35.9	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.6	0.5	0.4	3.8	0.1	
Total Precautionary Zone - North-Bound		20.9	11.9	9.5	241.5	12.4	9.9	39.7	10.0	
Precautionary Zone - South-Bound	Diesel Engines	23.4	13.5	10.6	270.8	13.5	10.8	40.7	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.0	0.5	0.4	4.3	0.2	
Total Precautionary Zone - South-Bound		23.7	13.5	10.8	273.7	14.0	11.2	45.0	11.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	3.2	2.5	63.4	3.2	2.5	9.5	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	0.9	0.2	0.1	1.3	0.05	
Total Outer Harbor Zone1		5.6	3.2	2.5	64.4	3.3	2.7	10.9	2.7	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	4.0	3.1	79.3	4.0	3.2	11.9	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.2	0.2	1.7	0.06	
Total Outer Harbor Zone2		7.0	4.0	3.2	80.4	4.2	3.3	13.6	3.3	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	4.6	3.6	92.3	4.6	3.7	13.9	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.3	0.2	0.2	1.9	0.07	
Total Inner Harbor Zone		8.1	4.6	3.7	93.6	4.8	3.9	15.8	3.9	
Hoteling	Diesel Engines	1.4	0.8	0.6	16.5	0.8	0.7	2.5	0.7	12
Hoteling	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
Total Hoteling		1.9	0.8	0.9	20.8	1.6	1.3	8.6	0.9	
First Peak Hour Scenario (per vessel)		44	25	20	512	26	21	85	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		2	1	1	21	2	1	9	1	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										
Emissions = Engine Power * Load Factor * Emission Factor * Time										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.										
VOC/HC =		1.053								
1 lb =		453.59								
Assumptions										
1. Residual fuel with 2.7% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.										
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.										
4. Half of all Type 2 vessels will have this mitigated profile for the peak scenario.										
5. AMP applied to hoteling: 80% to inner harbor; 90% to outer harbor.										
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:						1.0	Divide by 2 = Half of 2015+ Type 2 vessels			

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 3 Vessel With Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.52
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	
Sea / Fairway - South-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.92
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	
Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	
Fairway - South-Bound	Diesel Engines	34.1	19.7	15.5	395.2	19.7	15.8	59.5	16.3	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		34.1	19.7	15.5	395.2	19.7	15.8	59.5	16.3	
Precautionary Zone - North-Bound	Diesel Engines	23.3	13.5	10.6	269.4	13.5	10.8	40.5	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.6	0.5	0.4	3.8	0.1	
Total Precautionary Zone - North-Bound		23.5	13.5	10.7	272.1	13.9	11.1	44.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	15.2	12.0	305.4	15.2	12.2	45.9	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.0	0.5	0.4	4.3	0.2	
Total Precautionary Zone - South-Bound		26.7	15.2	12.1	308.4	15.8	12.6	50.2	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Diesel Engines	6.0	3.5	2.7	69.7	3.5	2.8	10.5	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Boiler	0.1	-	0.0	0.9	0.2	0.1	1.3	0.05	
Total Outer Harbor Zone1		6.1	3.5	2.8	70.6	3.6	2.9	11.8	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	4.3	3.4	87.1	4.3	3.5	13.1	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.2	0.2	1.7	0.06	
Total Outer Harbor Zone2		7.6	4.3	3.5	88.2	4.6	3.6	14.8	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	5.1	4.0	101.3	5.1	4.0	15.2	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.3	0.2	0.2	1.9	0.07	
Total Inner Harbor Zone		8.9	5.1	4.0	102.7	5.3	4.2	17.2	4.3	
Hotelling	Diesel Engines	1.6	0.9	0.7	18.0	0.9	0.7	2.7	0.7	12.00
Hotelling	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
Total Hotelling		2.0	0.9	0.9	22.2	1.6	1.3	8.8	1.0	

First Peak Hour Scenario (per vessel)

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel)

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Assumptions

1. Residual fuel with 2.7% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 3 vessels will have this mitigated profile for the peak scenario.
5. AMP applied to hotelling: 80% to inner harbor; 90% to outer harbor.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

2.0 Divide by 2 = Half of 2015+ Type 3 vessels

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2011

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>
Sea / Fairway - South-Bound	Diesel Engines	115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>115.9</i>	<i>209.9</i>	<i>52.7</i>	<i>1,475.4</i>	<i>209.9</i>	<i>167.9</i>	<i>2,019.9</i>	<i>55.5</i>
Fairway - North-Bound	Diesel Engines	62.8	113.7	28.5	799.1	113.7	90.9	1,093.9	30.1
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>62.8</i>	<i>113.7</i>	<i>28.5</i>	<i>799.1</i>	<i>113.7</i>	<i>90.9</i>	<i>1,093.9</i>	<i>30.1</i>
Fairway - South-Bound	Diesel Engines	31.7	57.4	14.4	403.2	57.4	45.9	552.0	15.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>31.7</i>	<i>57.4</i>	<i>14.4</i>	<i>403.2</i>	<i>57.4</i>	<i>45.9</i>	<i>552.0</i>	<i>15.2</i>
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9
Precautionary Zone - North-Bound	Boiler	0.2	-	0.1	2.4	1.4	1.2	30.8	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>264.9</i>	<i>38.8</i>	<i>31.0</i>	<i>390.2</i>	<i>10.0</i>
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.1
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.8</i>	<i>2.7</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.1
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.1
<i>Total Inner Harbor Zone</i>		<i>8.7</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>
Hoteling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hoteling</i>		<i>211.0</i>	<i>372.4</i>	<i>96.2</i>	<i>2,673.9</i>	<i>406.6</i>	<i>325.3</i>	<i>4,312.2</i>	<i>101.3</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		627	1,124	285	7,966	1,163	931	11,658	300
Inner Harbor Berths per Vessel - Peak Day (lb/day)		646	1,158	294	8,207	1,199	959	12,029	309
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		1,938	3,473	882	24,621	3,598	2,878	36,086	928
2011 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,305	2,356	593	16,599	2,378	1,903	23,150	625
2011 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels bound to Inner Harbor		Activity - Vessels bound to Outer Harbor	
	Harbor	Harbor	Harbor	Harbor
2011	3		0	

Mitigated Alternative 3 Criteria Pollutant Emissions
Year: 2011

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - South-Bound	Diesel Engines	134.4	243.2	61.1	1,710.0	243.2	194.6	2,341.0	64.3
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.4	243.2	61.1	1,710.0	243.2	194.6	2,341.0	64.3
Fairway - North-Bound	Diesel Engines	71.8	130.0	32.6	914.2	130.0	104.0	1,251.6	34.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		71.8	130.0	32.6	914.2	130.0	104.0	1,251.6	34.4
Fairway - South-Bound	Diesel Engines	36.2	65.6	16.5	461.3	65.6	52.5	631.5	17.3
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		36.2	65.6	16.5	461.3	65.6	52.5	631.5	17.3
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.2
Precautionary Zone - South-Bound	Diesel Engines	22.5	40.8	10.2	286.6	40.8	32.6	392.4	10.8
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		22.8	40.8	10.4	289.9	42.8	34.2	435.4	11.0
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.1
Total Outer Harbor Zone1		6.1	10.9	2.7	77.6	11.5	9.2	118.1	3.0
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.1
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.1
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	107.0
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
Total Hotelling		228.8	404.6	104.2	2,900.0	438.8	351.0	4,621.8	109.8
Outer Harbor Berths per Vessel - Peak Day (lb/day)		700	1,257	319	8,902	1,296	1,037	12,930	336
Inner Harbor Berths per Vessel - Peak Day (lb/day)		721	1,294	328	9,166	1,335	1,068	13,333	346
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	0	0

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2015+

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	59.8	91.1	27.2	745.5	91.1	72.9	823.5	28.6
Sea / Fairway - North-Bound	Boiler								
Total in Sea / Fairway - North-Bound		59.8	91.1	27.2	745.5	91.1	72.9	823.5	28.6
Sea / Fairway - South-Bound	Diesel Engines	75.6	115.1	34.4	942.2	115.1	92.1	1,040.7	36.2
Sea / Fairway - South-Bound	Boiler								
Total in Sea / Fairway - South-Bound		75.6	115.1	34.4	942.2	115.1	92.1	1,040.7	36.2
Fairway - North-Bound	Diesel Engines	62.8	89.0	28.5	776.2	89.0	71.2	780.5	30.1
Fairway - North-Bound	Boiler								
Total in Fairway - North-Bound		62.8	89.0	28.5	776.2	89.0	71.2	780.5	30.1
Fairway - South-Bound	Diesel Engines	31.7	44.9	14.4	391.6	44.9	35.9	393.8	15.2
Fairway - South-Bound	Boiler								
Total in Fairway - South-Bound		31.7	44.9	14.4	391.6	44.9	35.9	393.8	15.2
Precautionary Zone - North-Bound	Diesel Engines	20.6	24.6	9.4	250.7	24.6	19.7	197.7	9.9
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.8	1.1	0.9	20.8	0.1
Total Precautionary Zone - North-Bound		20.9	24.6	9.5	253.5	25.7	20.6	218.5	10.0
Precautionary Zone - South-Bound	Diesel Engines	23.4	27.9	10.6	284.2	27.9	22.3	224.0	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.1	1.3	1.0	23.6	0.2
Total Precautionary Zone - South-Bound		23.7	27.9	10.8	287.3	29.2	23.4	247.7	11.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	5.5	6.5	2.5	66.6	6.5	5.2	52.5	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.4	0.3	7.3	0.1
Total Outer Harbor Zone1		5.6	6.5	2.5	67.6	6.9	5.5	59.8	2.7
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	8.2	3.1	83.2	8.2	6.5	65.6	3.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.5	0.4	9.2	0.1
Total Outer Harbor Zone2		7.0	8.2	3.2	84.4	8.7	6.9	74.8	3.3
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	9.5	3.6	96.8	9.5	7.6	76.3	3.8
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.4	0.6	0.5	10.7	0.1
Total Inner Harbor Zone		8.1	9.5	3.7	98.2	10.1	8.1	87.0	3.9
Hotelling	Diesel Engines	111.4	191.2	50.7	1,408.5	191.2	152.9	1,807.3	53.3
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
Total Hotelling		116.7	191.2	53.3	1,461.6	212.8	170.2	2,207.4	56.1
Outer Harbor Berths per Vessel - Peak Day (lb/day)		452	668	206	5,608	693	555	6,465	217
Inner Harbor Berths per Vessel - Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2015 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		354	500	161	4,376	504	403	4,461	170
2015 Vessel Type 2 Hotelling Peak Day (lb/day)		117	191	53	1,462	213	170	2,207	56
2022 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		354	500	161	4,376	504	403	4,461	170
2022 Vessel Type 2 Hotelling Peak Day (lb/day)		117	191	53	1,462	213	170	2,207	56
2037 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		354	500	161	4,376	504	403	4,461	170
2037 Vessel Type 2 Hotelling Peak Day (lb/day)		117	191	53	1,462	213	170	2,207	56

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOCHC} = 1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}$$

$$1 \text{ lb} = 453.59 \text{ grams}$$

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels	
	bound to Inner Harbor	bound to Outer Harbor
2011	3	0
2015	1	0
2022	1	0
2037	1	0

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2015+

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	68.9	105.3	31.3	859.0	105.3	84.3	953.7	33.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		68.9	105.3	31.3	859.0	105.3	84.3	953.7	33.0
Sea / Fairway - South-Bound	Diesel Engines	87.1	133.1	39.6	1,085.6	133.1	106.5	1,205.2	41.7
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		87.1	133.1	39.6	1,085.6	133.1	106.5	1,205.2	41.7
Fairway - North-Bound	Diesel Engines	71.8	102.3	32.6	888.4	102.3	81.8	898.1	34.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		71.8	102.3	32.6	888.4	102.3	81.8	898.1	34.4
Fairway - South-Bound	Diesel Engines	36.2	51.6	16.5	448.3	51.6	41.3	453.2	17.3
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		36.2	51.6	16.5	448.3	51.6	41.3	453.2	17.3
Precautionary Zone - North-Bound	Diesel Engines	23.3	27.8	10.6	282.8	27.8	22.2	223.0	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.8	1.1	0.9	20.8	0.1
Total Precautionary Zone - North-Bound		23.5	27.8	10.7	285.5	28.9	23.1	243.8	11.2
Precautionary Zone - South-Bound	Diesel Engines	26.4	31.5	12.0	320.5	31.5	25.2	252.7	12.6
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.1	1.3	1.0	23.6	0.2
Total Precautionary Zone - South-Bound		26.7	31.5	12.2	323.6	32.8	26.2	276.3	12.8
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	7.2	2.7	73.1	7.2	5.7	57.6	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.4	0.3	7.3	0.1
Total Outer Harbor Zone1		6.1	7.2	2.8	74.1	7.6	6.0	64.9	3.0
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	9.0	3.4	91.4	9.0	7.2	72.1	3.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.5	0.4	9.2	0.1
Total Outer Harbor Zone2		7.6	9.0	3.5	92.6	9.5	7.6	81.3	3.7
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	10.4	4.0	106.3	10.4	8.4	83.8	4.2
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.4	0.6	0.5	10.7	0.1
Total Inner Harbor Zone		8.9	10.4	4.0	107.7	11.0	8.9	94.5	4.3
Hotelling	Diesel Engines	121.1	207.7	55.0	1,530.1	207.7	166.2	1,963.3	57.9
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
Total Hotelling		126.4	207.7	57.7	1,583.2	229.3	183.5	2,363.4	60.7
Outer Harbor Berths per Vessel - Peak Day (lb/day)		510	756	232	6,326	781	625	7,253	244
Inner Harbor Berths per Vessel - Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2015 Total Outer Harbor Berths Peak Day (lb/day)		510	756	232	6,326	781	625	7,253	244
2015 Total Inner Harbor Berths Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2022 Total Outer Harbor Berths Peak Day (lb/day)		510	756	232	6,326	781	625	7,253	244
2022 Total Inner Harbor Berths Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2037 Total Outer Harbor Berths Peak Day (lb/day)		510	756	232	6,326	781	625	7,253	244
2037 Total Inner Harbor Berths Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254
2015 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		788	1,121	358	9,739	1,129	903	10,000	377
2015 Vessel Type 3 Hotelling Peak Day (lb/day)		253	415	115	3,166	459	367	4,727	121
2022 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		788	1,121	358	9,739	1,129	903	10,000	377
2022 Vessel Type 3 Hotelling Peak Day (lb/day)		253	415	115	3,166	459	367	4,727	121
2037 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		788	1,121	358	9,739	1,129	903	10,000	377
2037 Vessel Type 3 Hotelling Peak Day (lb/day)		253	415	115	3,166	459	367	4,727	121

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	0	0
2015	1	1
2022	1	1
2037	1	1

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions
 Year: 2011, 2015, 2022, 2037

Total Peak Day (lb/day) for all Vessels

	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
2011 Transit & Maneuvering Peak Day (lb/day)	1,305	2,356	593	16,599	2,378	1,903	23,150	625
2011 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2015 Transit & Maneuvering Peak Day (lb/day)	1,142	1,620	519	14,116	1,633	1,306	14,461	547
2015 Hotelling Peak Day (lb/day)	369	607	169	4,628	671	537	6,934	178
2022 Transit & Maneuvering Peak Day (lb/day)	1,142	1,620	519	14,116	1,633	1,306	14,461	547
2022 Hotelling Peak Day (lb/day)	369	607	169	4,628	671	537	6,934	178
2037 Transit & Maneuvering Peak Day (lb/day)	1,142	1,620	519	14,116	1,633	1,306	14,461	547
2037 Hotelling Peak Day (lb/day)	369	607	169	4,628	671	537	6,934	178

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2011

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	11.5	20.8	5.2	145.9	20.8	16.6	199.8	5.5
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>11.5</i>	<i>20.8</i>	<i>5.2</i>	<i>145.9</i>	<i>20.8</i>	<i>16.6</i>	<i>199.8</i>	<i>5.5</i>
Sea / Fairway - South-Bound	Diesel Engines	14.5	26.2	6.6	184.4	26.2	21.0	252.5	6.9
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>14.5</i>	<i>26.2</i>	<i>6.6</i>	<i>184.4</i>	<i>26.2</i>	<i>21.0</i>	<i>252.5</i>	<i>6.9</i>
Fairway - North-Bound	Diesel Engines	7.8	14.2	3.6	99.9	14.2	11.4	136.7	3.8
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>7.8</i>	<i>14.2</i>	<i>3.6</i>	<i>99.9</i>	<i>14.2</i>	<i>11.4</i>	<i>136.7</i>	<i>3.8</i>
Fairway - South-Bound	Diesel Engines	4.0	7.2	1.8	50.4	7.2	5.7	69.0	1.9
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>4.0</i>	<i>7.2</i>	<i>1.8</i>	<i>50.4</i>	<i>7.2</i>	<i>5.7</i>	<i>69.0</i>	<i>1.9</i>
Precautionary Zone - North-Bound	Diesel Engines	2.6	4.7	1.2	32.8	4.7	3.7	44.9	1.2
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.2	0.1	3.8	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>4.7</i>	<i>1.2</i>	<i>33.1</i>	<i>4.9</i>	<i>3.9</i>	<i>48.8</i>	<i>1.2</i>
Precautionary Zone - South-Bound	Diesel Engines	2.9	5.3	1.3	37.2	5.3	4.2	50.9	1.4
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.3	0.2	5.4	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>5.3</i>	<i>1.3</i>	<i>37.6</i>	<i>5.5</i>	<i>4.4</i>	<i>56.3</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	1.2	0.3	8.7	1.2	1.0	11.9	0.3
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.1	0.1	1.7	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>8.8</i>	<i>1.3</i>	<i>1.1</i>	<i>13.6</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.5	0.4	10.9	1.5	1.2	14.9	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.5</i>	<i>0.4</i>	<i>11.0</i>	<i>1.6</i>	<i>1.3</i>	<i>17.0</i>	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.8	0.5	12.7	1.8	1.4	17.3	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.4	0.0
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.5</i>	<i>12.9</i>	<i>1.9</i>	<i>1.5</i>	<i>19.8</i>	<i>0.5</i>
Hoteling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hoteling</i>		<i>211.0</i>	<i>372.4</i>	<i>96.2</i>	<i>2,673.9</i>	<i>406.6</i>	<i>325.3</i>	<i>4,312.2</i>	<i>101.3</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2011

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>13.3</i>	<i>24.1</i>	<i>6.0</i>	<i>169.1</i>	<i>24.1</i>	<i>19.2</i>	<i>231.6</i>	<i>6.4</i>
Sea / Fairway - South-Bound	Diesel Engines	16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>16.8</i>	<i>30.4</i>	<i>7.6</i>	<i>213.7</i>	<i>30.4</i>	<i>24.3</i>	<i>292.6</i>	<i>8.0</i>
Fairway - North-Bound	Diesel Engines	9.0	16.3	4.1	114.3	16.3	13.0	156.4	4.3
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>9.0</i>	<i>16.3</i>	<i>4.1</i>	<i>114.3</i>	<i>16.3</i>	<i>13.0</i>	<i>156.4</i>	<i>4.3</i>
Fairway - South-Bound	Diesel Engines	4.5	8.2	2.1	57.7	8.2	6.6	78.9	2.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>4.5</i>	<i>8.2</i>	<i>2.1</i>	<i>57.7</i>	<i>8.2</i>	<i>6.6</i>	<i>78.9</i>	<i>2.2</i>
Precautionary Zone - North-Bound	Diesel Engines	2.9	5.3	1.3	37.0	5.3	4.2	50.7	1.4
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.2	4.7	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.94</i>	<i>5.26</i>	<i>1.34</i>	<i>37.4</i>	<i>5.5</i>	<i>4.4</i>	<i>55.4</i>	<i>1.4</i>
Precautionary Zone - South-Bound	Diesel Engines	2.8	5.1	1.3	35.8	5.1	4.1	49.1	1.3
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.3	0.2	5.4	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>2.9</i>	<i>5.1</i>	<i>1.3</i>	<i>36.2</i>	<i>5.3</i>	<i>4.3</i>	<i>54.4</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	1.4	0.3	9.6	1.4	1.1	13.1	0.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.1	0.1	1.7	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>1.4</i>	<i>0.3</i>	<i>9.7</i>	<i>1.4</i>	<i>1.2</i>	<i>14.8</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.7	0.4	12.0	1.7	1.4	16.4	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.7</i>	<i>0.4</i>	<i>12.7</i>	<i>1.8</i>	<i>1.4</i>	<i>18.5</i>	<i>0.5</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	2.0	0.5	13.9	2.0	1.6	19.1	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.4	0.0
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>2.0</i>	<i>0.5</i>	<i>14.1</i>	<i>2.1</i>	<i>1.7</i>	<i>21.5</i>	<i>0.5</i>
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	107.0
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hotelling</i>		<i>228.8</i>	<i>404.6</i>	<i>104.2</i>	<i>2,900.0</i>	<i>438.8</i>	<i>351.0</i>	<i>4,621.8</i>	<i>109.8</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except hotelling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
 1 lb = 453.59

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2015+

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	7.5	11.4	3.4	93.2	11.4	9.1	102.9	3.6
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>7.5</i>	<i>11.4</i>	<i>3.4</i>	<i>93.2</i>	<i>11.4</i>	<i>9.1</i>	<i>102.9</i>	<i>3.6</i>
Sea / Fairway - South-Bound	Diesel Engines	9.5	14.4	4.3	117.8	14.4	11.5	130.1	4.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>9.5</i>	<i>14.4</i>	<i>4.3</i>	<i>117.8</i>	<i>14.4</i>	<i>11.5</i>	<i>130.1</i>	<i>4.5</i>
Fairway - North-Bound	Diesel Engines	7.8	11.1	3.6	97.0	11.1	8.9	97.6	3.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>7.8</i>	<i>11.1</i>	<i>3.6</i>	<i>97.0</i>	<i>11.1</i>	<i>8.9</i>	<i>97.6</i>	<i>3.8</i>
Fairway - South-Bound	Diesel Engines	4.0	5.6	1.8	49.0	5.6	4.5	49.2	1.9
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>4.0</i>	<i>5.6</i>	<i>1.8</i>	<i>49.0</i>	<i>5.6</i>	<i>4.5</i>	<i>49.2</i>	<i>1.9</i>
Precautionary Zone - North-Bound	Diesel Engines	2.6	3.1	1.2	31.3	3.1	2.5	24.7	1.2
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.1	0.1	2.6	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>3.1</i>	<i>1.2</i>	<i>31.7</i>	<i>3.2</i>	<i>2.6</i>	<i>27.3</i>	<i>1.3</i>
Precautionary Zone - South-Bound	Diesel Engines	2.9	3.5	1.3	35.5	3.5	2.8	28.0	1.4
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.1	3.0	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>3.5</i>	<i>1.3</i>	<i>35.9</i>	<i>3.6</i>	<i>2.9</i>	<i>31.0</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	0.8	0.3	8.3	0.8	0.7	6.6	0.3
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.0	0.0	0.9	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>0.8</i>	<i>0.3</i>	<i>8.4</i>	<i>0.9</i>	<i>0.7</i>	<i>7.5</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.0	0.4	10.4	1.0	0.8	8.2	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.0	1.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.0</i>	<i>0.4</i>	<i>10.6</i>	<i>1.1</i>	<i>0.9</i>	<i>9.3</i>	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.2	0.5	12.1	1.2	1.0	9.5	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	1.3	0.0
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.2</i>	<i>0.5</i>	<i>12.3</i>	<i>1.3</i>	<i>1.0</i>	<i>10.9</i>	<i>0.5</i>
Hoteling	Diesel Engines	111.4	191.2	50.7	1,408.5	191.2	152.9	1,807.3	53.3
Hoteling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hoteling</i>		<i>116.7</i>	<i>191.2</i>	<i>53.3</i>	<i>1,461.5</i>	<i>212.7</i>	<i>170.2</i>	<i>2,207.4</i>	<i>56.1</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except for hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2015+

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	8.6	13.2	3.9	107.4	13.2	10.5	119.2	4.1
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>8.6</i>	<i>13.2</i>	<i>3.9</i>	<i>107.4</i>	<i>13.2</i>	<i>10.5</i>	<i>119.2</i>	<i>4.1</i>
Sea / Fairway - South-Bound	Diesel Engines	10.9	16.6	4.9	135.7	16.6	13.3	150.7	5.2
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>10.9</i>	<i>16.6</i>	<i>4.9</i>	<i>135.7</i>	<i>16.6</i>	<i>13.3</i>	<i>150.7</i>	<i>5.2</i>
Fairway - North-Bound	Diesel Engines	9.0	12.8	4.1	111.0	12.8	10.2	112.3	4.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>9.0</i>	<i>12.8</i>	<i>4.1</i>	<i>111.0</i>	<i>12.8</i>	<i>10.2</i>	<i>112.3</i>	<i>4.3</i>
Fairway - South-Bound	Diesel Engines	4.5	6.5	2.1	56.0	6.5	5.2	56.6	2.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>4.5</i>	<i>6.5</i>	<i>2.1</i>	<i>56.0</i>	<i>6.5</i>	<i>5.2</i>	<i>56.6</i>	<i>2.2</i>
Precautionary Zone - North-Bound	Diesel Engines	2.9	3.5	1.3	35.3	3.5	2.8	27.9	1.4
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.1	0.1	2.6	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.94</i>	<i>3.47</i>	<i>1.34</i>	<i>35.7</i>	<i>3.6</i>	<i>2.9</i>	<i>30.5</i>	<i>1.4</i>
Precautionary Zone - South-Bound	Diesel Engines	3.3	3.9	1.5	40.1	3.9	3.1	31.6	1.6
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.1	3.0	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.3</i>	<i>3.9</i>	<i>1.5</i>	<i>40.5</i>	<i>4.1</i>	<i>3.3</i>	<i>34.5</i>	<i>1.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	0.9	0.3	9.1	0.9	0.7	7.2	0.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.0	0.0	0.9	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>0.9</i>	<i>0.3</i>	<i>9.3</i>	<i>0.9</i>	<i>0.8</i>	<i>8.1</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.1	0.4	11.4	1.1	0.9	9.0	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.0	1.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.1</i>	<i>0.4</i>	<i>11.6</i>	<i>1.2</i>	<i>0.9</i>	<i>10.2</i>	<i>0.5</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	1.3	0.5	13.3	1.3	1.0	10.5	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	1.3	0.0
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>1.3</i>	<i>0.5</i>	<i>13.5</i>	<i>1.4</i>	<i>1.1</i>	<i>11.8</i>	<i>0.5</i>
Hotelling	Diesel Engines	121.1	207.7	55.0	1,530.1	207.7	166.2	1,963.3	57.9
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hotelling</i>		<i>126.4</i>	<i>207.7</i>	<i>57.7</i>	<i>1,583.2</i>	<i>229.3</i>	<i>183.4</i>	<i>2,363.5</i>	<i>60.7</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except for hotelling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
 1 lb = 453.59

San Pedro Waterfront

Alternative 3 Mitigated Criteria Pollutant Emissions
Year: 2011

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	193.6	213.3	88.0	2,300.1	213.3	170.7	1,462.0	92.7
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>193.6</i>	<i>213.3</i>	<i>88.0</i>	<i>2,300.1</i>	<i>213.3</i>	<i>170.7</i>	<i>1,462.0</i>	<i>92.7</i>
Sea / Fairway - South-Bound	Diesel Engines	244.7	269.6	111.2	2,906.7	269.6	215.7	1,847.6	117.1
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>244.7</i>	<i>269.6</i>	<i>111.2</i>	<i>2,906.7</i>	<i>269.6</i>	<i>215.7</i>	<i>1,847.6</i>	<i>117.1</i>
Fairway - North-Bound	Diesel Engines	127.6	140.6	58.0	1,515.5	140.6	112.5	963.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>127.6</i>	<i>140.6</i>	<i>58.0</i>	<i>1,515.5</i>	<i>140.6</i>	<i>112.5</i>	<i>963.3</i>	<i>61.1</i>
Fairway - South-Bound	Diesel Engines	64.4	70.9	29.3	764.7	70.9	56.7	486.1	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>64.4</i>	<i>70.9</i>	<i>29.3</i>	<i>764.7</i>	<i>70.9</i>	<i>56.7</i>	<i>486.1</i>	<i>30.8</i>
Precautionary Zone - North-Bound	Diesel Engines	43.9	48.4	20.0	521.4	48.4	38.7	331.4	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.6	1.8	1.4	32.8	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>44.4</i>	<i>48.4</i>	<i>20.2</i>	<i>527.0</i>	<i>50.1</i>	<i>40.1</i>	<i>364.2</i>	<i>21.3</i>
Precautionary Zone - South-Bound	Diesel Engines	49.7	54.8	22.6	590.9	54.8	43.8	375.6	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.4	2.0	1.6	37.2	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>50</i>	<i>55</i>	<i>23</i>	<i>597</i>	<i>57</i>	<i>45</i>	<i>413</i>	<i>24</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	12.7	5.2	136.5	12.7	10.1	86.8	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.0	0.6	0.5	11.6	0.1
<i>Total Outer Harbor Zone1</i>		<i>11.7</i>	<i>12.7</i>	<i>5.3</i>	<i>138.5</i>	<i>13.3</i>	<i>10.6</i>	<i>98.4</i>	<i>5.6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	14.4	15.8	6.5	170.6	15.8	12.7	108.5	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.5	0.8	0.6	14.4	0.1
<i>Total Outer Harbor Zone2</i>		<i>14.6</i>	<i>15.8</i>	<i>6.7</i>	<i>173.1</i>	<i>16.6</i>	<i>13.3</i>	<i>122.9</i>	<i>7.0</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	16.7	18.4	7.6	198.5	18.4	14.7	126.2	8.0
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.3	-	0.1	2.9	0.9	0.7	16.8	0.1
<i>Total Inner Harbor Zone</i>		<i>17.0</i>	<i>18.4</i>	<i>7.7</i>	<i>201.4</i>	<i>19.3</i>	<i>15.5</i>	<i>143.0</i>	<i>8.1</i>
Hotelling	Diesel Engines	155.6	171.4	70.7	1,848.3	171.4	137.1	1,174.8	74.5
Hotelling	Boiler	5.3	-	2.6	53.9	17.1	13.7	315.3	2.8
<i>Total Hotelling</i>		<i>160.9</i>	<i>171.4</i>	<i>73.4</i>	<i>1,902.2</i>	<i>188.5</i>	<i>150.8</i>	<i>1,490.1</i>	<i>77.3</i>

Alt 3 Mitigated Criteria Pollutant Emissions
Year: 2011

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	567	617	258	6,721	638	511	4,622	272
North-Bound Single Vessel Average Day (ton/day)	0.28	0.31	0.13	3.38	0.32	0.26	2.32	0.14
South-Bound Single Vessel Average Day (ton/day)	0.28	0.31	0.13	3.34	0.32	0.25	2.30	0.14
Temporal Allocation								
2011 Total Annual Emissions (ton/yr)	76	83	30	899	85	68	610	36

$Emissions (lb/yr) = Average Engine Power * Load Factor_{(VSR\ corrected)} * Fuel\ Corrected\ Emission\ Factor * Time_{(VSR\ corrected)} * 2_{(1-Way)} Trips * Vessels\ per\ Year$

$NOx\ Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO\ NOx\ Emission\ Factor * \% IMO\ vessels) + (non-IMO\ NOx\ Emission\ Factor * \% non-IMO\ vessels)) * Time * 2_{(1-Way)} Trips * Vessels\ per\ Year$

$Hotelling\ Emissions (lb/yr) = Emissions (lb/yr)\ for\ 1-way\ trip * AMP\ reduction * Vessels\ per\ Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on 30% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = 53%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 30% compliance with VSRP to 40 nm.
- Inner Harbor AMP compliance in 2011 assumed to be 30%

San Pedro Waterfront

Alternative 3 Mitigated Criteria Pollutant Emissions

Year: 2015

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.5	61.6	48.4	1,181.9	61.6	49.3	185.6	51.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.5	61.6	48.4	1,181.9	61.6	49.3	185.6	51.0
Sea / Fairway - South-Bound	Diesel Engines	134.6	77.8	61.2	1,493.6	77.8	62.3	234.5	64.4
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.6	77.8	61.2	1,493.6	77.8	62.3	234.5	64.4
Fairway - North-Bound	Diesel Engines	127.6	73.8	58.0	1,415.7	73.8	59.0	222.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		127.6	73.8	58.0	1,415.7	73.8	59.0	222.3	61.1
Fairway - South-Bound	Diesel Engines	64.4	37.2	29.3	714.3	37.2	29.8	112.2	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		64.4	37.2	29.3	714.3	37.2	29.8	112.2	30.8
Precautionary Zone - North-Bound	Diesel Engines	43.9	25.4	20.0	487.0	25.4	20.3	76.5	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		44.4	25.4	20.2	492.3	26.3	21.1	84.1	21.3
Precautionary Zone - South-Bound	Diesel Engines	49.7	28.8	22.6	552.0	28.8	23.0	86.7	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		50	29	23	558	30	24	95	24
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	6.6	5.2	127.5	6.6	5.3	20.0	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		12	7	5	129	7	6	23	6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	14.4	8.3	6.5	159.4	8.3	6.6	25.0	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		14.6	8.3	6.7	161.7	8.7	7.0	28.4	7.0
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	16.7	9.7	7.6	185.5	9.7	7.7	29.1	8.0
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		17.0	9.7	7.7	188.2	10.1	8.1	33.0	8.1
Hotelling	Diesel Engines	40.5	23.4	18.4	449.5	23.4	18.7	70.6	19.4
Hotelling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
Total Hotelling		45.8	23.4	21.1	500.0	32.4	25.9	143.3	22.2

All 3 Mitigated Criteria Pollutant Emissions

Year: 2015

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	321	182	146	3,557	193	154	633	154
Inner Harbor Berths per Vessel - Average Day (lb/day)	353	200	161	3,907	211	169	694	169
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	1.99	0.11	0.09	0.35	0.09
South-Bound Single Vessel Average Day (ton/day)	0.16	0.09	0.08	1.83	0.10	0.08	0.33	0.08
Temporal Allocation								
2015 Total Annual Emissions (ton/yr)	45	26	21	503	32	25	143	22

Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels) * Time * 2 (1-Way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

1. Maximum of 1 ship per day per berth.
2. All berths occupied.
3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor.
4. Maximum of 2 one-way trips per vessel.
5. IMO compliance rate for NOx = 59%
6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
7. Annual emissions assume 100% compliance with VSRP to 40 nm.
8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Alternative 3 Mitigated Criteria Pollutant Emissions
Year: 2022

Note: for 2022, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.5	61.6	48.4	1,172.8	61.6	49.3	185.6	51.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>106.5</i>	<i>61.6</i>	<i>48.4</i>	<i>1,172.8</i>	<i>61.6</i>	<i>49.3</i>	<i>185.6</i>	<i>51.0</i>
Sea / Fairway - South-Bound	Diesel Engines	134.6	77.8	61.2	1,482.2	77.8	62.3	234.5	64.4
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>134.6</i>	<i>77.8</i>	<i>61.2</i>	<i>1,482.2</i>	<i>77.8</i>	<i>62.3</i>	<i>234.5</i>	<i>64.4</i>
Fairway - North-Bound	Diesel Engines	127.6	73.8	58.0	1,404.8	73.8	59.0	222.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>127.6</i>	<i>73.8</i>	<i>58.0</i>	<i>1,404.8</i>	<i>73.8</i>	<i>59.0</i>	<i>222.3</i>	<i>61.1</i>
Fairway - South-Bound	Diesel Engines	64.4	37.2	29.3	708.9	37.2	29.8	112.2	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>64.4</i>	<i>37.2</i>	<i>29.3</i>	<i>708.9</i>	<i>37.2</i>	<i>29.8</i>	<i>112.2</i>	<i>30.8</i>
Precautionary Zone - North-Bound	Diesel Engines	43.9	25.4	20.0	483.3	25.4	20.3	76.5	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>44.4</i>	<i>25.4</i>	<i>20.2</i>	<i>488.6</i>	<i>26.3</i>	<i>21.1</i>	<i>84.1</i>	<i>21.3</i>
Precautionary Zone - South-Bound	Diesel Engines	49.7	28.8	22.6	547.8	28.8	23.0	86.7	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>50</i>	<i>29</i>	<i>23</i>	<i>554</i>	<i>30</i>	<i>24</i>	<i>95</i>	<i>24</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.5	6.6	5.2	126.5	6.6	5.3	20.0	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
<i>Total Outer Harbor Zone1</i>		<i>12</i>	<i>7</i>	<i>5</i>	<i>128</i>	<i>7</i>	<i>6</i>	<i>23</i>	<i>6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	14.4	8.3	6.5	158.2	8.3	6.6	25.0	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
<i>Total Outer Harbor Zone2</i>		<i>14.6</i>	<i>8.3</i>	<i>6.7</i>	<i>160.5</i>	<i>8.7</i>	<i>7.0</i>	<i>28.4</i>	<i>7.0</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Diesel Engines	16.7	9.7	7.6	184.0	9.7	7.7	29.1	8.0
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
<i>Total Inner Harbor Zone</i>		<i>17.0</i>	<i>9.7</i>	<i>7.7</i>	<i>186.7</i>	<i>10.1</i>	<i>8.1</i>	<i>33.0</i>	<i>8.1</i>
Hoteling	Diesel Engines	40.5	23.4	18.4	446.0	23.4	18.7	70.6	19.4
Hoteling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
<i>Total Hoteling</i>		<i>45.8</i>	<i>23.4</i>	<i>21.1</i>	<i>496.6</i>	<i>32.4</i>	<i>25.9</i>	<i>143.3</i>	<i>22.2</i>

Alt 3 Mitigated Criteria Pollutant Emissions
Year: 2022

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	321	182	146	3,531	193	154	633	154
Inner Harbor Berths per Vessel - Average Day (lb/day)	353	200	161	3,878	211	169	694	169
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	1.97	0.11	0.09	0.35	0.09
South-Bound Single Vessel Average Day (ton/day)	0.16	0.09	0.08	1.81	0.10	0.08	0.33	0.08
Temporal Allocation								
2022 Total Annual Emissions (ton/yr)	45	26	21	500	27	22	90	22

$Emissions (lb/yr) = Average Engine Power * Load Factor_{(VSR corrected)} * Fuel Corrected Emission Factor * Time_{(VSR corrected)} * 2_{(1-Way)} Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2_{(1-Way)} Trips * Vessels per Year$

$Hoteling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NOx = 69%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 100% compliance with VSRP to 40 nm.
- Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Alternative 3 Mitigated Criteria Pollutant Emissions

Year: 2037

Note: for 2037, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.5	61.6	48.4	1,165.2	61.6	49.3	185.6	51.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>106.5</i>	<i>61.6</i>	<i>48.4</i>	<i>1,165.2</i>	<i>61.6</i>	<i>49.3</i>	<i>185.6</i>	<i>51.0</i>
Sea / Fairway - South-Bound	Diesel Engines	134.6	77.8	61.2	1,472.5	77.8	62.3	234.5	64.4
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>134.6</i>	<i>77.8</i>	<i>61.2</i>	<i>1,472.5</i>	<i>77.8</i>	<i>62.3</i>	<i>234.5</i>	<i>64.4</i>
Fairway - North-Bound	Diesel Engines	127.6	73.8	58.0	1,395.7	73.8	59.0	222.3	61.1
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>127.6</i>	<i>73.8</i>	<i>58.0</i>	<i>1,395.7</i>	<i>73.8</i>	<i>59.0</i>	<i>222.3</i>	<i>61.1</i>
Fairway - South-Bound	Diesel Engines	64.4	37.2	29.3	704.3	37.2	29.8	112.2	30.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>64.4</i>	<i>37.2</i>	<i>29.3</i>	<i>704.3</i>	<i>37.2</i>	<i>29.8</i>	<i>112.2</i>	<i>30.8</i>
Precautionary Zone - North-Bound	Diesel Engines	43.9	25.4	20.0	480.2	25.4	20.3	76.5	21.0
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>44.4</i>	<i>25.4</i>	<i>20.2</i>	<i>485.4</i>	<i>26.3</i>	<i>21.1</i>	<i>84.1</i>	<i>21.3</i>
Precautionary Zone - South-Bound	Diesel Engines	49.7	28.8	22.6	544.2	28.8	23.0	86.7	23.8
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>50</i>	<i>29</i>	<i>23</i>	<i>550</i>	<i>30</i>	<i>24</i>	<i>95</i>	<i>24</i>
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	11.5	6.6	5.2	125.7	6.6	5.3	20.0	5.5
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
<i>Total Outer Harbor Zone1</i>		<i>12</i>	<i>7</i>	<i>5</i>	<i>128</i>	<i>7</i>	<i>6</i>	<i>23</i>	<i>6</i>
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	14.4	8.3	6.5	157.1	8.3	6.6	25.0	6.9
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
<i>Total Outer Harbor Zone2</i>		<i>14.6</i>	<i>8.3</i>	<i>6.7</i>	<i>159.5</i>	<i>8.7</i>	<i>7.0</i>	<i>28.4</i>	<i>7.0</i>
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	16.7	9.7	7.6	182.9	9.7	7.7	29.1	8.0
Inner Harbor Zone (maneuvering through main channel)	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
<i>Total Inner Harbor Zone</i>		<i>17.0</i>	<i>9.7</i>	<i>7.7</i>	<i>185.5</i>	<i>10.1</i>	<i>8.1</i>	<i>33.0</i>	<i>8.1</i>
Hoteling	Diesel Engines	40.5	23.4	18.4	443.2	23.4	18.7	70.6	19.4
Hoteling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
<i>Total Hoteling</i>		<i>45.8</i>	<i>23.4</i>	<i>21.7</i>	<i>493.7</i>	<i>32.4</i>	<i>25.9</i>	<i>143.3</i>	<i>22.2</i>

Alt 3 Mitigated Criteria Pollutant Emissions

Year: 2037

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)	321	182	146	3,508	193	154	633	154
Inner Harbor Berths per Vessel - Average Day (lb/day)	353	200	161	3,853	211	169	694	169
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	1.96	0.11	0.09	0.35	0.09
South-Bound Single Vessel Average Day (ton/day)	0.16	0.09	0.08	1.80	0.10	0.08	0.33	0.08
Temporal Allocation								
<i>2037 Total Annual Emissions (lb/yr)</i>	<i>45</i>	<i>26</i>	<i>21</i>	<i>496</i>	<i>27</i>	<i>22</i>	<i>90</i>	<i>22</i>

$Emissions (lb/yr) = Average Engine Power * Load Factor_{(VSR\ corrected)} * Fuel\ Corrected\ Emission\ Factor * Time_{(VSR\ corrected)} * 2_{(1-Way)} Trips * Vessels\ per\ Year$

$NOx\ Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO\ NOx\ Emission\ Factor * \% IMO\ vessels) + (non-IMO\ NOx\ Emission\ Factor * \% non-IMO\ vessels) * Time * 2_{(1-Way)} Trips * Vessels\ per\ Year$

$Hoteling\ Emissions (lb/yr) = Emissions (lb/yr)\ for\ 1-way\ trip * AMP\ reduction * Vessels\ per\ Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NO_x = 78%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,513	1,667	688	17,978	1,667	1,334	11,427	724
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		1,513	1,667	688	17,978	1,667	1,334	11,427	724
Sea / Fairway - South-Bound	Diesel Engines	63,910	70,418	29,050	759,190	70,418	56,334	482,556	30,590
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		63,910	70,418	29,050	759,190	70,418	56,334	482,556	30,590
Fairway - North-Bound	Diesel Engines	997	1,099	453	11,845	1,099	879	7,529	477
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		997	1,099	453	11,845	1,099	879	7,529	477
Fairway - South-Bound	Diesel Engines	16,814	18,526	7,643	199,731	18,526	14,821	126,953	8,048
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		16,814	18,526	7,643	199,731	18,526	14,821	126,953	8,048
Precautionary Zone - North-Bound	Diesel Engines	343	378	156	4,075	378	302	2,590	164
Precautionary Zone - North-Bound	Boiler	4	-	2	44	14	11	257	2
Total Precautionary Zone - North-Bound		347	378	158	4,119	392	314	2,847	166
Precautionary Zone - South-Bound	Diesel Engines	12,993	14,315	5,906	154,338	14,315	11,452	98,100	6,219
Precautionary Zone - South-Bound	Boiler	163	-	82	1,662	527	422	9,721	86
Total Precautionary Zone - South-Bound		13,156	14,315	5,987	155,999	14,843	11,874	107,821	6,305
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	-	-	-	-	-	-	-	-
Total Outer Harbor Zone1		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,864	4,257	1,756	45,899	4,257	3,406	29,174	1,849
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	65	-	33	664	211	169	3,887	34
Total Outer Harbor Zone2		3,929	4,257	1,789	46,563	4,468	3,575	33,061	1,884
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	4,496	4,954	2,044	53,410	4,954	3,963	33,948	2,152
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	76	-	38	773	245	196	4,523	40
Total Inner Harbor Zone		4,572	4,954	2,082	54,183	5,199	4,159	38,471	2,192
Hotelling	Diesel Engines	41,855	46,116	19,025	497,191	46,116	36,893	316,024	20,033
Hotelling	Boiler	1,423	-	712	14,496	4,600	3,680	84,805	749
Total Hotelling		43,278	46,116	19,737	511,687	50,716	40,573	400,829	20,783
Total (lb/yr)		148,517	161,730	67,586	1,761,296	167,328	133,862	1,211,494	71,169
boilers only						5,598			912
Average Day (lb/day) - Transit		288.3	316.8	131.1	3,423.6	319.5	255.6	2,221.0	138.0
Average Day (lb/day) - Hotelling		118.6	126.3	54.1	1,401.9	138.9	111.2	1,098.2	56.9

Emissions (lb/yr) = Average Engine Power * Load Factor_(VSR corrected) * Fuel Corrected Emission Factor * Time_(VSR corrected) * 2_(1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2_(1-Way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOCHC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- | | | | |
|--|---------------------------------|-------|------------------------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2011: | 269 | |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: 3 |
| 3. Annual emissions are based on 30% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm. | Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: 0 |
| 4. Maximum of 2 one-way trips per vessel. | | | |
| 5. IMO compliance rate for NOx = 53% | | | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | |
| 7. Annual emissions assume 30% compliance with VSRP to 40 nm. | | | |
| 8. Inner Harbor AMP compliance in 2011 assumed to be 30% | | | |

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	851	492	387	9,444	492	394	1,483	407
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		851	492	387	9,444	492	394	1,483	407
Sea / Fairway - South-Bound	Diesel Engines	35,940	20,780	16,337	398,806	20,780	16,624	62,623	17,202
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		35,940	20,780	16,337	398,806	20,780	16,624	62,623	17,202
Fairway - North-Bound	Diesel Engines	1,019	589	463	11,312	589	472	1,776	488
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,019	589	463	11,312	589	472	1,776	488
Fairway - South-Bound	Diesel Engines	17,189	9,938	7,813	190,733	9,938	7,951	29,950	8,227
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		17,189	9,938	7,813	190,733	9,938	7,951	29,950	8,227
Precautionary Zone - North-Bound	Diesel Engines	351	203	159	3,892	203	162	611	168
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
Total Precautionary Zone - North-Bound		355	203	162	3,934	210	168	672	170
Precautionary Zone - South-Bound	Diesel Engines	13,282	7,680	6,037	147,385	7,680	6,144	23,143	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
Total Precautionary Zone - South-Bound		13,449	7,680	6,121	148,978	7,963	6,370	25,437	6,445
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	1,053	609	479	11,688	609	487	1,835	504
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	18	-	9	170	30	24	245	9
Total Outer Harbor Zone1		1,071	609	488	11,858	639	511	2,080	514
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	2,633	1,523	1,197	29,221	1,523	1,218	4,588	1,260
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	44	-	22	425	75	60	611	23
Total Outer Harbor Zone2		2,678	1,523	1,219	29,646	1,598	1,278	5,200	1,284
Inner Harbor Zone (maneuvering through main channel: int)	Diesel Engines	3,064	1,772	1,393	34,002	1,772	1,417	5,339	1,467
Inner Harbor Zone (maneuvering through main channel: int)	Boiler	52	-	26	494	88	70	711	27
Total Inner Harbor Zone		3,116	1,772	1,419	34,497	1,859	1,488	6,051	1,494
Hotelling	Diesel Engines	11,140	6,441	5,063	123,610	6,441	5,153	19,410	5,332
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
Total Hotelling		12,595	6,441	5,791	137,513	8,909	7,127	39,417	6,098
Total (lb/yr)		88,264	50,026	40,199	976,720	52,978	42,382	174,689	42,329
boilers only						2,951			916
Average Day (lb/day) - Transit		207.3	119.4	94.3	2,299.2	120.7	96.6	370.6	99.3
Average Day (lb/day) - Hotelling		34.5	17.6	15.9	376.7	24.4	19.5	108.0	16.7

Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- | | | | |
|---|---------------------------------|-------|------------------------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2015: | 275 | |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: 2 |
| 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals. | Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: 1 |
| 4. Maximum of 2 one-way trips per vessel. | | | |
| 5. IMO compliance rate for NOx = | | 59% | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | |
| 7. Annual emissions assume 100% compliance with VSRP to 40 nm. | | | |
| 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%. | | | |

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2022

Note: for 2022, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Year (lb/yr)									
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	851	492	387	9,371	492	394	1,483	407
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		851	492	387	9,371	492	394	1,483	407
Sea / Fairway - South-Bound	Diesel Engines	35,940	20,780	16,337	395,753	20,780	16,624	62,623	17,202
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		35,940	20,780	16,337	395,753	20,780	16,624	62,623	17,202
Fairway - North-Bound	Diesel Engines	1,019	589	463	11,225	589	472	1,776	488
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,019	589	463	11,225	589	472	1,776	488
Fairway - South-Bound	Diesel Engines	17,189	9,938	7,813	189,273	9,938	7,951	29,950	8,227
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		17,189	9,938	7,813	189,273	9,938	7,951	29,950	8,227
Precautionary Zone - North-Bound	Diesel Engines	351	203	159	3,862	203	162	611	168
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
Total Precautionary Zone - North-Bound		355	203	162	3,904	210	168	672	170
Precautionary Zone - South-Bound	Diesel Engines	13,282	7,680	6,037	146,256	7,680	6,144	23,143	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
Total Precautionary Zone - South-Bound		13,449	7,680	6,121	147,850	7,963	6,370	25,437	6,445
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	1,053	609	479	11,599	609	487	1,835	504
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Boiler	18	-	9	170	30	24	245	9
Total Outer Harbor Zone1		1,071	609	488	11,769	639	511	2,080	514
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,633	1,523	1,197	28,997	1,523	1,218	4,588	1,260
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	44	-	22	425	75	60	611	23
Total Outer Harbor Zone2		2,678	1,523	1,219	29,422	1,598	1,278	5,200	1,284
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Diesel Engines	3,064	1,772	1,393	33,742	1,772	1,417	5,339	1,467
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Boiler	52	-	26	494	88	70	711	27
Total Inner Harbor Zone		3,116	1,772	1,419	34,236	1,859	1,488	6,051	1,494
Hotelling	Diesel Engines	11,140	6,441	5,063	122,663	6,441	5,153	19,410	5,332
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
Total Hotelling		12,595	6,441	5,791	136,566	8,909	7,127	39,417	6,098
Total (lb/yr)		88,264	50,026	40,199	969,370	52,978	42,382	174,689	42,329
boilers only						2,951			916
Average Day (lb/day) - Transit		207.3	119.4	94.3	2,281.7	120.7	96.6	370.6	99.3
Average Day (lb/day) - Hotelling		34.5	17.6	15.9	374.2	24.4	19.5	108.0	16.7

Emissions (lb/yr) = Average Engine Power * Load Factor_(PSR corrected) * Fuel Corrected Emission Factor * Time_(PSR corrected) * 2_(1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2_(1-Way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- | | | | |
|---|---------------------------------|-------|------------------------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2022: | 275 | |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: 2 |
| 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals. | Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: 1 |
| 4. Maximum of 2 one-way trips per vessel. | | | |
| 5. IMO compliance rate for NOx = | | 69% | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | |
| 7. Annual emissions assume 100% compliance with VSRP to 40 nm. | | | |
| 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%. | | | |

San Pedro Waterfront

Mitigated Alternative 3 Criteria Pollutant Emissions

Year: 2037

Note: for 2037, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Year (lb/yr)		CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Spatial Allocation	Power Type								
Sea / Fairway - North-Bound	Diesel Engines	851	492	387	9,311	492	394	1,483	407
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>851</i>	<i>492</i>	<i>387</i>	<i>9,311</i>	<i>492</i>	<i>394</i>	<i>1,483</i>	<i>407</i>
Sea / Fairway - South-Bound	Diesel Engines	35,940	20,780	16,337	393,181	20,780	16,624	62,623	17,202
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>35,940</i>	<i>20,780</i>	<i>16,337</i>	<i>393,181</i>	<i>20,780</i>	<i>16,624</i>	<i>62,623</i>	<i>17,202</i>
Fairway - North-Bound	Diesel Engines	1,019	589	463	11,152	589	472	1,776	488
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,019</i>	<i>589</i>	<i>463</i>	<i>11,152</i>	<i>589</i>	<i>472</i>	<i>1,776</i>	<i>488</i>
Fairway - South-Bound	Diesel Engines	17,189	9,938	7,813	188,043	9,938	7,951	29,950	8,227
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>17,189</i>	<i>9,938</i>	<i>7,813</i>	<i>188,043</i>	<i>9,938</i>	<i>7,951</i>	<i>29,950</i>	<i>8,227</i>
Precautionary Zone - North-Bound	Diesel Engines	351	203	159	3,837	203	162	611	168
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
<i>Total Precautionary Zone - North-Bound</i>		<i>355</i>	<i>203</i>	<i>162</i>	<i>3,879</i>	<i>210</i>	<i>168</i>	<i>672</i>	<i>170</i>
Precautionary Zone - South-Bound	Diesel Engines	13,282	7,680	6,037	145,306	7,680	6,144	23,143	6,357
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
<i>Total Precautionary Zone - South-Bound</i>		<i>13,449</i>	<i>7,680</i>	<i>6,121</i>	<i>146,900</i>	<i>7,962</i>	<i>6,370</i>	<i>25,437</i>	<i>6,445</i>
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	1,053	609	479	11,523	609	487	1,835	504
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	18	-	9	170	30	24	245	9
<i>Total Outer Harbor Zone1</i>		<i>1,071</i>	<i>609</i>	<i>488</i>	<i>11,693</i>	<i>639</i>	<i>511</i>	<i>2,080</i>	<i>514</i>
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	2,633	1,523	1,197	28,809	1,523	1,218	4,588	1,260
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	44	-	22	425	75	60	611	23
<i>Total Outer Harbor Zone2</i>		<i>2,678</i>	<i>1,523</i>	<i>1,219</i>	<i>29,234</i>	<i>1,598</i>	<i>1,278</i>	<i>5,200</i>	<i>1,284</i>
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	3,064	1,772	1,393	33,523	1,772	1,417	5,339	1,467
Inner Harbor Zone (maneuvering through main channel)	Boiler	52	-	26	494	88	70	711	27
<i>Total Inner Harbor Zone</i>		<i>3,116</i>	<i>1,772</i>	<i>1,419</i>	<i>34,017</i>	<i>1,859</i>	<i>1,488</i>	<i>6,051</i>	<i>1,494</i>
Hotelling	Diesel Engines	11,140	6,441	5,063	121,866	6,441	5,153	19,410	5,332
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
<i>Total Hotelling</i>		<i>12,595</i>	<i>6,441</i>	<i>5,791</i>	<i>135,769</i>	<i>8,909</i>	<i>7,127</i>	<i>39,417</i>	<i>6,098</i>
Total (lb/yr)		88,264	50,026	40,199	963,179	52,978	42,382	174,689	42,329
boilers only						2,951			916
Average Day (lb/day) - Transit		207.3	119.4	94.3	2,266.9	120.7	96.6	370.6	99.3
Average Day (lb/day) - Hotelling		34.5	17.6	15.9	372.0	24.4	19.5	108.0	16.7

$Emissions (lb/yr) = Average Engine Power * Load Factor^{(VSR corrected)} * Fuel Corrected Emission Factor * Time^{(VSR corrected)} * 2^{(1-Way)} Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2^{(1-Way)} Trips * Vessels per Year$

$Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth. Total Vessels in 2037: 275
- 2. All berths occupied. Percent of North-Bound Vessels: 2.9% Inner Harbor Berths: 2
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals. Percent of South-Bound Vessels: 97.1% Outer Harbor Berths: 1
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 78%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Mitigated Alternative 3 Toxic Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083
Sea / Fairway - South-Bound	Diesel Engines	4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098
Fairway - North-Bound	Diesel Engines	2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.31908	0.00047
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.31908	0.00047
Fairway - South-Bound	Diesel Engines	1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.22603	0.00033
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.22603	0.00033
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.12697	0.00019
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	0.00605	0.00001
Total Precautionary Zone - North-Bound		0.83167	0.22808	1.68596	0.11407	0.00966	0.02042	0.29916	0.17188	0.13302	0.00020
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.14390	0.00021
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	0.00686	0.00001
Total Precautionary Zone - South-Bound		0.94255	0.25849	1.91076	0.12928	0.01095	0.02314	0.33905	0.19480	0.15075	0.00022
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.03371	0.00005
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	0.00116	0.00005	0.00059	0.00008	0.00086	0.00245	0.00116	0.00213	0.00001
Total Outer Harbor Zone1		0.22079	0.06084	0.44760	0.03043	0.00262	0.00563	0.08002	0.04591	0.03584	0.00006
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.04213	0.00006
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	0.00266	0.00000
Total Outer Harbor Zone2		0.27599	0.07604	0.55950	0.03804	0.00322	0.00704	0.10003	0.05740	0.04480	0.00007
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.04903	0.00007
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	0.00310	0.00000
Total Inner Harbor Zone		0.32115	0.08849	0.65105	0.04426	0.00374	0.00819	0.11640	0.06679	0.05213	0.00008
Hoteling	Diesel Engines	0.69121	0.18681	1.40109	0.09341	0.00794	0.01494	0.24286	0.14011	0.10553	0.00016
Hoteling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	0.00968	0.00001
Total Hoteling		0.69121	0.19210	1.40134	0.09610	0.00811	0.01884	0.25398	0.14539	0.11521	0.00017
First Peak Hour Scenario (per vessel)		1.760	0.484	3.569	0.242	0.020	0.044	0.635	0.365	0.284	0.000
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.											
Second Peak Hour Scenario (per vessel)		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.115	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.											

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 2011 year

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00299	0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
0.00299	0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
0.00353	0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
0.00353	0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
0.00169	0.00375	0.00235	0.00394	0.00375	0.00282	0.00178	1.63294	0.00272	0.00338	-	0.00006	0.01192	0.04111
0.00169	0.00375	0.00235	0.00394	0.00375	0.00282	0.00178	1.63294	0.00272	0.00338	-	0.00006	0.01192	0.04111
0.00120	0.00266	0.00166	0.00279	0.00266	0.00199	0.00126	1.15674	0.00193	0.00239	-	0.00004	0.00844	0.02912
0.00120	0.00266	0.00166	0.00279	0.00266	0.00199	0.00126	1.15674	0.00193	0.00239	-	0.00004	0.00844	0.02912
0.00067	0.00149	0.00093	0.00157	0.00149	0.00112	0.00071	0.64978	0.00108	0.00134	-	0.00002	0.00474	0.01636
0.00003	0.00007	0.00004	0.00007	0.00007	0.00005	0.00003	0.03096	0.00005	0.00006	-	0.00000	0.00023	0.00078
0.00070	0.00156	0.00098	0.00164	0.00156	0.00117	0.00074	0.68074	0.00113	0.00141	-	0.00002	0.00497	0.01714
0.00076	0.00169	0.00106	0.00178	0.00169	0.00127	0.00080	0.73642	0.00123	0.00152	-	0.00003	0.00538	0.01854
0.00004	0.00008	0.00005	0.00008	0.00008	0.00006	0.00004	0.03509	0.00006	0.00007	-	0.00000	0.00026	0.00088
0.00080	0.00177	0.00111	0.00186	0.00177	0.00133	0.00084	0.77151	0.00129	0.00160	-	0.00003	0.00563	0.01942
0.00018	0.00040	0.00025	0.00042	0.00040	0.00030	0.00019	0.17250	0.00029	0.00036	-	0.00001	0.00126	0.00434
0.00001	0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01090	0.00002	0.00002	-	0.00000	0.00008	0.00027
0.00019	0.00050	0.00029	0.00040	0.00050	0.00033	0.00020	0.18340	0.00031	0.00030	-	0.00001	0.00133	0.00460
0.00022	0.00050	0.00031	0.00052	0.00050	0.00037	0.00024	0.21563	0.00036	0.00045	-	0.00001	0.00157	0.00543
0.00001	0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01362	0.00002	0.00003	-	0.00000	0.00010	0.00034
0.00024	0.00053	0.00033	0.00055	0.00053	0.00040	0.00025	0.22925	0.00038	0.00047	-	0.00001	0.00167	0.00577
0.00026	0.00058	0.00036	0.00061	0.00058	0.00043	0.00027	0.25091	0.00042	0.00052	-	0.00001	0.00183	0.00632
0.00002	0.00004	0.00002	0.00004	0.00004	0.00003	0.00002	0.01585	0.00003	0.00003	-	0.00000	0.00012	0.00040
0.00028	0.00061	0.00038	0.00064	0.00061	0.00046	0.00029	0.26677	0.00044	0.00055	-	0.00001	0.00195	0.00672
0.00056	0.00124	0.00078	0.00130	0.00124	0.00093	0.00059	0.54004	0.00090	0.00112	-	0.00002	0.00394	0.01359
0.00005	0.00011	0.00007	0.00012	0.00011	0.00009	0.00005	0.04954	0.00008	0.00010	-	0.00000	0.00036	0.00125
0.00061	0.00136	0.00085	0.00142	0.00136	0.00102	0.00064	0.58958	0.00098	0.00122	-	0.00002	0.00430	0.01484
0.002	0.003	0.002	0.004	0.003	0.003	0.002	1.451	0.002	0.003	-	0.000	0.011	0.037
0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.590	0.001	0.001	-	0.000	0.004	0.015

San Pedro Waterfront

Mitigated Alternative 3 Toxic Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346
Sea / Fairway - South-Bound	Diesel Engines	5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409
Fairway - North-Bound	Diesel Engines	2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.36506	0.00054	0.00193
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.36506	0.00054	0.00193
Fairway - South-Bound	Diesel Engines	1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.25810	0.00038	0.00137
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.25810	0.00038	0.00137
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.14320	0.00021	0.00076
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00605	0.00001	0.00003
Total Precautionary Zone - North-Bound		0.95019	0.25681	1.92607	0.12840	0.01091	0.02054	0.33385	0.19261	0.14925	0.00022	0.00079
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.16229	0.00024	0.00086
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00686	0.00001	0.00004
Total Precautionary Zone - South-Bound		1.07689	0.29105	2.18288	0.14553	0.01237	0.02328	0.37837	0.21829	0.16915	0.00025	0.00090
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.03702	0.00005	0.00020
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00213	0.00000	0.00001
Total Outer Harbor Zone1		0.24681	0.06670	0.50029	0.03335	0.00283	0.00533	0.08671	0.05003	0.03915	0.00005	0.00021
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.04628	0.00007	0.00025
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00266	0.00000	0.00001
Total Outer Harbor Zone2		0.30851	0.08338	0.62536	0.04169	0.00354	0.00667	0.10840	0.06254	0.04894	0.00007	0.00026
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.05385	0.00008	0.00029
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00310	0.00000	0.00002
Total Inner Harbor Zone		0.35899	0.09703	0.72769	0.04851	0.00412	0.00776	0.12613	0.07277	0.05695	0.00008	0.00030
Hoteling	Diesel Engines	0.75090	0.20295	1.52210	0.10147	0.00863	0.01624	0.26383	0.15221	0.11464	0.00017	0.00061
Hoteling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00968	0.00001	0.00005
Total Hoteling		0.77046	0.20823	1.56174	0.10412	0.00885	0.01666	0.27070	0.15617	0.12432	0.00018	0.00066

First Peak Hour Scenario (per vessel) 1.991 0.538 4.036 0.269 0.023 0.043 0.700 0.404 0.314 0.000 0.002
 First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.
 Second Peak Hour Scenario (per vessel) 0.770 0.208 1.562 0.104 0.009 0.017 0.271 0.156 0.124 0.000 0.001
 Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels: 0.0 2011 year

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00429	0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311	0.00387	-	0.00006	0.01364	0.04703
0.00429	0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311	0.00387	-	0.00006	0.01364	0.04703
0.00304	0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220	0.00273	-	0.00005	0.00964	0.03325
0.00304	0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220	0.00273	-	0.00005	0.00964	0.03325
0.00168	0.00105	0.00177	0.00168	0.00126	0.00080	0.73284	0.00122	0.00152	-	0.00003	0.00535	0.01845
0.00007	0.00004	0.00007	0.00007	0.00005	0.00003	0.03096	0.00005	0.00006	-	0.00000	0.00023	0.00078
0.00176	0.00110	0.00184	0.00176	0.00132	0.00083	0.76380	0.00127	0.00158	-	0.00003	0.00557	0.01923
0.00191	0.00119	0.00200	0.00191	0.00143	0.00091	0.83055	0.00138	0.00172	-	0.00003	0.00606	0.02091
0.00008	0.00005	0.00008	0.00008	0.00006	0.00004	0.03509	0.00006	0.00007	-	0.00000	0.00026	0.00088
0.00199	0.00124	0.00209	0.00199	0.00149	0.00095	0.86564	0.00144	0.00179	-	0.00003	0.00632	0.02179
0.00044	0.00027	0.00046	0.00044	0.00033	0.00021	0.18947	0.00032	0.00039	-	0.00001	0.00138	0.00477
0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01090	0.00002	0.00002	-	0.00000	0.00008	0.00027
0.00046	0.00029	0.00048	0.00046	0.00035	0.00022	0.20097	0.00033	0.00041	-	0.00001	0.00146	0.00504
0.00054	0.00034	0.00057	0.00054	0.00041	0.00026	0.23684	0.00039	0.00049	-	0.00001	0.00173	0.00596
0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01362	0.00002	0.00003	-	0.00000	0.00010	0.00034
0.00058	0.00036	0.00060	0.00058	0.00043	0.00027	0.25046	0.00042	0.00052	-	0.00001	0.00183	0.00630
0.00063	0.00040	0.00067	0.00063	0.00048	0.00030	0.27559	0.00046	0.00057	-	0.00001	0.00201	0.00694
0.00004	0.00002	0.00004	0.00004	0.00003	0.00002	0.01585	0.00003	0.00003	-	0.00000	0.00012	0.00040
0.00067	0.00042	0.00070	0.00067	0.00050	0.00032	0.29145	0.00049	0.00060	-	0.00001	0.00213	0.00734
0.00135	0.00084	0.00142	0.00135	0.00101	0.00064	0.58668	0.00098	0.00121	-	0.00002	0.00428	0.01477
0.00011	0.00007	0.00012	0.00011	0.00009	0.00005	0.04954	0.00008	0.00010	-	0.00000	0.00036	0.00125
0.00146	0.00091	0.00154	0.00146	0.00110	0.00069	0.63622	0.00106	0.00132	-	0.00002	0.00464	0.01602
0.004	0.002	0.004	0.004	0.003	0.002	1.608	0.003	0.003	-	0.000	0.012	0.040
0.001	0.001	0.002	0.001	0.001	0.001	0.636	0.001	0.001	-	0.000	0.005	0.016

San Pedro Waterfront

Mitigated Alternative 3 Toxic Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2.51453	0.67960	5.09701	0.33980	0.02888	0.05437	0.88348	0.50970	0.31475	0.00046
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2.51453</i>	<i>0.67960</i>	<i>5.09701</i>	<i>0.33980</i>	<i>0.02888</i>	<i>0.05437</i>	<i>0.88348</i>	<i>0.50970</i>	<i>0.31475</i>	<i>0.00046</i>
Sea / Fairway - South-Bound	Diesel Engines	2.84982	0.77022	5.77666	0.38511	0.03273	0.06162	1.00129	0.57767	0.36594	0.00054
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>2.84982</i>	<i>0.77022</i>	<i>5.77666</i>	<i>0.38511</i>	<i>0.03273</i>	<i>0.06162</i>	<i>1.00129</i>	<i>0.57767</i>	<i>0.36594</i>	<i>0.00054</i>
Fairway - North-Bound	Diesel Engines	2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.24995	0.00037
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.09002</i>	<i>0.56487</i>	<i>4.23653</i>	<i>0.28244</i>	<i>0.02401</i>	<i>0.04519</i>	<i>0.73433</i>	<i>0.42365</i>	<i>0.24995</i>	<i>0.00037</i>
Fairway - South-Bound	Diesel Engines	1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.16266	0.00024
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.48053</i>	<i>0.40014</i>	<i>3.00108</i>	<i>0.20007</i>	<i>0.01701</i>	<i>0.03201</i>	<i>0.52019</i>	<i>0.30011</i>	<i>0.16266</i>	<i>0.00024</i>
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.08376	0.00012
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00382	0.00001
<i>Total Precautionary Zone - North-Bound</i>		<i>0.84389</i>	<i>0.22808</i>	<i>1.71058</i>	<i>0.11404</i>	<i>0.00969</i>	<i>0.01825</i>	<i>0.29650</i>	<i>0.17106</i>	<i>0.08758</i>	<i>0.00013</i>
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.09493	0.00014
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00433	0.00001
<i>Total Precautionary Zone - South-Bound</i>		<i>0.95641</i>	<i>0.25849</i>	<i>1.93866</i>	<i>0.12924</i>	<i>0.01099</i>	<i>0.02068</i>	<i>0.33603</i>	<i>0.19387</i>	<i>0.09926</i>	<i>0.00015</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.02224	0.00003
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00134	0.00000
<i>Total Outer Harbor Zone1</i>		<i>0.22509</i>	<i>0.06084</i>	<i>0.45626</i>	<i>0.03042</i>	<i>0.00259</i>	<i>0.00487</i>	<i>0.07909</i>	<i>0.04563</i>	<i>0.02358</i>	<i>0.00003</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.02780	0.00004
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00168	0.00000
<i>Total Outer Harbor Zone2</i>		<i>0.28136</i>	<i>0.07604</i>	<i>0.57033</i>	<i>0.03802</i>	<i>0.00323</i>	<i>0.00608</i>	<i>0.09886</i>	<i>0.05703</i>	<i>0.02948</i>	<i>0.00004</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.03234	0.00005
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00196	0.00000
<i>Total Inner Harbor Zone</i>		<i>0.32740</i>	<i>0.08849</i>	<i>0.66366</i>	<i>0.04424</i>	<i>0.00376</i>	<i>0.00708</i>	<i>0.11503</i>	<i>0.06637</i>	<i>0.03430</i>	<i>0.00005</i>
Hoteling	Diesel Engines	0.37440	0.10119	0.75893	0.05060	0.00430	0.00810	0.13155	0.07589	0.05417	0.00008
Hoteling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00611	0.00001
<i>Total Hoteling</i>		<i>0.39396</i>	<i>0.10648</i>	<i>0.79856</i>	<i>0.05324</i>	<i>0.00453</i>	<i>0.00852</i>	<i>0.13842</i>	<i>0.07986</i>	<i>0.06028</i>	<i>0.00009</i>
First Peak Hour Scenario (per vessel)		1.790	0.484	3.629	0.242	0.021	0.039	0.629	0.363	0.187	0.000
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.											
Second Peak Hour Scenario (per vessel)		0.394	0.106	0.799	0.053	0.005	0.009	0.138	0.080	0.060	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.											
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:		1.0	2015+ years								

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00167	0.00370	0.00231	0.00389	0.00370	0.00278	0.00176	1.61080	0.00268	0.00333	-	0.00006	0.01176	0.04055
0.00167	0.00370	0.00231	0.00389	0.00370	0.00278	0.00176	1.61080	0.00268	0.00333	-	0.00006	0.01176	0.04055
0.00194	0.00431	0.00269	0.00452	0.00431	0.00323	0.00204	1.87276	0.00312	0.00387	-	0.00006	0.01367	0.04714
0.00194	0.00431	0.00269	0.00452	0.00431	0.00323	0.00204	1.87276	0.00312	0.00387	-	0.00006	0.01367	0.04714
0.00132	0.00294	0.00184	0.00309	0.00294	0.00221	0.00140	1.27913	0.00213	0.00265	-	0.00004	0.00934	0.03220
0.00132	0.00294	0.00184	0.00309	0.00294	0.00221	0.00140	1.27913	0.00213	0.00265	-	0.00004	0.00934	0.03220
0.00086	0.00191	0.00120	0.00201	0.00191	0.00144	0.00091	0.83242	0.00139	0.00172	-	0.00003	0.00608	0.02095
0.00086	0.00191	0.00120	0.00201	0.00191	0.00144	0.00091	0.83242	0.00139	0.00172	-	0.00003	0.00608	0.02095
0.00044	0.00099	0.00062	0.00103	0.00099	0.00074	0.00047	0.42865	0.00071	0.00089	-	0.00001	0.00313	0.01079
0.00002	0.00004	0.00003	0.00005	0.00004	0.00003	0.00002	0.01955	0.00003	0.00004	-	0.00000	0.00014	0.00049
0.00046	0.00103	0.00064	0.00108	0.00103	0.00077	0.00049	0.44820	0.00075	0.00093	-	0.00002	0.00327	0.01128
0.00050	0.00112	0.00070	0.00117	0.00112	0.00084	0.00053	0.48581	0.00081	0.00101	-	0.00002	0.00355	0.01223
0.00002	0.00005	0.00003	0.00005	0.00005	0.00004	0.00002	0.02215	0.00004	0.00005	-	0.00000	0.00016	0.00056
0.00053	0.00117	0.00073	0.00123	0.00117	0.00088	0.00055	0.50796	0.00085	0.00105	-	0.00002	0.00371	0.01279
0.00012	0.00026	0.00016	0.00027	0.00026	0.00020	0.00012	0.11380	0.00019	0.00024	-	0.00000	0.00083	0.00286
0.00001	0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00688	0.00001	0.00001	-	0.00000	0.00005	0.00017
0.00012	0.00028	0.00017	0.00029	0.00028	0.00021	0.00013	0.12068	0.00020	0.00025	-	0.00000	0.00088	0.00304
0.00015	0.00033	0.00020	0.00034	0.00033	0.00025	0.00016	0.14225	0.00024	0.00029	-	0.00000	0.00104	0.00358
0.00001	0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00860	0.00001	0.00002	-	0.00000	0.00006	0.00022
0.00016	0.00035	0.00022	0.00036	0.00035	0.00026	0.00016	0.15085	0.00025	0.00031	-	0.00001	0.00110	0.00380
0.00017	0.00038	0.00024	0.00040	0.00038	0.00029	0.00018	0.16552	0.00028	0.00034	-	0.00001	0.00121	0.00417
0.00001	0.00002	0.00001	0.00002	0.00002	0.00002	0.00001	0.01001	0.00002	0.00002	-	0.00000	0.00007	0.00025
0.00018	0.00040	0.00025	0.00042	0.00040	0.00030	0.00019	0.17553	0.00029	0.00036	-	0.00001	0.00128	0.00442
0.00029	0.00064	0.00040	0.00067	0.00064	0.00048	0.00030	0.27721	0.00046	0.00057	-	0.00001	0.00202	0.00698
0.00003	0.00007	0.00004	0.00008	0.00007	0.00005	0.00003	0.03128	0.00005	0.00006	-	0.00000	0.00023	0.00079
0.00032	0.00071	0.00044	0.00074	0.00071	0.00053	0.00034	0.30846	0.00051	0.00064	-	0.00001	0.00225	0.00777
0.001	0.002	0.001	0.002	0.002	0.002	0.001	0.955	0.002	0.002	-	0.000	0.007	0.024
0.000	0.001	0.000	0.001	0.001	0.001	0.000	0.308	0.001	0.001	-	0.000	0.002	0.008

San Pedro Waterfront

Mitigated Alternative 1 Toxic Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	2.89357	0.78205	5.86535	0.39102	0.03324	0.06256	1.01666	0.58654	0.36379	0.00053	0.00193
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2.89357</i>	<i>0.78205</i>	<i>5.86535</i>	<i>0.39102</i>	<i>0.03324</i>	<i>0.06256</i>	<i>1.01666</i>	<i>0.58654</i>	<i>0.36379</i>	<i>0.00053</i>	<i>0.00193</i>
Sea / Fairway - South-Bound	Diesel Engines	3.28217	0.88707	6.65306	0.44354	0.03770	0.07097	1.15320	0.66531	0.42311	0.00062	0.00224
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>3.28217</i>	<i>0.88707</i>	<i>6.65306</i>	<i>0.44354</i>	<i>0.03770</i>	<i>0.07097</i>	<i>1.15320</i>	<i>0.66531</i>	<i>0.42311</i>	<i>0.00062</i>	<i>0.00224</i>
Fairway - North-Bound	Diesel Engines	2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.28709	0.00042	0.00152
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.39121</i>	<i>0.64627</i>	<i>4.84704</i>	<i>0.32314</i>	<i>0.02747</i>	<i>0.05170</i>	<i>0.84015</i>	<i>0.48470</i>	<i>0.28709</i>	<i>0.00042</i>	<i>0.00152</i>
Fairway - South-Bound	Diesel Engines	1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.18662	0.00027	0.00099
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.69058</i>	<i>0.45691</i>	<i>3.42684</i>	<i>0.22846</i>	<i>0.01942</i>	<i>0.03655</i>	<i>0.59399</i>	<i>0.34268</i>	<i>0.18662</i>	<i>0.00027</i>	<i>0.00099</i>
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.09447	0.00014	0.00050
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00382	0.00001	0.00002
<i>Total Precautionary Zone - North-Bound</i>		<i>0.95019</i>	<i>0.25681</i>	<i>1.92607</i>	<i>0.12840</i>	<i>0.01091</i>	<i>0.02054</i>	<i>0.33385</i>	<i>0.19261</i>	<i>0.09829</i>	<i>0.00014</i>	<i>0.00052</i>
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.10706	0.00016	0.00057
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00433	0.00001	0.00002
<i>Total Precautionary Zone - South-Bound</i>		<i>1.07689</i>	<i>0.29105</i>	<i>2.18288</i>	<i>0.14553</i>	<i>0.01237</i>	<i>0.02328</i>	<i>0.37837</i>	<i>0.21829</i>	<i>0.11139</i>	<i>0.00016</i>	<i>0.00059</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.02442	0.00004	0.00013
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00134	0.00000	0.00001
<i>Total Outer Harbor Zone1</i>		<i>0.24681</i>	<i>0.06671</i>	<i>0.50029</i>	<i>0.03335</i>	<i>0.00283</i>	<i>0.00534</i>	<i>0.08672</i>	<i>0.05003</i>	<i>0.02577</i>	<i>0.00004</i>	<i>0.00014</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.03053	0.00004	0.00016
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00168	0.00000	0.00001
<i>Total Outer Harbor Zone2</i>		<i>0.30851</i>	<i>0.08338</i>	<i>0.62536</i>	<i>0.04169</i>	<i>0.00354</i>	<i>0.00667</i>	<i>0.10840</i>	<i>0.06254</i>	<i>0.03221</i>	<i>0.00005</i>	<i>0.00017</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.03553	0.00005	0.00019
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00196	0.00000	0.00001
<i>Total Inner Harbor Zone</i>		<i>0.35899</i>	<i>0.09703</i>	<i>0.72769</i>	<i>0.04851</i>	<i>0.00412</i>	<i>0.00776</i>	<i>0.12613</i>	<i>0.07277</i>	<i>0.03748</i>	<i>0.00006</i>	<i>0.00020</i>
Hoteling	Diesel Engines	0.40674	0.10993	0.82447	0.05496	0.00467	0.00879	0.14291	0.08245	0.05885	0.00009	0.00031
Hoteling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00611	0.00001	0.00003
<i>Total Hoteling</i>		<i>0.42629</i>	<i>0.11522</i>	<i>0.86411</i>	<i>0.05761</i>	<i>0.00489</i>	<i>0.00922</i>	<i>0.14978</i>	<i>0.08641</i>	<i>0.06496</i>	<i>0.00010</i>	<i>0.00034</i>
First Peak Hour Scenario (per vessel)		1.991	0.538	4.036	0.269	0.023	0.043	0.700	0.404	0.207	0.000	0.001
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.												
Second Peak Hour Scenario (per vessel)		0.426	0.115	0.864	0.058	0.005	0.009	0.150	0.086	0.065	0.000	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.												
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:												
		2.0	2015+	years								

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00428	0.00267	0.00449	0.00428	0.00321	0.00203	1.86172	0.00310	0.00385	-	0.00006	0.01359	0.04686
0.00428	0.00267	0.00449	0.00428	0.00321	0.00203	1.86172	0.00310	0.00385	-	0.00006	0.01359	0.04686
0.00498	0.00311	0.00523	0.00498	0.00373	0.00236	2.16534	0.00361	0.00448	-	0.00007	0.01580	0.05451
0.00498	0.00311	0.00523	0.00498	0.00373	0.00236	2.16534	0.00361	0.00448	-	0.00007	0.01580	0.05451
0.00338	0.00211	0.00355	0.00338	0.00253	0.00160	1.46922	0.00245	0.00304	-	0.00005	0.01072	0.03698
0.00338	0.00211	0.00355	0.00338	0.00253	0.00160	1.46922	0.00245	0.00304	-	0.00005	0.01072	0.03698
0.00220	0.00137	0.00231	0.00220	0.00165	0.00104	0.95507	0.00159	0.00198	-	0.00003	0.00697	0.02404
0.00220	0.00137	0.00231	0.00220	0.00165	0.00104	0.95507	0.00159	0.00198	-	0.00003	0.00697	0.02404
0.00111	0.00069	0.00117	0.00111	0.00083	0.00053	0.48345	0.00081	0.00100	-	0.00002	0.00353	0.01217
0.00004	0.00003	0.00005	0.00004	0.00003	0.00002	0.01955	0.00003	0.00004	-	0.00000	0.00014	0.00049
0.00116	0.00072	0.00121	0.00116	0.00087	0.00055	0.50299	0.00084	0.00104	-	0.00002	0.00367	0.01266
0.00126	0.00079	0.00132	0.00126	0.00094	0.00060	0.54790	0.00091	0.00113	-	0.00002	0.00400	0.01379
0.00005	0.00003	0.00005	0.00005	0.00004	0.00002	0.02215	0.00004	0.00005	-	0.00000	0.00016	0.00056
0.00131	0.00082	0.00138	0.00131	0.00098	0.00062	0.57006	0.00095	0.00118	-	0.00002	0.00416	0.01435
0.00029	0.00018	0.00030	0.00029	0.00022	0.00014	0.12499	0.00021	0.00026	-	0.00000	0.00091	0.00315
0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00688	0.00001	0.00001	-	0.00000	0.00005	0.00017
0.00030	0.00019	0.00032	0.00030	0.00023	0.00014	0.13187	0.00022	0.00027	-	0.00000	0.00096	0.00332
0.00036	0.00022	0.00038	0.00036	0.00027	0.00017	0.15624	0.00026	0.00032	-	0.00001	0.00114	0.00393
0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00860	0.00001	0.00002	-	0.00000	0.00006	0.00022
0.00038	0.00024	0.00040	0.00038	0.00028	0.00018	0.16484	0.00027	0.00034	-	0.00001	0.00120	0.00415
0.00042	0.00026	0.00044	0.00042	0.00031	0.00020	0.18181	0.00030	0.00038	-	0.00001	0.00133	0.00458
0.00002	0.00001	0.00002	0.00002	0.00002	0.00001	0.01001	0.00002	0.00002	-	0.00000	0.00007	0.00025
0.00044	0.00028	0.00046	0.00044	0.00033	0.00021	0.19181	0.00032	0.00040	-	0.00001	0.00140	0.00483
0.00069	0.00043	0.00073	0.00069	0.00052	0.00033	0.30115	0.00050	0.00062	-	0.00001	0.00220	0.00758
0.00007	0.00004	0.00008	0.00007	0.00005	0.00003	0.03128	0.00005	0.00006	-	0.00000	0.00023	0.00079
0.00076	0.00046	0.00080	0.00076	0.00057	0.00036	0.33242	0.00055	0.00069	-	0.00001	0.00243	0.00837
0.002	0.002	0.003	0.002	0.002	0.001	1.059	0.002	0.002	-	0.000	0.008	0.027
0.001	0.000	0.001	0.001	0.001	0.000	0.332	0.001	0.001	-	0.000	0.002	0.008

San Pedro Waterfront

Mitigated Alternative 3 Toxic Pollutant Emissions

Year: 2011

Year (t/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	1,667											
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,667</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	70,418											
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>70,418</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,099											
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,099</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	18,526											
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>18,526</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	378											
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1	-
<i>Total Precautionary Zone - North-Bound</i>		<i>378</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>	<i>-</i>
Precautionary Zone - South-Bound	Diesel Engines	14,315											
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.4	4.1	2.0	-	2.8	-
<i>Total Precautionary Zone - South-Bound</i>		<i>14,315</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>4.1</i>	<i>2.0</i>	<i>-</i>	<i>2.8</i>	<i>-</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-											
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	4,257											
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.6	0.8	-	1.1	-
<i>Total Outer Harbor Zone2</i>		<i>4,257</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.8</i>	<i>-</i>	<i>1.1</i>	<i>-</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,954											
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	1.9	0.9	-	1.3	-
<i>Total Inner Harbor Zone</i>		<i>4,954</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>1.9</i>	<i>0.9</i>	<i>-</i>	<i>1.3</i>	<i>-</i>
Hoteling	Diesel Engines	46,116											
Hoteling	Boiler		-	17.1	0.8	8.7	0.6	12.6	35.9	17.1	-	24.8	-
<i>Total Hoteling</i>		<i>46,116</i>	<i>-</i>	<i>17.1</i>	<i>0.8</i>	<i>8.7</i>	<i>0.6</i>	<i>12.6</i>	<i>35.9</i>	<i>17.1</i>	<i>-</i>	<i>24.8</i>	<i>-</i>
		161,730	-	21	1	11	1	15	44	21	-	30	-

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
0.0	-	0.1	-	-	0.0	3.5	-	-	-	0.0	-	0.1
0.0	-	0.1	-	-	0.0	3.5	-	-	-	0.0	-	0.1
0.3	-	2.9	-	-	0.3	131.8	-	-	-	0.1	-	2.9
0.3	-	2.9	-	-	0.3	131.8	-	-	-	0.1	-	2.9
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
0.1	-	1.2	-	-	0.1	52.7	-	-	-	0.1	-	1.2
0.1	-	1.2	-	-	0.1	52.7	-	-	-	0.1	-	1.2
0.1	-	1.3	-	-	0.1	61.3	-	-	-	0.1	-	1.3
0.1	-	1.3	-	-	0.1	61.3	-	-	-	0.1	-	1.3
2.3	-	25.3	-	-	2.3	1,150.0	-	-	-	1.2	-	25.3
2.3	-	25.3	-	-	2.3	1,150.0	-	-	-	1.2	-	25.3
3	-	31	-	-	3	1,399	-	-	-	2	-	31

San Pedro Waterfront

Mitigated Alternative 3 Toxic Pollutant Emissions

Year: 2015

Year (t/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	492											
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>492</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	20,780											
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>20,780</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	589											
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>589</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	9,938											
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>9,938</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	203											
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0	-
<i>Total Precautionary Zone - North-Bound</i>		<i>203</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>	<i>-</i>
Precautionary Zone - South-Bound	Diesel Engines	7,680											
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5	-
<i>Total Precautionary Zone - South-Bound</i>		<i>7,680</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>1.5</i>	<i>-</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	609											
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.2	0.4	0.2	-	0.2	-
<i>Total Outer Harbor Zone1</i>		<i>609</i>	<i>-</i>	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.4</i>	<i>0.2</i>	<i>-</i>	<i>0.2</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,523											
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	0.4	-
<i>Total Outer Harbor Zone2</i>		<i>1,523</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	<i>-</i>	<i>0.4</i>	<i>-</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,772											
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	0.5	-
<i>Total Inner Harbor Zone</i>		<i>1,772</i>	<i>-</i>	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.3</i>	<i>0.6</i>	<i>-</i>	<i>0.5</i>	<i>-</i>
Hoteling	Diesel Engines	6,441											
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3	-
<i>Total Hoteling</i>		<i>6,441</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>13.3</i>	<i>-</i>
		50,026	-	21	1	11	1	15	44	21	-	16	-

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
0.0	-	0.2	-	-	0.0	7.5	-	-	-	0.0	-	0.2
0.0	-	0.2	-	-	0.0	7.5	-	-	-	0.0	-	0.2
0.0	-	0.4	-	-	0.0	18.9	-	-	-	0.0	-	0.4
0.0	-	0.4	-	-	0.0	18.9	-	-	-	0.0	-	0.4
0.0	-	0.5	-	-	0.0	21.9	-	-	-	0.0	-	0.5
0.0	-	0.5	-	-	0.0	21.9	-	-	-	0.0	-	0.5
1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
1	-	16	-	-	1	738	-	-	-	1	-	16

San Pedro Waterfront

Mitigated Alternative 3 Toxic Pollutant Emissions

Year: 2022

Year (t/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	492											
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>492</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	20,780											
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>20,780</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	589											
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>589</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	9,938											
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>9,938</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	203											
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0	-
<i>Total Precautionary Zone - North-Bound</i>		<i>203</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>	<i>-</i>
Precautionary Zone - South-Bound	Diesel Engines	7,680											
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5	-
<i>Total Precautionary Zone - South-Bound</i>		<i>7,680</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>1.5</i>	<i>-</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	609											
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.2	0.4	0.2	-	0.2	-
<i>Total Outer Harbor Zone1</i>		<i>609</i>	<i>-</i>	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.2</i>	<i>0.4</i>	<i>0.2</i>	<i>-</i>	<i>0.2</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,523											
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	0.4	-
<i>Total Outer Harbor Zone2</i>		<i>1,523</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	<i>-</i>	<i>0.4</i>	<i>-</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,772											
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	0.5	-
<i>Total Inner Harbor Zone</i>		<i>1,772</i>	<i>-</i>	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.3</i>	<i>0.6</i>	<i>-</i>	<i>0.5</i>	<i>-</i>
Hoteling	Diesel Engines	6,441											
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3	-
<i>Total Hoteling</i>		<i>6,441</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>13.3</i>	<i>-</i>
		50,026	-	21	1	11	1	15	44	21	-	16	-

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
0.0	-	0.2	-	-	0.0	7.5	-	-	-	0.0	-	0.2
0.0	-	0.2	-	-	0.0	7.5	-	-	-	0.0	-	0.2
0.0	-	0.4	-	-	0.0	18.9	-	-	-	0.0	-	0.4
0.0	-	0.4	-	-	0.0	18.9	-	-	-	0.0	-	0.4
0.0	-	0.5	-	-	0.0	21.9	-	-	-	0.0	-	0.5
0.0	-	0.5	-	-	0.0	21.9	-	-	-	0.0	-	0.5
1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
1	-	16	-	-	1	738	-	-	-	1	-	16

San Pedro Waterfront

Mitigated Alternative 3 Toxic Pollutant Emissions

Year: 2037

Year (t/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	492											
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		492	-	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	20,780											
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		20,780	-	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	589											
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		589	-	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	9,938											
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		9,938	-	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	203											
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0	-
Total Precautionary Zone - North-Bound		203	-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0	-
Precautionary Zone - South-Bound	Diesel Engines	7,680											
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5	-
Total Precautionary Zone - South-Bound		7,680	-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	609											
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.2	0.4	0.2	-	0.2	-
Total Outer Harbor Zone1		609	-	0.2	0.0	0.1	0.0	0.2	0.4	0.2	-	0.2	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,523											
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	0.4	-
Total Outer Harbor Zone2		1,523	-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	0.4	-
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,772											
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	0.5	-
Total Inner Harbor Zone		1,772	-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	0.5	-
Hoteling	Diesel Engines	6,441											
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3	-
Total Hoteling		6,441	-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3	-
		50,026	-	21	1	11	1	15	44	21	-	16	-

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
0.0	-	0.2	-	-	0.0	7.5	-	-	-	0.0	-	0.2
0.0	-	0.2	-	-	0.0	7.5	-	-	-	0.0	-	0.2
0.0	-	0.4	-	-	0.0	18.9	-	-	-	0.0	-	0.4
0.0	-	0.4	-	-	0.0	18.9	-	-	-	0.0	-	0.4
0.0	-	0.5	-	-	0.0	21.9	-	-	-	0.0	-	0.5
0.0	-	0.5	-	-	0.0	21.9	-	-	-	0.0	-	0.5
1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
1	-	16	-	-	1	738	-	-	-	1	-	16

San Pedro Waterfront

70-Year Average Calculations		Mitigated Alternative 3												
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year							
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
DPM														
Sea / Fairway - North-Bound	Diesel Engines	569	2,024	2,024	1,667	1,667	492	492	492	492	492	492	492	492
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	24,047	85,494	85,494	70,418	70,418	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	630	1,501	1,501	1,099	1,099	589	589	589	589	589	589	589	589
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	10,623	25,308	25,308	18,526	18,526	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	215	449	449	378	378	203	203	203	203	203	203	203	203
Precautionary Zone - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - North-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - South-Bound	Diesel Engines	8,135	16,993	16,993	14,315	14,315	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680
Precautionary Zone - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - South-Bound</i>			-	-	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	574	-	-	-	609	609	609	609	609	609	609	609	609
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>			-	-	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,702	5,053	5,053	4,257	4,257	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone2</i>			-	-	-	-	-	-	-	-	-	-	-	-
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Diesel Engines	1,980	5,880	5,880	4,954	4,954	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Boiler		-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Inner Harbor Zone</i>			-	-	-	-	-	-	-	-	-	-	-	-
Hoteling	Diesel Engines	9,548	75,504	75,504	46,116	46,116	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441
Hoteling	Boiler		-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Hoteling</i>			-	-	-	-	-	-	-	-	-	-	-	-

San Pedro Waterfront

Evaluation Year																Evaluation Year	
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492	492
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780	20,780
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938	9,938
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680	7,680
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609	609
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523	1,523
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772	1,772
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441	6,441

San Pedro Waterfront

70-Year Average Calculations		Mitigated Alternative 3												
		70-year average	Project Start Year 2009	Evaluation Year					Evaluation Year					
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
PM from OGV boilers														
Sea / Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>														
Sea / Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>														
Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>														
Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>														
Precautionary Zone - North-Bound	Diesel Engines	8	17	14	14	7	7	7	7	7	7	7	7	
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - North-Bound</i>														
Precautionary Zone - South-Bound	Diesel Engines	300	626	527	527	283	283	283	283	283	283	283	283	
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - South-Bound</i>														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	28	-	-	-	30	30	30	30	30	30	30	30	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone1</i>														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	84	250	211	211	75	75	75	75	75	75	75	75	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone2</i>														
Inner Harbor Zone (maneuvering through main channel: inner t	Diesel Engines	98	291	245	245	88	88	88	88	88	88	88	88	
Inner Harbor Zone (maneuvering through main channel: inner t	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Inner Harbor Zone</i>														
Hoteling	Diesel Engines	2,614	5,460	4,600	4,600	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	
Hoteling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Hoteling</i>														

San Pedro Waterfront

Evaluation Year																Evaluation Year	
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468

San Pedro Waterfront

70-Year Average Calculations		Mitigated Alternative 3												
		70-year average	Project Start Year 2009	Evaluation Year					Evaluation Year					
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
VOC from OGV boilers														
Sea / Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>														
Sea / Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>														
Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>														
Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>														
Precautionary Zone - North-Bound	Diesel Engines	2	2	2	2	2	2	2	2	2	2	2	2	
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - North-Bound</i>														
Precautionary Zone - South-Bound	Diesel Engines	88	82	86	86	88	88	88	88	88	88	88	88	
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - South-Bound</i>														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Diesel Engines	9	-	-	-	9	9	9	9	9	9	9	9	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone1</i>														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	24	33	34	34	23	23	23	23	23	23	23	23	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone2</i>														
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Diesel Engines	28	38	40	40	27	27	27	27	27	27	27	27	
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Inner Harbor Zone</i>														
Hoteling	Diesel Engines	764	719	749	749	766	766	766	766	766	766	766	766	
Hoteling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Hoteling</i>														

San Pedro Waterfront

Evaluation Year																Evaluation Year	
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

Mitigated Alternative 3 Toxic Pollutant Emissions

70-Year Average

Year (lb/yr)	Spatial Allocation	Power Type	DPM	VOC							PM		
				Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	
	Sea / Fairway - North-Bound	Diesel Engines	569										
	Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - North-Bound</i>		<i>569</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Sea / Fairway - South-Bound	Diesel Engines	24,047										
	Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - South-Bound</i>		<i>24,047</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - North-Bound	Diesel Engines	630										
	Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - North-Bound</i>		<i>630</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - South-Bound	Diesel Engines	10,623										
	Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - South-Bound</i>		<i>10,623</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Precautionary Zone - North-Bound	Diesel Engines	215										
	Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	-
	<i>Total Precautionary Zone - North-Bound</i>		<i>215</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>-</i>
	Precautionary Zone - South-Bound	Diesel Engines	8,135										
	Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	-
	<i>Total Precautionary Zone - South-Bound</i>		<i>8,135</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>-</i>
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	574										
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	0.2	0.0	0.1	0.0	0.1	0.4	0.2	-	-
	<i>Total Outer Harbor Zone1</i>		<i>574</i>	<i>-</i>	<i>0.2</i>	<i>0.0</i>	<i>0.1</i>	<i>0.0</i>	<i>0.1</i>	<i>0.4</i>	<i>0.2</i>	<i>-</i>	<i>-</i>
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	1,702										
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.5	0.0	0.3	0.0	0.4	1.1	0.5	-	-
	<i>Total Outer Harbor Zone2</i>		<i>1,702</i>	<i>-</i>	<i>0.5</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.4</i>	<i>1.1</i>	<i>0.5</i>	<i>-</i>	<i>-</i>
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1,980										
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.6	0.0	0.3	0.0	0.5	1.3	0.6	-	-
	<i>Total Inner Harbor Zone</i>		<i>1,980</i>	<i>-</i>	<i>0.6</i>	<i>0.0</i>	<i>0.3</i>	<i>0.0</i>	<i>0.5</i>	<i>1.3</i>	<i>0.6</i>	<i>-</i>	<i>-</i>
	Hoteling	Diesel Engines	9,548										
	Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.6	17.4	-	-
	<i>Total Hoteling</i>		<i>9,548</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.6</i>	<i>17.4</i>	<i>-</i>	<i>-</i>

San Pedro Waterfront

Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.0	-	0.0	-	0.0	-	-	0.0	2.0	-	-	-	0.0	-	0.0
0.0	-	0.0	-	0.0	-	-	0.0	2.0	-	-	-	0.0	-	0.0
1.6	-	0.1	-	1.6	-	-	0.1	74.9	-	-	-	0.1	-	1.6
1.6	-	0.1	-	1.6	-	-	0.1	74.9	-	-	-	0.1	-	1.6
0.2	-	0.0	-	0.2	-	-	0.0	7.1	-	-	-	0.0	-	0.2
0.2	-	0.0	-	0.2	-	-	0.0	7.1	-	-	-	0.0	-	0.2
0.5	-	0.0	-	0.5	-	-	0.0	21.1	-	-	-	0.0	-	0.5
0.5	-	0.0	-	0.5	-	-	0.0	21.1	-	-	-	0.0	-	0.5
0.5	-	0.0	-	0.5	-	-	0.0	24.5	-	-	-	0.0	-	0.5
0.5	-	0.0	-	0.5	-	-	0.0	24.5	-	-	-	0.0	-	0.5
14.1	-	1.3	-	14.4	-	-	1.3	653.5	-	-	-	0.7	-	14.4
14.1	-	1.3	-	14.4	-	-	1.3	653.5	-	-	-	0.7	-	14.4

San Pedro Waterfront

Unmitigated Alternative 4 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>43.2</i>	<i>78.2</i>	<i>19.6</i>	<i>549.7</i>	<i>78.2</i>	<i>62.6</i>	<i>752.5</i>	<i>20.7</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.8</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.
*Emissions = Engine Power * Load Factor * Emission Factor * Time*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 - (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
 1 lb = 453.59

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3 All years

San Pedro Waterfront

Unmitigated Alternative 4 Criteria Pollutant Emissions

Year: 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.2	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.7	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.6	16.7	13.4	171.8	4.3	
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	

First Peak Hour Scenario (per vessel)

CO	49	88	22	626	92	74	940	24
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First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors

Second Peak Hour Scenario (per vessel)

CO	19	34	9	242	37	29	385	9
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Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = \frac{1.053}{1 \text{ lb} = 453.59}$$

Assumptions

- 1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
- 2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- 3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- 4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0 All years

San Pedro Waterfront

Unmitigated Alternative 4 Criteria Pollutant Emissions
Year: 2011, 2015, 2022, 2037

Peak Day (lb/day) for Single Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - South-Bound	Diesel Engines	115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Fairway - North-Bound	Diesel Engines	85.6	155.0	38.9	1,089.4	155.0	124.0	1,491.4	41.0
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		85.6	155.0	38.9	1,089.4	155.0	124.0	1,491.4	41.0
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		24	42	11	301	44	35	450	11
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.7	2.65
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	136.0	3.34
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.81
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.2	158.2	3.88
Hotelling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.47
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.79
Total Hotelling		211.0	372.4	96.2	2,674.0	406.6	325.3	4,312.2	101.3
Outer Harbor Berths per Vessel - Peak Day (lb/day)		673	1,207	306	8,547	1,246	997	12,453	322
Inner Harbor Berths per Vessel - Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2011 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304
2015 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2015 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304
2022 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2022 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304
2037 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2037 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels	
	bound to Inner Harbor	bound to Outer Harbor
2011	3	0
2015	3	0
2022	3	0
2037	3	0

San Pedro Waterfront

Unmitigated Alternative 4 Criteria Pollutant Emissions
Year: 2015, 2022, 2037

Peak Day (lb/day) for Single Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - South-Bound	Diesel Engines	134.4	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		134.4	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Fairway - North-Bound	Diesel Engines	98.6	178.5	44.8	1,254.6	178.5	142.8	1,717.7	47.2
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		98.6	178.5	44.8	1,254.6	178.5	142.8	1,717.7	47.2
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.2
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		27	48	12	339	50	40	502	13
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
Total Outer Harbor Zone1		6.1	10.9	2.7	77.6	11.5	9.2	118.1	2.95
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.60
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.19
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
Total Inner Harbor Zone		8.9	15.8	4.0	112.9	16.7	13.4	171.8	4.3
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	106.97
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.79
Total Hotelling		228.8	404.6	104.2	2,900.0	438.8	351.0	4,621.8	109.8
Outer Harbor Berths per Vessel - Peak Day (lb/day)		760	1,299	329	9,193	1,338	1,070	13,338	347
Inner Harbor Berths per Vessel - Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = 1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006}$$

$$1 \text{ lb} = 453.59 \text{ grams}$$

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels	Activity - Vessels
	bound to Inner Harbor	bound to Outer Harbor
2011	0	0
2015	0	0
2022	0	0
2037	0	0

San Pedro Waterfront

Unmitigated Alternative 4 Criteria Pollutant Emissions
 Year: 2011, 2015, 2022, 2037

Total Peak Day (lb/day) for all Vessels

	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
2011 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2015 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2015 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2022 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2022 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2037 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2037 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304

San Pedro Waterfront

Unmitigated Alternative 4 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

8-Hour (lb/8-hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	11.5	20.8	5.2	145.9	20.8	16.6	199.8	5.5	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>11.5</i>	<i>20.8</i>	<i>5.2</i>	<i>145.9</i>	<i>20.8</i>	<i>16.6</i>	<i>199.8</i>	<i>5.5</i>	0.85
Sea / Fairway - South-Bound	Diesel Engines	14.5	26.2	6.6	184.4	26.2	21.0	252.5	6.9	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>14.5</i>	<i>26.2</i>	<i>6.6</i>	<i>184.4</i>	<i>26.2</i>	<i>21.0</i>	<i>252.5</i>	<i>6.9</i>	1.07
Fairway - North-Bound	Diesel Engines	10.7	19.4	4.9	136.2	19.4	15.5	186.4	5.1	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>10.7</i>	<i>19.4</i>	<i>4.9</i>	<i>136.2</i>	<i>19.4</i>	<i>15.5</i>	<i>186.4</i>	<i>5.1</i>	1.21
Fairway - South-Bound	Diesel Engines	5.4	9.8	2.5	68.7	9.8	7.8	94.1	2.6	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>5.4</i>	<i>9.8</i>	<i>2.5</i>	<i>68.7</i>	<i>9.8</i>	<i>7.8</i>	<i>94.1</i>	<i>2.6</i>	0.61
Precautionary Zone - North-Bound	Diesel Engines	2.6	4.7	1.2	32.8	4.7	3.7	44.9	1.2	
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.0	
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>4.7</i>	<i>1.2</i>	<i>33.2</i>	<i>4.9</i>	<i>3.9</i>	<i>49.7</i>	<i>1.3</i>	0.63
Precautionary Zone - South-Bound	Diesel Engines	2.9	5.3	1.3	37.2	5.3	4.2	50.9	1.4	
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.4	0.3	0.2	5.4	0.0	
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>5.3</i>	<i>1.3</i>	<i>37.6</i>	<i>5.5</i>	<i>4.4</i>	<i>56.3</i>	<i>1.4</i>	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	1.2	0.3	8.7	1.2	1.0	11.9	0.3	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.01	-	0.006	0.1	0.08	0.06	1.7	0.01	
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>8.8</i>	<i>1.3</i>	<i>1.1</i>	<i>13.6</i>	<i>0.3</i>	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.5	0.4	10.9	1.5	1.2	14.9	0.4	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.5</i>	<i>0.4</i>	<i>11.0</i>	<i>1.6</i>	<i>1.3</i>	<i>17.0</i>	<i>0.4</i>	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.8	0.5	12.7	1.8	1.4	17.3	0.5	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.5</i>	<i>12.9</i>	<i>1.9</i>	<i>1.5</i>	<i>19.8</i>	<i>0.5</i>	0.32
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	12
First Max 8-Hour Scenario (per vessel)		50	91	23	639	91	73	889	24	
First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Max 8-Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	
Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.										

$Emissions = Engine\ Power * Load\ Factor * Emission\ Factor * Time$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Assumptions

1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.
3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak 8-hour emissions assume no VSRP.

For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 2 vessels:

3 All years

San Pedro Waterfront

Unmitigated Alternative 4 Criteria Pollutant Emissions

Year: 2015, 2022, 2037

8-Hour (lb/8-hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>13.3</i>	<i>24.1</i>	<i>6.0</i>	<i>169.1</i>	<i>24.1</i>	<i>19.2</i>	<i>231.6</i>	<i>6.4</i>	0.85
Sea / Fairway - South-Bound	Diesel Engines	16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>16.8</i>	<i>30.4</i>	<i>7.6</i>	<i>213.7</i>	<i>30.4</i>	<i>24.3</i>	<i>292.6</i>	<i>8.0</i>	1.07
Fairway - North-Bound	Diesel Engines	12.3	22.3	5.6	156.8	22.3	17.8	214.7	5.9	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>12.3</i>	<i>22.3</i>	<i>5.6</i>	<i>156.8</i>	<i>22.3</i>	<i>17.8</i>	<i>214.7</i>	<i>5.9</i>	1.21
Fairway - South-Bound	Diesel Engines	6.2	11.3	2.8	79.1	11.3	9.0	108.3	3.0	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>6.2</i>	<i>11.3</i>	<i>2.8</i>	<i>79.1</i>	<i>11.3</i>	<i>9.0</i>	<i>108.3</i>	<i>3.0</i>	0.61
Precautionary Zone - North-Bound	Diesel Engines	2.9	5.3	1.3	37.0	5.3	4.2	50.7	1.4	
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.0	
<i>Total Precautionary Zone - North-Bound</i>		<i>2.9</i>	<i>5.3</i>	<i>1.3</i>	<i>37.4</i>	<i>5.5</i>	<i>4.4</i>	<i>55.4</i>	<i>1.4</i>	0.63
Precautionary Zone - South-Bound	Diesel Engines	3.3	6.0	1.5	41.9	6.0	4.8	57.4	1.6	
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.4	0.3	0.2	5.4	0.0	
<i>Total Precautionary Zone - South-Bound</i>		<i>3.3</i>	<i>6.0</i>	<i>1.5</i>	<i>42.4</i>	<i>6.2</i>	<i>5.0</i>	<i>62.8</i>	<i>1.6</i>	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.8	1.4	0.3	9.6	1.4	1.1	13.1	0.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.01	-	0.006	0.1	0.08	0.06	1.7	0.01	
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>1.4</i>	<i>0.3</i>	<i>9.7</i>	<i>1.4</i>	<i>1.2</i>	<i>14.8</i>	<i>0.4</i>	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.7	0.4	12.0	1.7	1.4	16.4	0.4	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.7</i>	<i>0.4</i>	<i>12.1</i>	<i>1.8</i>	<i>1.4</i>	<i>18.5</i>	<i>0.5</i>	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	2.0	0.5	13.9	2.0	1.6	19.1	0.5	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>2.0</i>	<i>0.5</i>	<i>14.1</i>	<i>2.1</i>	<i>1.7</i>	<i>21.5</i>	<i>0.5</i>	0.32
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>19.1</i>	<i>33.7</i>	<i>8.7</i>	<i>241.7</i>	<i>36.6</i>	<i>29.3</i>	<i>385.1</i>	<i>9.1</i>	12

First Max 8-Hour Scenario (per vessel)

First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors

Second Max 8-Hour Scenario (per vessel)

Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

- 1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.
- 2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.
- 3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.
- 4. Peak 8-hour emissions assume no VSRP.

For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 3 vessels:

0 All years

San Pedro Waterfront

Alternative 4 Unmitigated Criteria Pollutant Emissions

Year: 2011

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	183.5	250.2	83.4	2,246.7	250.2	200.1	1,918.0	87.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		183.5	250.2	83.4	2,246.7	250.2	200.1	1,918.0	87.8
Sea / Fairway - South-Bound	Diesel Engines	231.8	316.2	105.4	2,839.3	316.2	252.9	2,423.9	111.0
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		231.8	316.2	105.4	2,839.3	316.2	252.9	2,423.9	111.0
Fairway - North-Bound	Diesel Engines	137.5	187.5	62.5	1,683.5	187.5	150.0	1,437.2	65.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		137.5	187.5	62.5	1,683.5	187.5	150.0	1,437.2	65.8
Fairway - South-Bound	Diesel Engines	69.4	94.6	31.5	849.5	94.6	75.7	725.2	33.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		69.4	94.6	31.5	849.5	94.6	75.7	725.2	33.2
Precautionary Zone - North-Bound	Diesel Engines	41.3	56.3	18.8	505.2	56.3	45.0	431.3	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		41.9	56.3	19.1	511.0	58.5	46.8	476.8	20.0
Precautionary Zone - South-Bound	Diesel Engines	46.8	63.8	21.3	572.6	63.8	51.0	488.8	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		47.4	63.8	21.6	579.2	66.3	53.0	540.3	22.7
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.0	14.9	5.0	134.1	14.9	11.9	114.5	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		11.2	14.9	5.1	136.1	15.7	12.5	130.5	5.3
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	13.7	18.7	6.2	167.7	18.7	14.9	143.1	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		13.9	18.7	6.3	170.2	19.7	15.7	163.1	6.7
Inner Harbor Zone (maneuvering through main channel: inn	Diesel Engines	15.9	21.7	7.2	195.1	21.7	17.4	166.5	7.6
Inner Harbor Zone (maneuvering through main channel: inn	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		16.2	21.7	7.3	198.1	22.8	18.3	189.8	7.7
Hoteling	Diesel Engines	205.7	280.5	93.5	2,519.4	280.5	224.4	2,150.8	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hoteling		211.0	280.5	96.1	2,575.0	301.7	241.3	2,587.3	101.3

Alternative 4 Unmitigated Criteria Pollutant Emissions

Year: 2011

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	608	820	277	7,434	846	677	6,831	291
North-Bound Single Vessel Average Day (ton/day)	0.31	0.41	0.14	3.76	0.43	0.34	3.45	0.15
South-Bound Single Vessel Average Day (ton/day)	0.30	0.41	0.14	3.61	0.42	0.33	3.38	0.14
Temporal Allocation								
2011 Total Annual Emissions (ton/yr)	81	105	37	985	113	90	910	39

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 $1 lb = 453.59$ grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = 53%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 4 Unmitigated Criteria Pollutant Emissions

Year: 2015

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	183.5	250.2	83.4	2,237.1	250.2	200.1	1,918.0	87.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		183.5	250.2	83.4	2,237.1	250.2	200.1	1,918.0	87.8
Sea / Fairway - South-Bound	Diesel Engines	231.8	316.2	105.4	2,827.1	316.2	252.9	2,423.9	111.0
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		231.8	316.2	105.4	2,827.1	316.2	252.9	2,423.9	111.0
Fairway - North-Bound	Diesel Engines	137.5	187.5	62.5	1,676.3	187.5	150.0	1,437.2	65.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		137.5	187.5	62.5	1,676.3	187.5	150.0	1,437.2	65.8
Fairway - South-Bound	Diesel Engines	69.4	94.6	31.5	845.8	94.6	75.7	725.2	33.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		69.4	94.6	31.5	845.8	94.6	75.7	725.2	33.2
Precautionary Zone - North-Bound	Diesel Engines	41.3	56.3	18.8	503.1	56.3	45.0	431.3	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		41.8	56.3	19.0	508.8	58.5	46.8	476.8	20.0
Precautionary Zone - South-Bound	Diesel Engines	46.8	63.8	21.3	570.1	63.8	51.0	488.8	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		47	64	22	577	66	53	540	23
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.0	14.9	5.0	133.6	14.9	11.9	114.5	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		11.2	14.9	5.1	135.6	15.7	12.5	130.5	5.3
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	13.7	18.7	6.2	166.9	18.7	14.9	143.1	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		13.9	18.7	6.3	169.5	19.6	15.7	163.1	6.7
Inner Harbor Zone (maneuvering through main channel: in)	Diesel Engines	15.9	21.7	7.2	194.3	21.7	17.4	166.5	7.6
Inner Harbor Zone (maneuvering through main channel: in)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		16.2	21.7	7.4	197.2	22.9	18.3	189.8	7.8
Hoteling	Diesel Engines	205.7	280.5	93.5	2,508.6	280.5	224.4	2,150.8	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hoteling		211.0	280.5	96.2	2,564.2	301.7	241.4	2,587.3	101.3

Alternative 4 Unmitigated Criteria Pollutant Emissions

Year: 2015

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	608	620	277	7,402	846	677	6,831	291
North-Bound Single Vessel Average Day (ton/day)	0.31	0.41	0.14	3.74	0.43	0.34	3.45	0.15
South-Bound Single Vessel Average Day (ton/day)	0.30	0.41	0.14	3.66	0.42	0.33	3.38	0.14
Temporal Allocation								
2015 Total Annual Emissions (lb/yr)	83	112	38	1,987	111	92	820	40

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NOx = 59%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 4 Unmitigated Criteria Pollutant Emissions
Year: 2022

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	183.5	250.2	83.4	2,220.0	250.2	200.1	1,918.0	87.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		183.5	250.2	83.4	2,220.0	250.2	200.1	1,918.0	87.8
Sea / Fairway - South-Bound	Diesel Engines	231.8	316.2	105.4	2,805.5	316.2	252.9	2,423.9	111.0
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		231.8	316.2	105.4	2,805.5	316.2	252.9	2,423.9	111.0
Fairway - North-Bound	Diesel Engines	137.5	187.5	62.5	1,663.4	187.5	150.0	1,437.2	65.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		137.5	187.5	62.5	1,663.4	187.5	150.0	1,437.2	65.8
Fairway - South-Bound	Diesel Engines	69.4	94.6	31.5	839.3	94.6	75.7	725.2	33.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		69.4	94.6	31.5	839.3	94.6	75.7	725.2	33.2
Precautionary Zone - North-Bound	Diesel Engines	41.3	56.3	18.8	499.2	56.3	45.0	431.3	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		41.8	56.3	19.0	505.0	58.5	46.8	476.8	20.0
Precautionary Zone - South-Bound	Diesel Engines	46.8	63.8	21.3	565.8	63.8	51.0	488.8	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		47	64	22	572	66	53	540	23
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.0	14.9	5.0	132.5	14.9	11.9	114.5	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		11.2	14.9	5.1	134.5	15.7	12.5	130.5	5.3
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	13.7	18.7	6.2	165.7	18.7	14.9	143.1	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		13.9	18.7	6.3	168.2	19.6	15.7	163.1	6.7
Inner Harbor Zone (maneuvering through main channel, inr)	Diesel Engines	15.9	21.7	7.2	192.8	21.7	17.4	166.5	7.6
Inner Harbor Zone (maneuvering through main channel, inr)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		16.2	21.7	7.4	195.7	22.9	18.3	189.8	7.8
Hoteling	Diesel Engines	205.7	280.5	93.5	2,489.4	280.5	224.4	2,150.8	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hoteling		211.0	280.5	96.2	2,544.9	301.7	241.4	2,587.3	101.3

Alternative 4 Unmitigated Criteria Pollutant Emissions
Year: 2022

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	608	820	271	7,346	846	677	6,831	291
North-Bound Single Vessel Average Day (ton/day)	0.31	0.41	0.14	3.72	0.43	0.34	3.45	0.15
South-Bound Single Vessel Average Day (ton/day)	0.30	0.41	0.14	3.63	0.42	0.33	3.38	0.14
Temporal Allocation								
2022 Total Annual Emissions (ton/yr)	80	112	38	990	115	90	930	40

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NO_x Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NO_x Emission Factor * % IMO vessels) + (non-IMO NO_x Emission Factor * % non-IMO vessels) * Time * 2 (1-Way) Trips * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = 69%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 4 Unmitigated Criteria Pollutant Emissions

Year: 2037

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	183.5	250.2	83.4	2,205.5	250.2	200.1	1,918.0	87.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>183.5</i>	<i>250.2</i>	<i>83.4</i>	<i>2,205.5</i>	<i>250.2</i>	<i>200.1</i>	<i>1,918.0</i>	<i>87.8</i>
Sea / Fairway - South-Bound	Diesel Engines	231.8	316.2	105.4	2,787.2	316.2	252.9	2,423.9	111.0
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>231.8</i>	<i>316.2</i>	<i>105.4</i>	<i>2,787.2</i>	<i>316.2</i>	<i>252.9</i>	<i>2,423.9</i>	<i>111.0</i>
Fairway - North-Bound	Diesel Engines	137.5	187.5	62.5	1,652.6	187.5	150.0	1,437.2	65.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>137.5</i>	<i>187.5</i>	<i>62.5</i>	<i>1,652.6</i>	<i>187.5</i>	<i>150.0</i>	<i>1,437.2</i>	<i>65.8</i>
Fairway - South-Bound	Diesel Engines	69.4	94.6	31.5	833.9	94.6	75.7	725.2	33.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>69.4</i>	<i>94.6</i>	<i>31.5</i>	<i>833.9</i>	<i>94.6</i>	<i>75.7</i>	<i>725.2</i>	<i>33.2</i>
Precautionary Zone - North-Bound	Diesel Engines	41.3	56.3	18.8	496.0	56.3	45.0	431.3	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>41.8</i>	<i>56.3</i>	<i>19.0</i>	<i>501.8</i>	<i>58.5</i>	<i>46.8</i>	<i>476.8</i>	<i>20.0</i>
Precautionary Zone - South-Bound	Diesel Engines	46.8	63.8	21.3	562.1	63.8	51.0	488.8	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>47</i>	<i>64</i>	<i>22</i>	<i>569</i>	<i>66</i>	<i>53</i>	<i>540</i>	<i>23</i>
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	11.0	14.9	5.0	131.7	14.9	11.9	114.5	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
<i>Total Outer Harbor Zone1</i>		<i>11.2</i>	<i>14.9</i>	<i>5.1</i>	<i>133.7</i>	<i>15.7</i>	<i>12.5</i>	<i>130.5</i>	<i>5.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	13.7	18.7	6.2	164.6	18.7	14.9	143.1	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
<i>Total Outer Harbor Zone2</i>		<i>13.9</i>	<i>18.7</i>	<i>6.3</i>	<i>167.1</i>	<i>19.7</i>	<i>15.7</i>	<i>163.1</i>	<i>6.7</i>
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	15.9	21.7	7.2	191.5	21.7	17.4	166.5	7.6
Inner Harbor Zone (maneuvering through main channel)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
<i>Total Inner Harbor Zone</i>		<i>16.2</i>	<i>21.7</i>	<i>7.4</i>	<i>194.5</i>	<i>22.9</i>	<i>18.3</i>	<i>189.8</i>	<i>7.8</i>
Hoteling	Diesel Engines	205.7	280.5	93.5	2,473.2	280.5	224.4	2,150.8	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
<i>Total Hoteling</i>		<i>211.0</i>	<i>280.5</i>	<i>96.2</i>	<i>2,528.8</i>	<i>301.7</i>	<i>241.4</i>	<i>2,587.3</i>	<i>101.3</i>

Alternative 4 Unmitigated Criteria Pollutant Emissions

Year: 2037

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	608	820	277	7,299	846	677	6,831	291
North-Bound Single Vessel Average Day (ton/day)	0.31	0.41	0.14	3.69	0.43	0.34	3.45	0.15
South-Bound Single Vessel Average Day (ton/day)	0.30	0.41	0.14	3.61	0.42	0.33	3.38	0.14
Temporal Allocation								
<i>2037 Total Annual Emissions (ton/yr)</i>	<i>83</i>	<i>112</i>	<i>38</i>	<i>993</i>	<i>115</i>	<i>92</i>	<i>930</i>	<i>40</i>

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels) * Time * 2 (1-Way) Trips * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NOx = 78%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Unmitigated Alternative 4 Criteria Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,434	1,955	652	17,561	1,955	1,564	14,991	686
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,434</i>	<i>1,955</i>	<i>652</i>	<i>17,561</i>	<i>1,955</i>	<i>1,564</i>	<i>14,991</i>	<i>686</i>
Sea / Fairway - South-Bound	Diesel Engines	60,555	82,575	27,525	741,578	82,575	66,060	633,074	28,984
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>60,555</i>	<i>82,575</i>	<i>27,525</i>	<i>741,578</i>	<i>82,575</i>	<i>66,060</i>	<i>633,074</i>	<i>28,984</i>
Fairway - North-Bound	Diesel Engines	1,074	1,465	488	13,158	1,465	1,172	11,233	514
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,074</i>	<i>1,465</i>	<i>488</i>	<i>13,158</i>	<i>1,465</i>	<i>1,172</i>	<i>11,233</i>	<i>514</i>
Fairway - South-Bound	Diesel Engines	18,117	24,705	8,235	221,869	24,705	19,764	189,406	8,672
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>18,117</i>	<i>24,705</i>	<i>8,235</i>	<i>221,869</i>	<i>24,705</i>	<i>19,764</i>	<i>189,406</i>	<i>8,672</i>
Precautionary Zone - North-Bound	Diesel Engines	322	440	147	3,949	440	352	3,371	154
Precautionary Zone - North-Bound	Boiler	4	-	2	45	17	14	355	2
<i>Total Precautionary Zone - North-Bound</i>		<i>327</i>	<i>440</i>	<i>149</i>	<i>3,994</i>	<i>457</i>	<i>366</i>	<i>3,726</i>	<i>157</i>
Precautionary Zone - South-Bound	Diesel Engines	12,212	16,653	5,551	149,553	16,653	13,322	127,671	5,845
Precautionary Zone - South-Bound	Boiler	163	-	82	1,713	653	522	13,460	86
<i>Total Precautionary Zone - South-Bound</i>		<i>12,375</i>	<i>16,653</i>	<i>5,632</i>	<i>151,266</i>	<i>17,305</i>	<i>13,844</i>	<i>141,131</i>	<i>5,931</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	3,683	5,022	1,674	45,100	5,022	4,018	38,502	1,763
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	65	-	33	685	261	209	5,382	34
<i>Total Outer Harbor Zone2</i>		<i>3,748</i>	<i>5,022</i>	<i>1,707</i>	<i>45,785</i>	<i>5,283</i>	<i>4,228</i>	<i>43,883</i>	<i>1,797</i>
Inner Harbor Zone (maneuvering through main channel: inn	Diesel Engines	4,285	5,844	1,948	52,481	5,844	4,675	44,802	2,051
Inner Harbor Zone (maneuvering through main channel: inn	Boiler	76	-	38	797	304	243	6,263	40
<i>Total Inner Harbor Zone</i>		<i>4,361</i>	<i>5,844</i>	<i>1,986</i>	<i>53,278</i>	<i>6,147</i>	<i>4,918</i>	<i>51,064</i>	<i>2,091</i>
Hotelling	Diesel Engines	55,341	75,465	25,155	677,724	75,465	60,372	578,563	26,488
Hotelling	Boiler	1,423	-	712	14,945	5,693	4,555	117,423	749
<i>Total Hotelling</i>		<i>56,764</i>	<i>75,465</i>	<i>25,867</i>	<i>692,669</i>	<i>81,158</i>	<i>64,926</i>	<i>695,986</i>	<i>27,237</i>
<i>Total (lb/yr)</i>		<i>158,756</i>	<i>214,124</i>	<i>72,240</i>	<i>1,941,158</i>	<i>221,051</i>	<i>176,841</i>	<i>1,784,496</i>	<i>76,069</i>
boilers only						6,928			912
Average Day (lb/day) - Transit		279.4	379.9	127.1	3,420.5	383.3	306.6	2,982.2	133.8
Average Day (lb/day) - Hotelling		155.5	206.8	70.9	1897.7	222.4	177.9	1906.8	74.6

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

1. Maximum of 1 ship per day per berth.
2. All berths occupied.
3. Annual emissions are based on residual fuel with 2.7% sulfur content.
4. Maximum of 2 one-way trips per vessel.
5. IMO compliance rate for NOx = 53%
6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2011:	269		
Percent of North-Bound Vessels:	2.9%	Inner Harbor Berths:	3
Percent of South-Bound Vessels:	97.1%	Outer Harbor Berths:	0

San Pedro Waterfront

Unmitigated Alternative 4 Criteria Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,466	1,999	666	17,875.1	1,999	1,599	15,326	702
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		1,466	1,999	666	17,875.1	1,999	1,599	15,326	702
Sea / Fairway - South-Bound	Diesel Engines	61,906	84,417	28,139	754,862.4	84,417	67,533	647,195	29,630
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		61,906	84,417	28,139	754,862.4	84,417	67,533	647,195	29,630
Fairway - North-Bound	Diesel Engines	1,098	1,498	499	13,393.9	1,498	1,198	11,484	526
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,098	1,498	499	13,393.9	1,498	1,198	11,484	526
Fairway - South-Bound	Diesel Engines	18,521	25,256	8,419	225,843.6	25,256	20,205	193,631	8,865
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		18,521	25,256	8,419	225,843.6	25,256	20,205	193,631	8,865
Precautionary Zone - North-Bound	Diesel Engines	330	450	150	4,019.6	450	360	3,446	158
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
Total Precautionary Zone - North-Bound		334	450	152	4,065.9	467	374	3,810	160
Precautionary Zone - South-Bound	Diesel Engines	12,484	17,024	5,675	152,231.8	17,024	13,619	130,519	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
Total Precautionary Zone - South-Bound		12,651	17,024	5,758	153,983	17,691	14,153	144,279	6,063
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	-	-	-	-	-	-	-	-
Total Outer Harbor Zone1		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	3,765	5,134	1,711	45,908.3	5,134	4,107	39,360	1,802
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	67	-	33	700.2	267	213	5,502	35
Total Outer Harbor Zone2		3,832	5,134	1,745	46,608.6	5,401	4,321	44,862	1,837
Inner Harbor Zone (maneuvering through main channel: in	Diesel Engines	4,381	5,974	1,991	53,420.6	5,974	4,779	45,801	2,097
Inner Harbor Zone (maneuvering through main channel: in	Boiler	78	-	39	814.8	310	248	6,402	41
Total Inner Harbor Zone		4,459	5,974	2,030	54,235.4	6,284	5,028	52,203	2,138
Hotelling	Diesel Engines	56,575	77,148	25,716	689,864.3	77,148	61,718	591,468	27,079
Hotelling	Boiler	1,455	-	728	15,278.0	5,820	4,656	120,042	766
Total Hotelling		58,030	77,148	26,444	705,142.3	82,968	66,375	711,509	27,845
Total (lb/yr)		162,297	218,899	73,852	1,976,010	225,982	180,785	1,824,298	77,766
boilers only						7,082			932
Average Day (lb/day) - Transit		285.7	388.4	129.9	3,481.8	391.8	313.5	3,048.7	136.8
Average Day (lb/day) - Hotelling		159.0	211.4	72.4	1,931.9	227.3	181.8	1,949.3	76.3

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = 1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}$$

$$1 \text{ lb} = 453.59 \text{ grams}$$

Assumptions

1. Maximum of 1 ship per day per berth.

2. All berths occupied.

3. Annual emissions are based on residual fuel with 2.7% sulfur content.

4. Maximum of 2 one-way trips per vessel.

5. IMO compliance rate for NOx = 59%

6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions: 4% annual fleet turnover rate was assumed.

7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2015:	275		
Percent of North-Bound Vessels:	2.9%	Inner Harbor Berths:	3
Percent of South-Bound Vessels:	97.1%	Outer Harbor Berths:	0

San Pedro Waterfront

Unmitigated Alternative 4 Criteria Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,466	1,999	666	17,738	1,999	1,599	15,326	702
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,466</i>	<i>1,999</i>	<i>666</i>	<i>17,738</i>	<i>1,999</i>	<i>1,599</i>	<i>15,326</i>	<i>702</i>
Sea / Fairway - South-Bound	Diesel Engines	61,906	84,417	28,139	749,083	84,417	67,533	647,195	29,630
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>61,906</i>	<i>84,417</i>	<i>28,139</i>	<i>749,083</i>	<i>84,417</i>	<i>67,533</i>	<i>647,195</i>	<i>29,630</i>
Fairway - North-Bound	Diesel Engines	1,098	1,498	499	13,291	1,498	1,198	11,484	526
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,098</i>	<i>1,498</i>	<i>499</i>	<i>13,291</i>	<i>1,498</i>	<i>1,198</i>	<i>11,484</i>	<i>526</i>
Fairway - South-Bound	Diesel Engines	18,521	25,256	8,419	224,115	25,256	20,205	193,631	8,865
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>18,521</i>	<i>25,256</i>	<i>8,419</i>	<i>224,115</i>	<i>25,256</i>	<i>20,205</i>	<i>193,631</i>	<i>8,865</i>
Precautionary Zone - North-Bound	Diesel Engines	330	450	150	3,989	450	360	3,446	158
Precautionary Zone - North-Bound	Boiler	4	-	2	46	18	14	363	2
<i>Total Precautionary Zone - North-Bound</i>		<i>334</i>	<i>450</i>	<i>152</i>	<i>4,035</i>	<i>467</i>	<i>374</i>	<i>3,810</i>	<i>160</i>
Precautionary Zone - South-Bound	Diesel Engines	12,484	17,024	5,675	151,066	17,024	13,619	130,519	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751	667	534	13,760	88
<i>Total Precautionary Zone - South-Bound</i>		<i>12,651</i>	<i>17,024</i>	<i>5,758</i>	<i>152,818</i>	<i>17,691</i>	<i>14,153</i>	<i>144,279</i>	<i>6,063</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	3,765	5,134	1,711	45,557	5,134	4,107	39,360	1,802
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	67	-	33	700	267	213	5,502	35
<i>Total Outer Harbor Zone2</i>		<i>3,832</i>	<i>5,134</i>	<i>1,745</i>	<i>46,257</i>	<i>5,401</i>	<i>4,321</i>	<i>44,862</i>	<i>1,837</i>
Inner Harbor Zone (maneuvering through main channel, inner harbor)	Diesel Engines	4,381	5,974	1,991	53,012	5,974	4,779	45,801	2,097
Inner Harbor Zone (maneuvering through main channel, inner harbor)	Boiler	78	-	39	815	310	248	6,402	41
<i>Total Inner Harbor Zone</i>		<i>4,459</i>	<i>5,974</i>	<i>2,030</i>	<i>53,826</i>	<i>6,284</i>	<i>5,028</i>	<i>52,203</i>	<i>2,138</i>
Hotelling	Diesel Engines	56,575	77,148	25,716	684,583	77,148	61,718	591,468	27,079
Hotelling	Boiler	1,455	-	728	15,278	5,820	4,656	120,042	766
<i>Total Hotelling</i>		<i>58,030</i>	<i>77,148</i>	<i>26,444</i>	<i>699,861</i>	<i>82,968</i>	<i>66,375</i>	<i>711,509</i>	<i>27,845</i>
<i>Total (lb/yr)</i>		<i>162,297</i>	<i>218,899</i>	<i>73,852</i>	<i>1,961,025</i>	<i>225,982</i>	<i>180,785</i>	<i>1,824,298</i>	<i>77,766</i>
boilers only						7,082			932
Average Day (lb/day) - Transit		285.7	388.4	129.9	3,455.2	391.8	313.5	3,048.7	136.8
Average Day (lb/day) - Hotelling		159.0	211.4	72.4	1917.4	227.3	181.8	1949.3	76.3

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 69%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2022: 275
 Percent of North-Bound Vessels: 2.9% Inner Harbor Berths: 3
 Percent of South-Bound Vessels: 97.1% Outer Harbor Berths: 0

San Pedro Waterfront

Unmitigated Alternative 4 Criteria Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,466	1,999	666	17,623.0	1,999	1,599	15,326	702
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,466</i>	<i>1,999</i>	<i>666</i>	<i>17,623.0</i>	<i>1,999</i>	<i>1,599</i>	<i>15,326</i>	<i>702</i>
Sea / Fairway - South-Bound	Diesel Engines	61,906	84,417	28,139	744,215.6	84,417	67,533	647,195	29,630
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>61,906</i>	<i>84,417</i>	<i>28,139</i>	<i>744,215.6</i>	<i>84,417</i>	<i>67,533</i>	<i>647,195</i>	<i>29,630</i>
Fairway - North-Bound	Diesel Engines	1,098	1,498	499	13,205.0	1,498	1,198	11,484	526
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,098</i>	<i>1,498</i>	<i>499</i>	<i>13,205.0</i>	<i>1,498</i>	<i>1,198</i>	<i>11,484</i>	<i>526</i>
Fairway - South-Bound	Diesel Engines	18,521	25,256	8,419	222,658.2	25,256	20,205	193,631	8,865
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>18,521</i>	<i>25,256</i>	<i>8,419</i>	<i>222,658.2</i>	<i>25,256</i>	<i>20,205</i>	<i>193,631</i>	<i>8,865</i>
Precautionary Zone - North-Bound	Diesel Engines	330	450	150	3,962.9	450	360	3,446	158
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
<i>Total Precautionary Zone - North-Bound</i>		<i>334</i>	<i>450</i>	<i>152</i>	<i>4,009.2</i>	<i>467</i>	<i>374</i>	<i>3,810</i>	<i>160</i>
Precautionary Zone - South-Bound	Diesel Engines	12,484	17,024	5,675	150,084.7	17,024	13,619	130,519	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
<i>Total Precautionary Zone - South-Bound</i>		<i>12,651</i>	<i>17,024</i>	<i>5,758</i>	<i>151,836</i>	<i>17,691</i>	<i>14,153</i>	<i>144,279</i>	<i>6,063</i>
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	3,765	5,134	1,711	45,260.8	5,134	4,107	39,360	1,802
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	67	-	33	700.2	267	213	5,502	35
<i>Total Outer Harbor Zone2</i>		<i>3,832</i>	<i>5,134</i>	<i>1,745</i>	<i>45,961.1</i>	<i>5,401</i>	<i>4,321</i>	<i>44,862</i>	<i>1,837</i>
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	4,381	5,974	1,991	52,667.2	5,974	4,779	45,801	2,097
Inner Harbor Zone (maneuvering through main channel)	Boiler	78	-	39	814.8	310	248	6,402	41
<i>Total Inner Harbor Zone</i>		<i>4,459</i>	<i>5,974</i>	<i>2,030</i>	<i>53,482.0</i>	<i>6,284</i>	<i>5,028</i>	<i>52,203</i>	<i>2,138</i>
Hotelling	Diesel Engines	56,575	77,148	25,716	680,134.3	77,148	61,718	591,468	27,079
Hotelling	Boiler	1,455	-	728	15,278.0	5,820	4,656	120,042	766
<i>Total Hotelling</i>		<i>58,030</i>	<i>77,148</i>	<i>26,444</i>	<i>695,412.3</i>	<i>82,968</i>	<i>66,375</i>	<i>711,509</i>	<i>27,845</i>
<i>Total (lb/yr)</i>		<i>162,297</i>	<i>218,899</i>	<i>73,852</i>	<i>1,948,402</i>	<i>225,982</i>	<i>180,785</i>	<i>1,824,298</i>	<i>77,766</i>
boilers only						7,082			932
Average Day (lb/day) - Transit		285.7	388.4	129.9	3,432.8	391.8	313.5	3,048.7	136.8
Average Day (lb/day) - Hotelling		159.0	211.4	72.4	1,905.2	227.3	181.8	1,949.3	76.3

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 78%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2037:	275	Inner Harbor Berths:	3
Percent of North-Bound Vessels:	2.9%	Outer Harbor Berths:	0
Percent of South-Bound Vessels:	97.1%		

San Pedro Waterfront

Unmitigated Alternative 4 Toxic Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine	
Sea / Fairway - North-Bound	Diesel Engines	3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083	0.00299	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083	0.00299	
Sea / Fairway - South-Bound	Diesel Engines	4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098	0.00353	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098	0.00353	
Fairway - North-Bound	Diesel Engines	2.84938	0.77010	5.77577	0.38505	0.03273	0.06161	1.00113	0.57758	0.43501	0.00064	0.00230	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		2.84938	0.77010	5.77577	0.38505	0.03273	0.06161	1.00113	0.57758	0.43501	0.00064	0.00230	
Fairway - South-Bound	Diesel Engines	1.74129	0.47062	3.52964	0.23531	0.02000	0.03765	0.61180	0.35296	0.26584	0.00039	0.00141	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		1.74129	0.47062	3.52964	0.23531	0.02000	0.03765	0.61180	0.35296	0.26584	0.00039	0.00141	
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.12697	0.00019	0.00067	
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	-	0.00961	-	
Total Precautionary Zone - North-Bound		0.83167	0.22808	1.68596	0.11407	0.00966	0.02042	0.29916	0.17188	0.12697	0.00980	0.00067	
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.14390	0.00021	0.00076	
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	-	0.01089	-	
Total Precautionary Zone - South-Bound		0.94255	0.25849	1.91076	0.12928	0.01095	0.02314	0.33905	0.19480	0.14390	0.01110	0.00076	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ³⁷	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.03371	0.00005	0.00018	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ³⁷	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	-	0.00338	-	
Total Outer Harbor Zone1		0.22079	0.06083	0.44759	0.03043	0.00258	0.00563	0.08002	0.04591	0.03371	0.00343	0.00018	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ³⁷	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.04213	0.00006	0.00022	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ³⁷	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	-	0.00423	-	
Total Outer Harbor Zone2		0.27599	0.07604	0.55950	0.03804	0.00322	0.00704	0.10003	0.05740	0.04213	0.00429	0.00022	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.04903	0.00007	0.00026	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	-	0.00492	-	
Total Inner Harbor Zone		0.32115	0.08849	0.65105	0.04426	0.00374	0.00819	0.11640	0.06679	0.04903	0.00499	0.00026	
Hoteling	Diesel Engines	0.69121	0.18681	1.40109	0.09341	0.00794	0.01494	0.24286	0.14011	0.10553	0.00016	0.00056	
Hoteling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	-	0.01537	-	
Total Hoteling		0.69121	0.19210	1.40134	0.09610	0.00811	0.01884	0.25398	0.14539	0.10553	0.01553	0.00056	
First Peak Hour Scenario (per vessel)		1.760	0.484	3.569	0.242	0.020	0.044	0.635	0.365	0.269	0.024	0.001	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.106	0.016	0.001	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity													
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:							3	Year 2011 only					
							0	All other years					

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
0.00512	0.00320	0.00537	0.00512	0.00384	0.00243	2.22623	0.00371	0.00461	-	0.00008	0.01625	0.05604
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00512	0.00320	0.00537	0.00512	0.00384	0.00243	2.22623	0.00371	0.00461	-	0.00008	0.01625	0.05604
0.00313	0.00195	0.00328	0.00313	0.00235	0.00149	1.36047	0.00227	0.00281	-	0.00005	0.00993	0.03425
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00313	0.00195	0.00328	0.00313	0.00235	0.00149	1.36047	0.00227	0.00281	-	0.00005	0.00993	0.03425
0.00149	0.00093	0.00157	0.00149	0.00112	0.00071	0.64978	0.00108	0.00134	-	0.00002	0.00474	0.01636
0.00089	-	0.00979	-	-	0.00089	0.44485	-	-	-	0.00048	-	0.00979
0.00238	0.00093	0.01136	0.00149	0.00112	0.00160	1.09463	0.00108	0.00134	-	0.00050	0.00474	0.02674
0.00169	0.00106	0.00178	0.00169	0.00127	0.00080	0.73642	0.00123	0.00152	-	0.00003	0.00538	0.01854
0.00101	-	0.01109	-	-	0.00101	0.50417	-	-	-	0.00054	-	0.01109
0.00270	0.00106	0.01287	0.00169	0.00127	0.00181	1.24059	0.00123	0.00152	-	0.00057	0.00538	0.02963
0.00040	0.00025	0.00042	0.00040	0.00030	0.00019	0.17250	0.00029	0.00036	-	0.00001	0.00126	0.00434
0.00031	-	0.00344	-	-	0.00031	0.15659	-	-	-	0.00017	-	0.00344
0.00077	0.00123	0.01080	0.00040	0.00030	0.00020	0.13009	0.00029	0.00036	-	0.00018	0.00236	0.00770
0.00050	0.00031	0.00052	0.00050	0.00037	0.00024	0.21563	0.00036	0.00045	-	0.00001	0.00157	0.00543
0.00039	-	0.00431	-	-	0.00039	0.19573	-	-	-	0.00021	-	0.00431
0.00089	0.00031	0.00483	0.00050	0.00037	0.00063	0.41136	0.00036	0.00045	-	0.00022	0.00157	0.00973
0.00058	0.00036	0.00061	0.00058	0.00043	0.00027	0.25091	0.00042	0.00052	-	0.00001	0.00183	0.00632
0.00046	-	0.00501	-	-	0.00046	0.22776	-	-	-	0.00025	-	0.00501
0.00103	0.00036	0.00562	0.00058	0.00043	0.00073	0.47868	0.00042	0.00052	-	0.00025	0.00183	0.01133
0.00124	0.00078	0.00130	0.00124	0.00093	0.00059	0.54004	0.00090	0.00112	-	0.00002	0.00394	0.01359
0.00142	-	0.01566	-	-	0.00142	0.71176	-	-	-	0.00077	-	0.01566
0.00266	0.00078	0.01696	0.00124	0.00093	0.00201	1.25180	0.00090	0.00112	-	0.00079	0.00394	0.02025
0.005	0.002	0.027	0.003	0.002	0.004	2.460	0.002	0.003	-	0.001	0.010	0.058
0.003	0.001	0.017	0.001	0.001	0.002	1.252	0.001	0.001	-	0.001	0.004	0.029

San Pedro Waterfront

Unmitigated Alternative 4 Toxic Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346
Sea / Fairway - South-Bound	Diesel Engines	5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409
Fairway - North-Bound	Diesel Engines	3.28166	0.88693	6.65201	0.44347	0.03769	0.07095	1.15302	0.66520	0.50101	0.00074	0.00265
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		3.28166	0.88693	6.65201	0.44347	0.03769	0.07095	1.15302	0.66520	0.50101	0.00074	0.00265
Fairway - South-Bound	Diesel Engines	2.00546	0.54202	4.06512	0.27101	0.02304	0.04336	0.70462	0.40651	0.30617	0.00045	0.00162
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		2.00546	0.54202	4.06512	0.27101	0.02304	0.04336	0.70462	0.40651	0.30617	0.00045	0.00162
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.14320	0.00021	0.00076
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	-	0.00961	-
Total Precautionary Zone - North-Bound		0.93797	0.25681	1.90145	0.12844	0.01088	0.02271	0.33651	0.19343	0.14320	0.00982	0.00076
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.16229	0.00024	0.00086
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	-	0.01089	-
Total Precautionary Zone - South-Bound		1.06304	0.29105	2.15498	0.14556	0.01233	0.02574	0.38138	0.21922	0.16229	0.01113	0.00086
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Diesel Engines	0.24251	0.06654	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.03702	0.00005	0.00020
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	-	0.00338	-
Total Outer Harbor Zone1		0.24251	0.06670	0.49162	0.03336	0.00282	0.00610	0.08765	0.05032	0.03702	0.00344	0.00020
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.04628	0.00007	0.00025
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	-	0.00423	-
Total Outer Harbor Zone2		0.30313	0.08338	0.61453	0.04171	0.00353	0.00762	0.10957	0.06290	0.04628	0.00430	0.00025
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.05385	0.00008	0.00029
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	-	0.00492	-
Total Inner Harbor Zone		0.35274	0.09703	0.71509	0.04853	0.00411	0.00887	0.12749	0.07319	0.05385	0.00500	0.00029
Hoteling	Diesel Engines	0.75090	0.20295	1.52210	0.10147	0.00863	0.01624	0.26383	0.15221	0.11464	0.00017	0.00061
Hoteling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	-	0.01537	-
Total Hoteling		0.75090	0.20823	1.52235	0.10417	0.00880	0.02013	0.27496	0.15749	0.11464	0.01554	0.00061
First Peak Hour Scenario (per vessel)		1.961	0.538	3.976	0.269	0.023	0.048	0.706	0.406	0.299	0.024	0.002
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.												
Second Peak Hour Scenario (per vessel)		0.751	0.208	1.522	0.104	0.009	0.020	0.275	0.157	0.115	0.016	0.001
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.												
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:						0	Year 2011 only					
						0	All other years					

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00589	0.00368	0.00619	0.00589	0.00442	0.00280	2.56397	0.00427	0.00530	-	0.00009	0.01871	0.06454
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00589	0.00368	0.00619	0.00589	0.00442	0.00280	2.56397	0.00427	0.00530	-	0.00009	0.01871	0.06454
0.00360	0.00225	0.00378	0.00360	0.00270	0.00171	1.56687	0.00261	0.00324	-	0.00005	0.01144	0.03944
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00360	0.00225	0.00378	0.00360	0.00270	0.00171	1.56687	0.00261	0.00324	-	0.00005	0.01144	0.03944
0.00168	0.00105	0.00177	0.00168	0.00126	0.00080	0.73284	0.00122	0.00152	-	0.00003	0.00535	0.01845
0.00089	-	0.00979	-	-	0.00089	0.44485	-	-	-	0.00048	-	0.00979
0.00257	0.00105	0.01156	0.00168	0.00126	0.00169	1.17769	0.00122	0.00152	-	0.00051	0.00535	0.02823
0.00191	0.00119	0.00200	0.00191	0.00143	0.00091	0.83055	0.00138	0.00172	-	0.00003	0.00606	0.02091
0.00101	-	0.01109	-	-	0.00101	0.50417	-	-	-	0.00054	-	0.01109
0.00292	0.00119	0.01310	0.00191	0.00143	0.00192	1.33472	0.00138	0.00172	-	0.00057	0.00606	0.03200
0.00044	0.00027	0.00046	0.00044	0.00033	0.00021	0.18947	0.00032	0.00039	-	0.00001	0.00138	0.00477
0.00031	-	0.00344	-	-	0.00031	0.15659	-	-	-	0.00017	-	0.00344
0.00025	0.00027	0.00390	0.00044	0.00033	0.00052	0.34606	0.00032	0.00039	-	0.00018	0.00138	0.00821
0.00054	0.00034	0.00057	0.00054	0.00041	0.00026	0.23684	0.00039	0.00049	-	0.00001	0.00173	0.00596
0.00039	-	0.00431	-	-	0.00039	0.19573	-	-	-	0.00021	-	0.00431
0.00094	0.00034	0.00488	0.00054	0.00041	0.00065	0.43257	0.00039	0.00049	-	0.00022	0.00173	0.01027
0.00063	0.00040	0.00067	0.00063	0.00048	0.00030	0.27559	0.00046	0.00057	-	0.00001	0.00201	0.00694
0.00046	-	0.00501	-	-	0.00046	0.22776	-	-	-	0.00025	-	0.00501
0.00109	0.00040	0.00568	0.00063	0.00048	0.00076	0.50336	0.00046	0.00057	-	0.00026	0.00201	0.01195
0.00135	0.00084	0.00142	0.00135	0.00101	0.00064	0.58668	0.00098	0.00121	-	0.00002	0.00428	0.01477
0.00142	-	0.01566	-	-	0.00142	0.71176	-	-	-	0.00077	-	0.01566
0.00271	0.00084	0.01707	0.00135	0.00101	0.00206	1.29845	0.00098	0.00121	-	0.00079	0.00428	0.03043
0.006	0.002	0.028	0.004	0.003	0.004	2.617	0.003	0.003	-	0.001	0.011	0.062
0.003	0.001	0.017	0.001	0.001	0.002	1.298	0.001	0.001	-	0.001	0.004	0.030

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2011

Year (b/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	1,955										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,955</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	82,575										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>82,575</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,465										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,465</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	24,705										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>24,705</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	440										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>440</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	16,653										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.4	4.1	2.0	-	3.5
<i>Total Precautionary Zone - South-Bound</i>		<i>16,653</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>4.1</i>	<i>2.0</i>	<i>-</i>	<i>3.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,022										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.6	0.8	-	1.4
<i>Total Outer Harbor Zone2</i>		<i>5,022</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.8</i>	<i>-</i>	<i>1.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,844										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	1.9	0.9	-	1.6
<i>Total Inner Harbor Zone</i>		<i>5,844</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>1.9</i>	<i>0.9</i>	<i>-</i>	<i>1.6</i>
Hoteling	Diesel Engines	75,465										
Hoteling	Boiler		-	17.1	0.8	8.7	0.6	12.6	35.9	17.1	-	30.7
<i>Total Hoteling</i>		<i>75,465</i>	<i>-</i>	<i>17.1</i>	<i>0.8</i>	<i>8.7</i>	<i>0.6</i>	<i>12.6</i>	<i>35.9</i>	<i>17.1</i>	<i>-</i>	<i>30.7</i>
		214,124	-	21	1	11	1	15	44	21	-	37

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.3	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.3	-	-	-	0.0	-	0.1
-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	0.2	-	3.6
-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	0.2	-	3.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	0.1	-	1.4
-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	0.1	-	1.4
-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	0.1	-	1.7
-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	0.1	-	1.7
-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	1.5	-	31.3
-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	1.5	-	31.3
-	3	-	38	-	-	3	1,732	-	-	-	2	-	38

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2015

Year (b/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	1,999										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,999</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	84,417										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>84,417</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,498										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,498</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	25,256										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>25,256</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	450										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>450</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	17,024										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>17,024</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,134										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	1.4
<i>Total Outer Harbor Zone2</i>		<i>5,134</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>1.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,974										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	1.7
<i>Total Inner Harbor Zone</i>		<i>5,974</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>1.7</i>
Hoteling	Diesel Engines	77,148										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hoteling</i>		<i>77,148</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>31.4</i>
		218,899	-	21	1	11	1	16	45	21	-	38

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	4	-	39	-	-	4	1,771	-	-	-	2	-	39

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2022

Year (b/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	1,999										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,999</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	84,417										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>84,417</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,498										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,498</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	25,256										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>25,256</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	450										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>450</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	17,024										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>17,024</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,134										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	1.4
<i>Total Outer Harbor Zone2</i>		<i>5,134</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>1.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,974										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	1.7
<i>Total Inner Harbor Zone</i>		<i>5,974</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>1.7</i>
Hoteling	Diesel Engines	77,148										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hoteling</i>		<i>77,148</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>31.4</i>
		218,899	-	21	1	11	1	16	45	21	-	38

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	4	-	39	-	-	4	1,771	-	-	-	2	-	39

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2037

Year (b/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	1,999										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,999</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	84,417										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>84,417</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,498										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,498</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	25,256										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>25,256</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	450										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>450</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	17,024										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>17,024</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,134										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	1.4
<i>Total Outer Harbor Zone2</i>		<i>5,134</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>1.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,974										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	1.7
<i>Total Inner Harbor Zone</i>		<i>5,974</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>1.7</i>
Hoteling	Diesel Engines	77,148										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hoteling</i>		<i>77,148</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>31.4</i>
		218,899	-	21	1	11	1	16	45	21	-	38

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	4	-	39	-	-	4	1,771	-	-	-	2	-	39

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 4													
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year								
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
DPM															
Sea / Fairway - North-Bound	Diesel Engines	1,997	2,024	2,024	1,955	1,955	1,955	1,955	1,999	1,999	1,999	1,999	1,999	1,999	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	
Sea / Fairway - South-Bound	Diesel Engines	84,342	85,494	85,494	82,575	82,575	82,575	82,575	84,417	84,417	84,417	84,417	84,417	84,417	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	
Fairway - North-Bound	Diesel Engines	1,496	1,501	1,501	1,465	1,465	1,465	1,465	1,498	1,498	1,498	1,498	1,498	1,498	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	
Fairway - South-Bound	Diesel Engines	25,226	25,308	25,308	24,705	24,705	24,705	24,705	25,256	25,256	25,256	25,256	25,256	25,256	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	
Precautionary Zone - North-Bound	Diesel Engines	449	449	449	440	440	440	440	450	450	450	450	450	450	
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - North-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	
Precautionary Zone - South-Bound	Diesel Engines	17,002	16,993	16,993	16,653	16,653	16,653	16,653	17,024	17,024	17,024	17,024	17,024	17,024	
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Precautionary Zone - South-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,125	5,053	5,053	5,022	5,022	5,022	5,022	5,134	5,134	5,134	5,134	5,134	5,134	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone2</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	5,964	5,880	5,880	5,844	5,844	5,844	5,844	5,974	5,974	5,974	5,974	5,974	5,974	
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Inner Harbor Zone</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	
Hotelling	Diesel Engines	77,005	75,504	75,504	75,465	75,465	75,465	75,465	77,148	77,148	77,148	77,148	77,148	77,148	
Hotelling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Total Hotelling</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	

San Pedro Waterfront

Evaluation Year															Evaluation Year		
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 4													
		70-year average	Project Start Year 2009	2010	Evaluation Year 2011	2012	2013	2014	Evaluation Year 2015	2016	2017	2018	2019	2020	2021
PM from OGV boilers															
Sea / Fairway - North-Bound	Diesel Engines														
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>															
Sea / Fairway - South-Bound	Diesel Engines														
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>															
Fairway - North-Bound	Diesel Engines														
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>															
Fairway - South-Bound	Diesel Engines														
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>															
Precautionary Zone - North-Bound	Diesel Engines														
Precautionary Zone - North-Bound	Boiler	18	17	17	17	17	17	17	18	18	18	18	18	18	18
<i>Total Precautionary Zone - North-Bound</i>															
Precautionary Zone - South-Bound	Diesel Engines														
Precautionary Zone - South-Bound	Boiler	665	626	626	653	653	653	653	667	667	667	667	667	667	667
<i>Total Precautionary Zone - South-Bound</i>															
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>															
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	266	250	250	261	261	261	261	267	267	267	267	267	267	267
<i>Total Outer Harbor Zone2</i>															
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines														
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	309	291	291	304	304	304	304	310	310	310	310	310	310	310
<i>Total Inner Harbor Zone</i>															
Hotelling	Diesel Engines														
Hotelling	Boiler	5,803	5,460	5,460	5,693	5,693	5,693	5,693	5,820	5,820	5,820	5,820	5,820	5,820	5,820
<i>Total Hotelling</i>															

San Pedro Waterfront

Evaluation Year															Evaluation Year	
2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 4													
		70-year average	Project Start Year 2009	2010	Evaluation Year 2011	2012	2013	2014	Evaluation Year 2015	2016	2017	2018	2019	2020	2021
VOC from OGV boilers															
Sea / Fairway - North-Bound	Diesel Engines														
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>															
Sea / Fairway - South-Bound	Diesel Engines														
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>															
Fairway - North-Bound	Diesel Engines														
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>															
Fairway - South-Bound	Diesel Engines														
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>															
Precautionary Zone - North-Bound	Diesel Engines														
Precautionary Zone - North-Bound	Boiler	2	2	2	2	2	2	2	2	2	2	2	2	2	2
<i>Total Precautionary Zone - North-Bound</i>															
Precautionary Zone - South-Bound	Diesel Engines														
Precautionary Zone - South-Bound	Boiler	88	82	82	86	86	86	86	88	88	88	88	88	88	88
<i>Total Precautionary Zone - South-Bound</i>															
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>															
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	35	33	33	34	34	34	34	35	35	35	35	35	35	35
<i>Total Outer Harbor Zone2</i>															
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines														
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	41	38	38	40	40	40	40	41	41	41	41	41	41	41
<i>Total Inner Harbor Zone</i>															
Hotelling	Diesel Engines														
Hotelling	Boiler	764	719	719	749	749	749	749	766	766	766	766	766	766	766
<i>Total Hotelling</i>															

San Pedro Waterfront

Evaluation Year															Evaluation Year	
2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

Unmitigated Alternative 4 Toxic Pollutant Emissions
70-Year Average

Year (b/yr)	Spatial Allocation	Power Type	VOC							PM			
			DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
	Sea / Fairway - North-Bound	Diesel Engines	1,997										
	Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - North-Bound</i>		<i>1,997</i>										
	Sea / Fairway - South-Bound	Diesel Engines	84,342										
	Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - South-Bound</i>		<i>84,342</i>										
	Fairway - North-Bound	Diesel Engines	1,496										
	Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - North-Bound</i>		<i>1,496</i>										
	Fairway - South-Bound	Diesel Engines	25,226										
	Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - South-Bound</i>		<i>25,226</i>										
	Precautionary Zone - North-Bound	Diesel Engines	449										
	Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
	<i>Total Precautionary Zone - North-Bound</i>		<i>449</i>		<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>		<i>0.1</i>
	Precautionary Zone - South-Bound	Diesel Engines	17,002										
	Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
	<i>Total Precautionary Zone - South-Bound</i>		<i>17,002</i>		<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>		<i>3.6</i>
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total Outer Harbor Zone1</i>												
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,125										
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	1.4
	<i>Total Outer Harbor Zone2</i>		<i>5,125</i>		<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>		<i>1.4</i>
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,964										
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	1.7
	<i>Total Inner Harbor Zone</i>		<i>5,964</i>		<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>		<i>1.7</i>
	Hoteling	Diesel Engines	77,005										
	Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.6	17.4	-	31.3
	<i>Total Hoteling</i>		<i>77,005</i>		<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.6</i>	<i>17.4</i>		<i>31.3</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.3	-	3.7	-	-	0.3	166.3	-	-	-	0.2	-	3.7
-	0.3	-	3.7	-	-	0.3	166.3	-	-	-	0.2	-	3.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.5	-	-	0.1	66.5	-	-	-	0.1	-	1.5
-	0.1	-	1.5	-	-	0.1	66.5	-	-	-	0.1	-	1.5
-	0.2	-	1.7	-	-	0.2	77.4	-	-	-	0.1	-	1.7
-	0.2	-	1.7	-	-	0.2	77.4	-	-	-	0.1	-	1.7
-	2.9	-	319	-	-	2.9	1,450.7	-	-	-	1.6	-	31.9
-	2.9	-	31.9	-	-	2.9	1,450.7	-	-	-	1.6	-	31.9

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 2 Vessel with No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		23.7	42.3	10.8	300.8	44.3	35.5	450.3	11.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.8	2.7	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	135.9	3.3	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.3	158.2	3.9	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		17.6	31.0	8.0	222.8	33.9	27.1	359.3	8.4	

First Peak Hour Scenario (per vessel)

44 79 20 563 83 67 853 21

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel) 18 31 8 223 34 27 359 8

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.
5. No VSRP

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 Divide by 2 = Half of 2011 Type 2 vessels

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 3 Vessel with No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = 1.053$$

$$1 \text{ lb} = 453.59$$

Assumptions

- Residual fuel with 4.5% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this unmitigated profile for the peak scenario.
- No VSRP

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0 Divide by 2 = Half of 2011 Type 3 vessels

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 2 Vessel with Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>33.0</i>	<i>59.8</i>	<i>15.0</i>	<i>420.1</i>	<i>59.8</i>	<i>47.8</i>	<i>575.1</i>	<i>15.8</i>	
Fairway - South-Bound	Diesel Engines	30.3	54.8	13.8	385.1	54.8	43.8	527.2	14.5	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>30.3</i>	<i>54.8</i>	<i>13.8</i>	<i>385.1</i>	<i>54.8</i>	<i>43.8</i>	<i>527.2</i>	<i>14.5</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.6</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hotelling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hotelling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

*Emissions = Engine Power * Load Factor * Emission Factor * Time*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

- 2.7% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 2 vessels will have this mitigated profile for the peak scenario.
- VSRP = 100% within 20 nm

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 Divide by 2 = Half of 2011 Type 2 vessels

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 3 Vessel with Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	
Fairway - South-Bound	Diesel Engines	34.1	61.8	15.5	434.3	61.8	49.4	594.5	16.3	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		34.1	61.8	15.5	434.3	61.8	49.4	594.5	16.3	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										

$Emissions = Engine\ Power * Load\ Factor * Emission\ Factor * Time$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Assumptions

- 2.7% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this mitigated profile for the peak scenario.
- VSRP = 100% within 20 nm

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0 Divide by 2 = Half of 2011 Type 3 vessels

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 2 Vessel No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>43.2</i>	<i>78.2</i>	<i>19.6</i>	<i>549.7</i>	<i>78.2</i>	<i>62.6</i>	<i>752.5</i>	<i>20.7</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.6</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hotelling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hotelling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

*Emissions = Engine Power * Load Factor * Emission Factor * Time*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 Divide by 2 = Half of 2015+ Type 2 vessels

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 2 Vessel No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		23.7	42.3	10.8	300.8	44.3	35.5	450.3	11.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.8	2.7	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	135.9	3.3	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.3	158.2	3.9	
Hotelling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		17.6	31.0	8.0	222.8	33.9	27.1	359.3	8.4	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 Divide by 2 = Half of 2015+ Type 2 vessels

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 3 Vessel With Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.52
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	
Sea / Fairway - South-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.92
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	
Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	
Fairway - South-Bound	Diesel Engines	34.1	19.7	15.5	395.2	19.7	15.8	59.5	16.3	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		34.1	19.7	15.5	395.2	19.7	15.8	59.5	16.3	
Precautionary Zone - North-Bound	Diesel Engines	23.3	13.5	10.6	269.4	13.5	10.8	40.5	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.6	0.5	0.4	3.8	0.1	
Total Precautionary Zone - North-Bound		23.5	13.5	10.7	272.1	13.9	11.1	44.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	15.2	12.0	305.4	15.2	12.2	45.9	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.0	0.5	0.4	4.3	0.2	
Total Precautionary Zone - South-Bound		26.7	15.2	12.1	308.4	15.8	12.6	50.2	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	3.5	2.7	69.7	3.5	2.8	10.5	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	0.9	0.2	0.1	1.3	0.05	
Total Outer Harbor Zone1		6.1	3.5	2.8	70.6	3.6	2.9	11.8	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	4.3	3.4	87.1	4.3	3.5	13.1	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.2	0.2	1.7	0.06	
Total Outer Harbor Zone2		7.6	4.3	3.5	88.2	4.6	3.6	14.8	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	5.1	4.0	101.3	5.1	4.0	15.2	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.3	0.2	0.2	1.9	0.07	
Total Inner Harbor Zone		8.9	5.1	4.0	102.7	5.3	4.2	17.2	4.3	
Hoteling	Diesel Engines	1.6	0.9	0.7	18.0	0.9	0.7	2.7	0.7	12.00
Hoteling	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
Total Hoteling		2.0	0.9	0.9	22.2	1.6	1.3	8.8	1.0	
First Peak Hour Scenario (per vessel)		49	28	22	570	29	23	94	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		2	1	1	22	2	1	9	1	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Assumptions

1. Residual fuel with 2.7% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 3 vessels will have this mitigated profile for the peak scenario.
5. AMP applied to hoteling: 80% to inner harbor; 90% to outer harbor.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0 Divide by 2 = Half of 2015+ Type 3 vessels

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2011

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>
Sea / Fairway - South-Bound	Diesel Engines	115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>115.9</i>	<i>209.9</i>	<i>52.7</i>	<i>1,475.4</i>	<i>209.9</i>	<i>167.9</i>	<i>2,019.9</i>	<i>55.5</i>
Fairway - North-Bound	Diesel Engines	62.8	113.7	28.5	799.1	113.7	90.9	1,093.9	30.1
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>62.8</i>	<i>113.7</i>	<i>28.5</i>	<i>799.1</i>	<i>113.7</i>	<i>90.9</i>	<i>1,093.9</i>	<i>30.1</i>
Fairway - South-Bound	Diesel Engines	31.7	57.4	14.4	403.2	57.4	45.9	552.0	15.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>31.7</i>	<i>57.4</i>	<i>14.4</i>	<i>403.2</i>	<i>57.4</i>	<i>45.9</i>	<i>552.0</i>	<i>15.2</i>
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9
Precautionary Zone - North-Bound	Boiler	0.2	-	0.1	2.4	1.4	1.2	30.8	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>264.9</i>	<i>38.8</i>	<i>31.0</i>	<i>390.2</i>	<i>10.0</i>
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.1
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.7</i>	<i>2.7</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.1
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>136.0</i>	<i>3.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.1
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>
Hotelling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.5
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hotelling</i>		<i>211.0</i>	<i>372.4</i>	<i>96.2</i>	<i>2,673.9</i>	<i>406.6</i>	<i>325.3</i>	<i>4,312.2</i>	<i>101.3</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		627	1,124	285	7,966	1,163	931	11,658	300
Inner Harbor Berths per Vessel - Peak Day (lb/day)		646	1,158	294	8,207	1,199	959	12,029	309
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		1,938	3,473	882	24,621	3,598	2,878	36,086	928
2011 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,305	2,356	593	16,599	2,378	1,903	23,150	625
2011 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	3	0

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2011

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>106.3</i>	<i>192.5</i>	<i>48.3</i>	<i>1,353.1</i>	<i>192.5</i>	<i>154.0</i>	<i>1,852.5</i>	<i>50.9</i>
Sea / Fairway - South-Bound	Diesel Engines	134.4	243.2	61.1	1,710.0	243.2	194.6	2,341.0	64.3
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>134.4</i>	<i>243.2</i>	<i>61.1</i>	<i>1,710.0</i>	<i>243.2</i>	<i>194.6</i>	<i>2,341.0</i>	<i>64.3</i>
Fairway - North-Bound	Diesel Engines	71.8	130.0	32.6	914.2	130.0	104.0	1,251.6	34.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>71.8</i>	<i>130.0</i>	<i>32.6</i>	<i>914.2</i>	<i>130.0</i>	<i>104.0</i>	<i>1,251.6</i>	<i>34.4</i>
Fairway - South-Bound	Diesel Engines	36.2	65.6	16.5	461.3	65.6	52.5	631.5	17.3
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>36.2</i>	<i>65.6</i>	<i>16.5</i>	<i>461.3</i>	<i>65.6</i>	<i>52.5</i>	<i>631.5</i>	<i>17.3</i>
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>23.5</i>	<i>42.1</i>	<i>10.7</i>	<i>299.0</i>	<i>43.9</i>	<i>35.1</i>	<i>443.3</i>	<i>11.3</i>
Precautionary Zone - South-Bound	Diesel Engines	22.5	40.8	10.2	286.6	40.8	32.6	392.4	10.8
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>22.8</i>	<i>40.8</i>	<i>10.4</i>	<i>289.9</i>	<i>42.8</i>	<i>34.2</i>	<i>435.4</i>	<i>10.9</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.1
<i>Total Outer Harbor Zone1</i>		<i>6.1</i>	<i>10.9</i>	<i>2.8</i>	<i>77.6</i>	<i>11.5</i>	<i>9.2</i>	<i>118.1</i>	<i>3.0</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.1
<i>Total Outer Harbor Zone2</i>		<i>7.6</i>	<i>13.6</i>	<i>3.5</i>	<i>97.0</i>	<i>14.4</i>	<i>11.5</i>	<i>147.7</i>	<i>3.7</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.1
<i>Total Inner Harbor Zone</i>		<i>8.9</i>	<i>15.8</i>	<i>4.0</i>	<i>112.8</i>	<i>16.7</i>	<i>13.4</i>	<i>171.8</i>	<i>4.3</i>
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	107.0
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hotelling</i>		<i>228.8</i>	<i>404.6</i>	<i>104.2</i>	<i>2,900.0</i>	<i>438.8</i>	<i>351.0</i>	<i>4,621.8</i>	<i>109.8</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		700	1,257	319	8,902	1,296	1,037	12,930	336
Inner Harbor Berths per Vessel - Peak Day (lb/day)		721	1,294	328	9,166	1,335	1,068	13,333	346
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Activity -	Activity - Vessels
Vessels bound	bound to Outer
Year	Harbor
2011	0

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Transit Time

Year: 2015+

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	59.8	91.1	27.2	745.5	91.1	72.9	823.5	28.6
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>59.8</i>	<i>91.1</i>	<i>27.2</i>	<i>745.5</i>	<i>91.1</i>	<i>72.9</i>	<i>823.5</i>	<i>28.6</i>
Sea / Fairway - South-Bound	Diesel Engines	75.6	115.1	34.4	942.2	115.1	92.1	1,040.7	36.2
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>75.6</i>	<i>115.1</i>	<i>34.4</i>	<i>942.2</i>	<i>115.1</i>	<i>92.1</i>	<i>1,040.7</i>	<i>36.2</i>
Fairway - North-Bound	Diesel Engines	62.8	89.0	28.5	776.2	89.0	71.2	780.5	30.1
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>62.8</i>	<i>89.0</i>	<i>28.5</i>	<i>776.2</i>	<i>89.0</i>	<i>71.2</i>	<i>780.5</i>	<i>30.1</i>
Fairway - South-Bound	Diesel Engines	31.7	44.9	14.4	391.6	44.9	35.9	393.8	15.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>31.7</i>	<i>44.9</i>	<i>14.4</i>	<i>391.6</i>	<i>44.9</i>	<i>35.9</i>	<i>393.8</i>	<i>15.2</i>
Precautionary Zone - North-Bound	Diesel Engines	20.6	24.6	9.4	250.7	24.6	19.7	197.7	9.9
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.8	1.1	0.9	20.8	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>24.6</i>	<i>9.5</i>	<i>253.5</i>	<i>25.8</i>	<i>20.6</i>	<i>218.5</i>	<i>10.0</i>
Precautionary Zone - South-Bound	Diesel Engines	23.4	27.9	10.6	284.2	27.9	22.3	224.0	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.1	1.3	1.0	23.6	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>27.9</i>	<i>10.8</i>	<i>287.3</i>	<i>29.2</i>	<i>23.4</i>	<i>247.7</i>	<i>11.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	6.5	2.5	66.6	6.5	5.2	52.5	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.4	0.3	7.3	0.1
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>6.5</i>	<i>2.5</i>	<i>67.6</i>	<i>6.9</i>	<i>5.5</i>	<i>59.8</i>	<i>2.7</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	8.2	3.1	83.2	8.2	6.5	65.6	3.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.5	0.4	9.2	0.1
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>8.2</i>	<i>3.2</i>	<i>84.4</i>	<i>8.7</i>	<i>6.9</i>	<i>74.8</i>	<i>3.3</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	9.5	3.6	96.8	9.5	7.6	76.3	3.8
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.4	0.6	0.5	10.7	0.1
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>9.5</i>	<i>3.7</i>	<i>98.2</i>	<i>10.1</i>	<i>8.1</i>	<i>87.0</i>	<i>3.9</i>
Hotelling	Diesel Engines	114.4	191.2	50.7	1,408.5	191.2	152.9	1,807.3	53.3
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hotelling</i>		<i>119.7</i>	<i>191.2</i>	<i>53.3</i>	<i>1,461.6</i>	<i>212.8</i>	<i>170.2</i>	<i>2,207.4</i>	<i>56.1</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		452	668	206	5,608	693	555	6,465	217
Inner Harbor Berths per Vessel - Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		1,413	2,072	643	17,514	2,151	1,721	20,006	677
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		1,413	2,072	643	17,514	2,151	1,721	20,006	677
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		1,413	2,072	643	17,514	2,151	1,721	20,006	677
2015 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,063	1,499	483	13,129	1,513	1,210	13,384	509
2015 Vessel Type 2 Hotelling Peak Day (lb/day)		350	574	160	4,385	638	511	6,622	168
2022 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,063	1,499	483	13,129	1,513	1,210	13,384	509
2022 Vessel Type 2 Hotelling Peak Day (lb/day)		350	574	160	4,385	638	511	6,622	168
2037 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,063	1,499	483	13,129	1,513	1,210	13,384	509
2037 Vessel Type 2 Hotelling Peak Day (lb/day)		350	574	160	4,385	638	511	6,622	168

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = 1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}$$

$$1 \text{ lb} = 453.59 \text{ grams}$$

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels	
	bound to Inner Harbor	bound to Outer Harbor
2011	3	0
2015	3	0
2022	3	0
2037	3	0

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2015+

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time
Sea / Fairway - North-Bound	Diesel Engines	68.9	105.3	31.3	859.0	105.3	84.3	953.7	33.0	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	0.85
Total in Sea / Fairway - North-Bound		68.9	105.3	31.3	859.0	105.3	84.3	953.7	33.0	
Sea / Fairway - South-Bound	Diesel Engines	87.1	133.1	39.6	1,085.6	133.1	106.5	1,205.2	41.7	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	1.07
Total in Sea / Fairway - South-Bound		87.1	133.1	39.6	1,085.6	133.1	106.5	1,205.2	41.7	
Fairway - North-Bound	Diesel Engines	71.8	102.3	32.6	888.4	102.3	81.8	898.1	34.4	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	1.21
Total in Fairway - North-Bound		71.8	102.3	32.6	888.4	102.3	81.8	898.1	34.4	
Fairway - South-Bound	Diesel Engines	36.2	51.6	16.5	448.3	51.6	41.3	453.2	17.3	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	0.61
Total in Fairway - South-Bound		36.2	51.6	16.5	448.3	51.6	41.3	453.2	17.3	
Precautionary Zone - North-Bound	Diesel Engines	23.3	27.8	10.6	282.8	27.8	22.2	223.0	11.1	
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.8	1.1	0.9	20.8	0.1	
Total Precautionary Zone - North-Bound		23.5	27.8	10.7	285.5	28.9	23.1	243.8	11.3	0.63
Precautionary Zone - South-Bound	Diesel Engines	26.4	31.5	12.0	320.5	31.5	25.2	252.7	12.6	
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.1	1.3	1.0	23.6	0.2	
Total Precautionary Zone - South-Bound		26.7	31.5	12.1	323.6	32.8	26.2	276.3	12.8	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	7.2	2.7	73.1	7.2	5.7	57.6	2.9	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.4	0.3	7.3	0.1	
Total Outer Harbor Zone1		6.1	7.2	2.8	74.1	7.6	6.1	65.0	3.0	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	9.0	3.4	91.4	9.0	7.2	72.1	3.6	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.5	0.4	9.2	0.1	
Total Outer Harbor Zone2		7.6	9.0	3.5	92.6	9.5	7.6	81.2	3.7	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	10.4	4.0	106.3	10.4	8.4	83.8	4.2	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.4	0.6	0.5	10.7	0.1	
Total Inner Harbor Zone		8.9	10.4	4.0	107.8	11.0	8.8	94.5	4.3	0.32
Hotelling	Diesel Engines	121.1	207.7	55.0	1,530.1	207.7	166.2	1,963.3	57.9	
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8	
Total Hotelling		126.4	207.7	57.7	1,583.2	229.3	183.4	2,363.5	60.7	1.2
Outer Harbor Berths per Vessel - Peak Day (lb/day)		510	756	232	6,326	781	625	7,252	241	
Inner Harbor Berths per Vessel - Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254	
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2015 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2022 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2037 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2015 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2015 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2022 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2022 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2037 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2037 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-	

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	0	0
2015	0	0
2022	0	0
2037	0	0

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions
 Year: 2011, 2015, 2022, 2037

Total Peak Day (lb/day) for all Vessels

	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
2011 Transit & Maneuvering Peak Day (lb/day)	1,305	2,356	593	16,599	2,378	1,903	23,150	625
2011 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2015 Transit & Maneuvering Peak Day (lb/day)	1,063	1,499	483	13,129	1,513	1,210	13,384	509
2015 Hotelling Peak Day (lb/day)	350	574	160	4,385	638	511	6,622	168
2022 Transit & Maneuvering Peak Day (lb/day)	1,063	1,499	483	13,129	1,513	1,210	13,384	509
2022 Hotelling Peak Day (lb/day)	350	574	160	4,385	638	511	6,622	168
2037 Transit & Maneuvering Peak Day (lb/day)	1,063	1,499	483	13,129	1,513	1,210	13,384	509
2037 Hotelling Peak Day (lb/day)	350	574	160	4,385	638	511	6,622	168

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2011

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	11.5	20.8	5.2	145.9	20.8	16.6	199.8	5.5
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>11.5</i>	<i>20.8</i>	<i>5.2</i>	<i>145.9</i>	<i>20.8</i>	<i>16.6</i>	<i>199.8</i>	<i>5.5</i>
Sea / Fairway - South-Bound	Diesel Engines	14.5	26.2	6.6	184.4	26.2	21.0	252.5	6.9
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>14.5</i>	<i>26.2</i>	<i>6.6</i>	<i>184.4</i>	<i>26.2</i>	<i>21.0</i>	<i>252.5</i>	<i>6.9</i>
Fairway - North-Bound	Diesel Engines	7.8	14.2	3.6	99.9	14.2	11.4	136.7	3.8
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>7.8</i>	<i>14.2</i>	<i>3.6</i>	<i>99.9</i>	<i>14.2</i>	<i>11.4</i>	<i>136.7</i>	<i>3.8</i>
Fairway - South-Bound	Diesel Engines	4.0	7.2	1.8	50.4	7.2	5.7	69.0	1.9
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>4.0</i>	<i>7.2</i>	<i>1.8</i>	<i>50.4</i>	<i>7.2</i>	<i>5.7</i>	<i>69.0</i>	<i>1.9</i>
Precautionary Zone - North-Bound	Diesel Engines	2.6	4.7	1.2	32.8	4.7	3.7	44.9	1.2
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.2	0.1	3.8	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>4.7</i>	<i>1.2</i>	<i>33.1</i>	<i>4.8</i>	<i>3.9</i>	<i>48.8</i>	<i>1.2</i>
Precautionary Zone - South-Bound	Diesel Engines	2.9	5.3	1.3	37.2	5.3	4.2	50.9	1.4
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.3	0.2	5.4	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>5.3</i>	<i>1.3</i>	<i>37.6</i>	<i>5.5</i>	<i>4.4</i>	<i>56.3</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	1.2	0.3	8.7	1.2	1.0	11.9	0.3
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.1	0.1	1.7	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>8.8</i>	<i>1.3</i>	<i>1.1</i>	<i>13.6</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.5	0.4	10.9	1.5	1.2	14.9	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.5</i>	<i>0.4</i>	<i>11.0</i>	<i>1.6</i>	<i>1.3</i>	<i>17.0</i>	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.8	0.5	12.7	1.8	1.4	17.3	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.4	0.0
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.5</i>	<i>12.9</i>	<i>1.9</i>	<i>1.5</i>	<i>19.8</i>	<i>0.5</i>
Hoteling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hoteling</i>		<i>211.0</i>	<i>372.4</i>	<i>96.2</i>	<i>2,673.9</i>	<i>406.6</i>	<i>325.3</i>	<i>4,312.2</i>	<i>101.3</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 - (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
1 lb = 453.59

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2011

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>13.3</i>	<i>24.1</i>	<i>6.0</i>	<i>169.1</i>	<i>24.1</i>	<i>19.2</i>	<i>231.6</i>	<i>6.4</i>
Sea / Fairway - South-Bound	Diesel Engines	16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>16.8</i>	<i>30.4</i>	<i>7.6</i>	<i>213.7</i>	<i>30.4</i>	<i>24.3</i>	<i>292.6</i>	<i>8.0</i>
Fairway - North-Bound	Diesel Engines	9.0	16.3	4.1	114.3	16.3	13.0	156.4	4.3
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>9.0</i>	<i>16.3</i>	<i>4.1</i>	<i>114.3</i>	<i>16.3</i>	<i>13.0</i>	<i>156.4</i>	<i>4.3</i>
Fairway - South-Bound	Diesel Engines	4.5	8.2	2.1	57.7	8.2	6.6	78.9	2.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>4.5</i>	<i>8.2</i>	<i>2.1</i>	<i>57.7</i>	<i>8.2</i>	<i>6.6</i>	<i>78.9</i>	<i>2.2</i>
Precautionary Zone - North-Bound	Diesel Engines	2.9	5.3	1.3	37.0	5.3	4.2	50.7	1.4
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.2	4.7	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.94</i>	<i>5.26</i>	<i>1.34</i>	<i>37.4</i>	<i>5.5</i>	<i>4.4</i>	<i>55.4</i>	<i>1.4</i>
Precautionary Zone - South-Bound	Diesel Engines	2.8	5.1	1.3	35.8	5.1	4.1	49.1	1.3
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.3	0.2	5.4	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>2.9</i>	<i>5.1</i>	<i>1.3</i>	<i>36.2</i>	<i>5.3</i>	<i>4.3</i>	<i>54.4</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	1.4	0.3	9.6	1.4	1.1	13.1	0.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.1	0.1	0.1	1.7	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>1.4</i>	<i>0.3</i>	<i>9.7</i>	<i>1.4</i>	<i>1.2</i>	<i>14.8</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.7	0.4	12.0	1.7	1.4	16.4	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.7</i>	<i>0.4</i>	<i>12.1</i>	<i>1.8</i>	<i>1.4</i>	<i>18.5</i>	<i>0.5</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	2.0	0.5	13.9	2.0	1.6	19.1	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.4	0.0
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>2.0</i>	<i>0.5</i>	<i>14.1</i>	<i>2.1</i>	<i>1.7</i>	<i>21.5</i>	<i>0.5</i>
Hoteling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	107.0
Hoteling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hoteling</i>		<i>228.8</i>	<i>404.6</i>	<i>104.2</i>	<i>2,900.0</i>	<i>438.8</i>	<i>351.0</i>	<i>4,621.8</i>	<i>109.8</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2015+

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	7.5	11.4	3.4	93.2	11.4	9.1	102.9	3.6
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>7.5</i>	<i>11.4</i>	<i>3.4</i>	<i>93.2</i>	<i>11.4</i>	<i>9.1</i>	<i>102.9</i>	<i>3.6</i>
Sea / Fairway - South-Bound	Diesel Engines	9.5	14.4	4.3	117.8	14.4	11.5	130.1	4.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>9.5</i>	<i>14.4</i>	<i>4.3</i>	<i>117.8</i>	<i>14.4</i>	<i>11.5</i>	<i>130.1</i>	<i>4.5</i>
Fairway - North-Bound	Diesel Engines	7.8	11.1	3.6	97.0	11.1	8.9	97.6	3.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>7.8</i>	<i>11.1</i>	<i>3.6</i>	<i>97.0</i>	<i>11.1</i>	<i>8.9</i>	<i>97.6</i>	<i>3.8</i>
Fairway - South-Bound	Diesel Engines	4.0	5.6	1.8	49.0	5.6	4.5	49.2	1.9
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>4.0</i>	<i>5.6</i>	<i>1.8</i>	<i>49.0</i>	<i>5.6</i>	<i>4.5</i>	<i>49.2</i>	<i>1.9</i>
Precautionary Zone - North-Bound	Diesel Engines	2.6	3.1	1.2	31.3	3.1	2.5	24.7	1.2
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.1	0.1	2.6	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>3.1</i>	<i>1.2</i>	<i>31.7</i>	<i>3.2</i>	<i>2.6</i>	<i>27.3</i>	<i>1.3</i>
Precautionary Zone - South-Bound	Diesel Engines	2.9	3.5	1.3	35.5	3.5	2.8	28.0	1.4
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.1	3.0	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>3.5</i>	<i>1.3</i>	<i>35.9</i>	<i>3.6</i>	<i>2.9</i>	<i>31.0</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	0.8	0.3	8.3	0.8	0.7	6.6	0.3
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.0	0.0	0.9	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>0.8</i>	<i>0.3</i>	<i>8.4</i>	<i>0.9</i>	<i>0.7</i>	<i>7.5</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.0	0.4	10.4	1.0	0.8	8.2	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.0	1.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.0</i>	<i>0.4</i>	<i>10.6</i>	<i>1.1</i>	<i>0.9</i>	<i>9.3</i>	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.2	0.5	12.1	1.2	1.0	9.5	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	1.3	0.0
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.2</i>	<i>0.5</i>	<i>12.3</i>	<i>1.3</i>	<i>1.0</i>	<i>10.9</i>	<i>0.5</i>
Hoteling	Diesel Engines	111.4	191.2	50.7	1,408.5	191.2	152.9	1,807.3	53.3
Hoteling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hoteling</i>		<i>116.7</i>	<i>191.2</i>	<i>53.3</i>	<i>1,461.5</i>	<i>212.7</i>	<i>170.2</i>	<i>2,207.4</i>	<i>56.7</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except for hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2015+

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	8.6	13.2	3.9	107.4	13.2	10.5	119.2	4.1
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>8.6</i>	<i>13.2</i>	<i>3.9</i>	<i>107.4</i>	<i>13.2</i>	<i>10.5</i>	<i>119.2</i>	<i>4.1</i>
Sea / Fairway - South-Bound	Diesel Engines	10.9	16.6	4.9	135.7	16.6	13.3	150.7	5.2
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>10.9</i>	<i>16.6</i>	<i>4.9</i>	<i>135.7</i>	<i>16.6</i>	<i>13.3</i>	<i>150.7</i>	<i>5.2</i>
Fairway - North-Bound	Diesel Engines	9.0	12.8	4.1	111.0	12.8	10.2	112.3	4.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>9.0</i>	<i>12.8</i>	<i>4.1</i>	<i>111.0</i>	<i>12.8</i>	<i>10.2</i>	<i>112.3</i>	<i>4.3</i>
Fairway - South-Bound	Diesel Engines	4.5	6.5	2.1	56.0	6.5	5.2	56.6	2.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>4.5</i>	<i>6.5</i>	<i>2.1</i>	<i>56.0</i>	<i>6.5</i>	<i>5.2</i>	<i>56.6</i>	<i>2.2</i>
Precautionary Zone - North-Bound	Diesel Engines	2.9	3.5	1.3	35.3	3.5	2.8	27.9	1.4
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.1	0.1	2.6	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.94</i>	<i>3.47</i>	<i>1.34</i>	<i>35.7</i>	<i>3.6</i>	<i>2.9</i>	<i>30.5</i>	<i>1.4</i>
Precautionary Zone - South-Bound	Diesel Engines	3.3	3.9	1.5	40.1	3.9	3.1	31.6	1.6
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.1	3.0	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.3</i>	<i>3.9</i>	<i>1.5</i>	<i>40.5</i>	<i>4.1</i>	<i>3.3</i>	<i>34.5</i>	<i>1.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	0.9	0.3	9.1	0.9	0.7	7.2	0.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.0	0.0	0.9	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>0.9</i>	<i>0.3</i>	<i>9.3</i>	<i>0.9</i>	<i>0.7</i>	<i>8.1</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.1	0.4	11.4	1.1	0.9	9.0	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.0	1.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.1</i>	<i>0.4</i>	<i>11.6</i>	<i>1.2</i>	<i>0.9</i>	<i>10.2</i>	<i>0.5</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	1.3	0.5	13.3	1.3	1.0	10.5	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	1.3	0.0
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>1.3</i>	<i>0.5</i>	<i>13.5</i>	<i>1.4</i>	<i>1.1</i>	<i>11.8</i>	<i>0.5</i>
Hotelling	Diesel Engines	121.1	207.7	55.0	1,530.1	207.7	166.2	1,963.3	57.9
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hotelling</i>		<i>126.4</i>	<i>207.7</i>	<i>57.7</i>	<i>1,583.2</i>	<i>229.3</i>	<i>183.4</i>	<i>2,363.5</i>	<i>60.7</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except for hotelling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
 1 lb = 453.59

San Pedro Waterfront

Alternative 4 Mitigated Criteria Pollutant Emissions

Year: 2011

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	179.7	198.0	81.7	2,134.3	198.0	158.4	1,356.6	86.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		179.7	198.0	81.7	2,134.3	198.0	158.4	1,356.6	86.0
Sea / Fairway - South-Bound	Diesel Engines	227.1	250.2	103.2	2,697.2	250.2	200.1	1,714.4	108.7
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		227.1	250.2	103.2	2,697.2	250.2	200.1	1,714.4	108.7
Fairway - North-Bound	Diesel Engines	119.9	132.1	54.5	1,424.5	132.1	105.7	905.4	57.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		119.9	132.1	54.5	1,424.5	132.1	105.7	905.4	57.4
Fairway - South-Bound	Diesel Engines	60.5	66.7	27.5	718.8	66.7	53.3	456.9	29.0
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		60.5	66.7	27.5	718.8	66.7	53.3	456.9	29.0
Precautionary Zone - North-Bound	Diesel Engines	41.3	45.5	18.8	490.1	45.5	36.4	311.5	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.6	1.8	1.4	32.8	0.3
Total Precautionary Zone - North-Bound		41.8	45.5	19.0	495.7	47.2	37.8	344.3	20.0
Precautionary Zone - South-Bound	Diesel Engines	46.8	51.5	21.3	555.4	51.5	41.2	353.0	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.4	2.0	1.6	37.2	0.3
Total Precautionary Zone - South-Bound		47	52	22	562	54	43	390	23
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.0	12.1	5.0	130.1	12.1	9.7	82.7	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.2	-	0.1	2.0	0.6	0.5	11.6	0.1
Total Outer Harbor Zone1		11.2	12.1	5.1	132.1	12.7	10.2	94.3	5.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	13.7	15.1	6.2	162.6	15.1	12.1	103.4	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.5	0.8	0.6	14.4	0.1
Total Outer Harbor Zone2		13.9	15.1	6.3	165.1	15.9	12.7	117.8	6.7
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	15.9	17.6	7.2	189.2	17.6	14.0	120.3	7.6
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.3	-	0.1	2.9	0.9	0.7	16.8	0.1
Total Inner Harbor Zone		16.2	17.6	7.4	192.1	18.5	14.8	137.1	7.8
Hotelling	Diesel Engines	149.2	164.3	67.8	1,771.8	164.3	131.5	1,126.2	71.4
Hotelling	Boiler	5.3	-	2.6	53.9	17.1	13.7	315.3	2.8
Total Hotelling		154.4	164.3	70.4	1,825.7	181.4	145.2	1,441.4	74.2

Alt 4 Mitigated Criteria Pollutant Emissions

Year: 2011

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	534	581	243	6,331	602	482	4,375	256
North-Bound Single Vessel Average Day (ton/day)	0.27	0.29	0.12	3.18	0.30	0.24	2.20	0.13
South-Bound Single Vessel Average Day (ton/day)	0.27	0.29	0.12	3.15	0.30	0.24	2.18	0.13
Temporal Allocation								
2011 Total Annual Emissions (ton/yr)	71	76	32	847	81	64	586	34

Emissions (lb/yr) = Average Engine Power * Load Factor_(VSR corrected) * Fuel Corrected Emission Factor * Time_(VSR corrected) * 2_(1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2_(1-Way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 30% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 53%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 30% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance in 2011 assumed to be 30%

San Pedro Waterfront

Alternative 4 Mitigated Criteria Pollutant Emissions

Year: 2015

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	100.1	57.9	45.5	1,110.9	57.9	46.3	174.4	47.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		100.1	57.9	45.5	1,110.9	57.9	46.3	174.4	47.9
Sea / Fairway - South-Bound	Diesel Engines	126.5	73.1	57.5	1,403.9	73.1	58.5	220.4	60.6
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		126.5	73.1	57.5	1,403.9	73.1	58.5	220.4	60.6
Fairway - North-Bound	Diesel Engines	119.9	69.3	54.5	1,330.6	69.3	55.5	208.9	57.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		119.9	69.3	54.5	1,330.6	69.3	55.5	208.9	57.4
Fairway - South-Bound	Diesel Engines	60.5	35.0	27.5	671.4	35.0	28.0	105.4	29.0
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		60.5	35.0	27.5	671.4	35.0	28.0	105.4	29.0
Precautionary Zone - North-Bound	Diesel Engines	41.3	23.9	18.8	457.8	23.9	19.1	71.9	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		41.8	23.9	19.0	463.7	24.8	19.8	79.5	20.0
Precautionary Zone - South-Bound	Diesel Engines	46.8	27.0	21.3	518.8	27.0	21.6	81.5	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		47	27	22	525	28	22	90	23
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.0	6.3	5.0	121.5	6.3	5.1	19.1	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		11.2	6.3	5.1	123.4	6.6	5.4	21.8	5.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	13.7	7.9	6.2	151.9	7.9	6.3	23.9	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		13.9	7.9	6.3	154.2	8.3	6.7	27.2	6.7
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	15.9	9.2	7.2	176.8	9.2	7.4	27.8	7.6
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		16.2	9.2	7.4	179.5	9.7	7.8	31.6	7.8
Hotelling	Diesel Engines	54.9	31.7	24.9	608.8	31.7	25.4	95.6	26.3
Hotelling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
Total Hotelling		60.2	31.7	27.6	659.3	40.7	32.6	168.3	29.0

Alt 4 Mitigated Criteria Pollutant Emissions

Year: 2015

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	350	198	159	3,869	209	168	688	168
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	2.01	0.11	0.09	0.36	0.09
South-Bound Single Vessel Average Day (ton/day)	0.17	0.10	0.08	1.86	0.10	0.08	0.33	0.08
Temporal Allocation								
2015 Total Annual Emissions (ton/yr)	46	26	21	512	28	22	92	22

$$\text{Emissions (lb/yr)} = \text{Average Engine Power} * \text{Load Factor} * \text{Fuel Corrected Emission Factor} * \text{Time} * 2 * \text{Trips} * \text{Vessels per Year}$$

$$\text{NOx Emissions (lb/yr)} = \text{Average Engine Power} * \text{Load Factor} * (\text{IMO NOx Emission Factor} * \% \text{IMO vessels}) + (\text{non-IMO NOx Emission Factor} * \% \text{non-IMO vessels}) * \text{Time} * 2 * \text{Trips} * \text{Vessels per Year}$$

$$\text{Hotelling Emissions (lb/yr)} = \text{Emissions (lb/yr) for 1-way trip} * \text{AMP reduction} * \text{Vessels per Year}$$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = **59%**
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 100% compliance with VSRP to 40 nm.
- Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Alternative 4 Mitigated Criteria Pollutant Emissions
Year: 2022

Average Day (lb/day) for Single Average Vessel Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	100.1	57.9	45.5	1,102.4	57.9	46.3	174.4	47.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>100.1</i>	<i>57.9</i>	<i>45.5</i>	<i>1,102.4</i>	<i>57.9</i>	<i>46.3</i>	<i>174.4</i>	<i>47.9</i>
Sea / Fairway - South-Bound	Diesel Engines	126.5	73.1	57.5	1,393.1	73.1	58.5	220.4	60.6
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>126.5</i>	<i>73.1</i>	<i>57.5</i>	<i>1,393.1</i>	<i>73.1</i>	<i>58.5</i>	<i>220.4</i>	<i>60.6</i>
Fairway - North-Bound	Diesel Engines	119.9	69.3	54.5	1,320.4	69.3	55.5	208.9	57.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>119.9</i>	<i>69.3</i>	<i>54.5</i>	<i>1,320.4</i>	<i>69.3</i>	<i>55.5</i>	<i>208.9</i>	<i>57.4</i>
Fairway - South-Bound	Diesel Engines	60.5	35.0	27.5	666.3	35.0	28.0	105.4	29.0
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>60.5</i>	<i>35.0</i>	<i>27.5</i>	<i>666.3</i>	<i>35.0</i>	<i>28.0</i>	<i>105.4</i>	<i>29.0</i>
Precautionary Zone - North-Bound	Diesel Engines	41.3	23.9	18.8	454.3	23.9	19.1	71.9	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>41.6</i>	<i>23.9</i>	<i>19.0</i>	<i>459.5</i>	<i>24.8</i>	<i>19.8</i>	<i>79.5</i>	<i>20.0</i>
Precautionary Zone - South-Bound	Diesel Engines	46.8	27.0	21.3	514.9	27.0	21.6	81.5	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>47</i>	<i>27</i>	<i>22</i>	<i>521</i>	<i>28</i>	<i>22</i>	<i>90</i>	<i>23</i>
Outer Harbor Zone1 (vessels bound to outer harbor)	Diesel Engines	11.0	6.3	5.0	120.6	6.3	5.1	19.1	5.2
Outer Harbor Zone1 (vessels bound to outer harbor)	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
<i>Total Outer Harbor Zone1</i>		<i>11.2</i>	<i>6.3</i>	<i>5.1</i>	<i>122.5</i>	<i>6.6</i>	<i>5.4</i>	<i>21.8</i>	<i>5.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor)	Diesel Engines	13.7	7.9	6.2	150.8	7.9	6.3	23.9	6.6
Outer Harbor Zone2 (vessels bound to inner harbor)	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
<i>Total Outer Harbor Zone2</i>		<i>13.9</i>	<i>7.9</i>	<i>6.3</i>	<i>153.1</i>	<i>8.3</i>	<i>6.7</i>	<i>27.2</i>	<i>6.7</i>
Inner Harbor Zone (maneuvering through main chan)	Diesel Engines	15.9	9.2	7.2	175.4	9.2	7.4	27.8	7.6
Inner Harbor Zone (maneuvering through main chan)	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
<i>Total Inner Harbor Zone</i>		<i>16.2</i>	<i>9.2</i>	<i>7.4</i>	<i>178.1</i>	<i>9.7</i>	<i>7.8</i>	<i>31.6</i>	<i>7.6</i>
Hoteling	Diesel Engines	54.9	31.7	24.9	604.1	31.7	25.4	95.6	26.3
Hoteling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
<i>Total Hoteling</i>		<i>60.2</i>	<i>31.7</i>	<i>27.6</i>	<i>654.6</i>	<i>40.7</i>	<i>32.6</i>	<i>168.3</i>	<i>29.0</i>

Alt 4 Mitigated Criteria Pollutant Emissions
Year: 2022

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	350	198	159	3,840	209	168	688	168
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	2.00	0.11	0.09	0.36	0.09
South-Bound Single Vessel Average Day (ton/day)	0.17	0.10	0.08	1.84	0.10	0.08	0.33	0.08
Temporal Allocation								
<i>2022 Total Annual Emissions (ton/yr)</i>	<i>46</i>	<i>28</i>	<i>21</i>	<i>508</i>	<i>28</i>	<i>22</i>	<i>92</i>	<i>22</i>

Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

Hoteling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = **69%**
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%

San Pedro Waterfront

Alternative 4 Mitigated Criteria Pollutant Emissions

Year: 2037

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	100.1	57.9	45.5	1,095.2	57.9	46.3	174.4	47.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		100.1	57.9	45.5	1,095.2	57.9	46.3	174.4	47.9
Sea / Fairway - South-Bound	Diesel Engines	126.5	73.1	57.5	1,384.1	73.1	58.5	220.4	60.6
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		126.5	73.1	57.5	1,384.1	73.1	58.5	220.4	60.6
Fairway - North-Bound	Diesel Engines	119.9	69.3	54.5	1,311.9	69.3	55.5	208.9	57.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		119.9	69.3	54.5	1,311.9	69.3	55.5	208.9	57.4
Fairway - South-Bound	Diesel Engines	60.5	35.0	27.5	661.9	35.0	28.0	105.4	29.0
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		60.5	35.0	27.5	661.9	35.0	28.0	105.4	29.0
Precautionary Zone - North-Bound	Diesel Engines	41.3	23.9	18.8	451.3	23.9	19.1	71.9	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		41.8	23.9	19.0	456.6	24.8	19.8	79.5	20.0
Precautionary Zone - South-Bound	Diesel Engines	46.8	27.0	21.3	511.5	27.0	21.6	81.5	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		47	27	22	517	28	22	90	23
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	11.0	6.3	5.0	119.8	6.3	5.1	19.1	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		11.2	6.3	5.1	121.7	6.6	5.4	21.8	5.3
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	13.7	7.9	6.2	149.8	7.9	6.3	23.9	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		13.9	7.9	6.3	152.1	8.3	6.7	27.2	6.7
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	15.9	9.2	7.2	174.3	9.2	7.4	27.8	7.6
Inner Harbor Zone (maneuvering through main channel)	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		16.2	9.2	7.4	177.0	9.7	7.8	31.6	7.8
Hotelling	Diesel Engines	54.9	31.7	24.9	600.2	31.7	25.4	95.6	26.3
Hotelling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
Total Hotelling		60.2	31.7	27.6	650.7	40.7	32.6	168.3	29.0

Alt 4 Mitigated Criteria Pollutant Emissions

Year: 2037

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	350	198	159	3,815	209	168	688	168
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	1.98	0.11	0.09	0.36	0.09
South-Bound Single Vessel Average Day (ton/day)	0.17	0.10	0.08	1.83	0.10	0.08	0.33	0.08
Temporal Allocation								
2037 Total Annual Emissions (ton/yr)	46	20	21	505	20	20	98	22

Emissions (lb/yr) = Average Engine Power * Load Factor_(VSR corrected) * Fuel Corrected Emission Factor * Time_(1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2_(1-Way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = **78%**
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,404	1,547	638	16,681	1,547	1,238	10,603	672
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,404</i>	<i>1,547</i>	<i>638</i>	<i>16,681</i>	<i>1,547</i>	<i>1,238</i>	<i>10,603</i>	<i>672</i>
Sea / Fairway - South-Bound	Diesel Engines	59,303	65,341	26,956	704,457	65,341	52,273	447,766	28,384
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>59,303</i>	<i>65,341</i>	<i>26,956</i>	<i>704,457</i>	<i>65,341</i>	<i>52,273</i>	<i>447,766</i>	<i>28,384</i>
Fairway - North-Bound	Diesel Engines	937	1,033	426	11,134	1,033	826	7,077	449
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>937</i>	<i>1,033</i>	<i>426</i>	<i>11,134</i>	<i>1,033</i>	<i>826</i>	<i>7,077</i>	<i>449</i>
Fairway - South-Bound	Diesel Engines	15,804	17,413	7,184	187,733	17,413	13,930	119,327	7,564
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>15,804</i>	<i>17,413</i>	<i>7,184</i>	<i>187,733</i>	<i>17,413</i>	<i>13,930</i>	<i>119,327</i>	<i>7,564</i>
Precautionary Zone - North-Bound	Diesel Engines	322	355	147	3,830	355	284	2,435	154
Precautionary Zone - North-Bound	Boiler	4	-	2	44	14	11	257	2
<i>Total Precautionary Zone - North-Bound</i>		<i>327</i>	<i>355</i>	<i>149</i>	<i>3,874</i>	<i>369</i>	<i>295</i>	<i>2,692</i>	<i>157</i>
Precautionary Zone - South-Bound	Diesel Engines	12,212	13,455	5,551	145,066	13,455	10,764	92,207	5,845
Precautionary Zone - South-Bound	Boiler	163	-	82	1,662	527	422	9,721	86
<i>Total Precautionary Zone - South-Bound</i>		<i>12,375</i>	<i>13,455</i>	<i>5,632</i>	<i>146,728</i>	<i>13,982</i>	<i>11,186</i>	<i>101,928</i>	<i>5,931</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,683	4,058	1,674	43,747	4,058	3,246	27,807	1,763
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	65	-	33	664	211	169	3,887	34
<i>Total Outer Harbor Zone2</i>		<i>3,748</i>	<i>4,058</i>	<i>1,707</i>	<i>44,412</i>	<i>4,269</i>	<i>3,415</i>	<i>31,694</i>	<i>1,797</i>
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	4,285	4,722	1,948	50,906	4,722	3,777	32,357	2,051
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	76	-	38	773	245	196	4,523	40
<i>Total Inner Harbor Zone</i>		<i>4,361</i>	<i>4,722</i>	<i>1,986</i>	<i>51,679</i>	<i>4,967</i>	<i>3,974</i>	<i>36,880</i>	<i>2,091</i>
Hotelling	Diesel Engines	40,122	44,207	18,237	476,609	44,207	35,366	302,942	19,204
Hotelling	Boiler	1,423	-	712	14,496	4,600	3,680	84,805	749
<i>Total Hotelling</i>		<i>41,545</i>	<i>44,207</i>	<i>18,949</i>	<i>491,106</i>	<i>48,807</i>	<i>39,046</i>	<i>387,747</i>	<i>19,953</i>
Total (lb/yr)	boilers only	139,805	152,131	63,626	1,657,804	157,729	126,183	1,145,712	66,999
						5,598			912
Average Day (lb/day) - Transit		269.2	295.7	122.4	3,196.4	298.4	238.7	2,076.6	128.9
Average Day (lb/day) - Hotelling		113.8	121.1	51.9	1345.5	133.7	107.0	1062.3	54.7

Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
 - 2. All berths occupied.
 - 3. Annual emissions are based on 30% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm.
 - 4. Maximum of 2 one-way trips per vessel.
 - 5. IMO compliance rate for NOx = 53%
 - 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed
 - 7. Annual emissions assume 30% compliance with VSRP to 40 nm.
 - 8. Inner Harbor AMP compliance in 2011 assumed to be 30%
- Total Vessels in 2011: 269
 Percent of North-Bound Vessels: 2.9% Inner Harbor Berths: 3
 Percent of South-Bound Vessels: 97.1% Outer Harbor Berths: 0

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	800	463	364	8,876	463	370	1,394	383
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		800	463	364	8,876	463	370	1,394	383
Sea / Fairway - South-Bound	Diesel Engines	33,781	19,532	15,355	374,848	19,532	15,625	58,861	16,169
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		33,781	19,532	15,355	374,848	19,532	15,625	58,861	16,169
Fairway - North-Bound	Diesel Engines	958	554	436	10,632	554	443	1,670	459
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		958	554	436	10,632	554	443	1,670	459
Fairway - South-Bound	Diesel Engines	16,156	9,341	7,344	179,275	9,341	7,473	28,151	7,733
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		16,156	9,341	7,344	179,275	9,341	7,473	28,151	7,733
Precautionary Zone - North-Bound	Diesel Engines	330	191	150	3,658	191	152	574	158
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
Total Precautionary Zone - North-Bound		334	191	152	3,700	198	158	635	160
Precautionary Zone - South-Bound	Diesel Engines	12,484	7,218	5,675	138,531	7,218	5,775	21,753	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
Total Precautionary Zone - South-Bound		12,651	7,218	5,758	140,125	7,501	6,001	24,046	6,063
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	-	-	-	-	-	-	-	-
Total Outer Harbor Zone1		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	3,765	2,177	1,711	41,777	2,177	1,741	6,560	1,802
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	67	-	33	637	113	90	917	35
Total Outer Harbor Zone2		3,832	2,177	1,745	42,414	2,290	1,832	7,477	1,837
Inner Harbor Zone (maneuvering through main channel: int)	Diesel Engines	4,381	2,533	1,991	48,613	2,533	2,026	7,634	2,097
Inner Harbor Zone (maneuvering through main channel: int)	Boiler	78	-	39	741	132	105	1,067	41
Total Inner Harbor Zone		4,459	2,533	2,030	49,354	2,665	2,132	8,701	2,138
Hotelling	Diesel Engines	15,087	8,723	6,858	167,407	8,723	6,978	26,287	7,221
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
Total Hotelling		16,542	8,723	7,585	181,310	11,191	8,953	46,294	7,987
Total (lb/yr)		89,513	50,731	40,768	990,535	53,734	42,987	177,229	42,929
boilers only						3,003			932
Average Day (lb/day) - Transit		199.9	115.1	90.9	2,217.1	116.6	93.2	358.7	95.7
Average Day (lb/day) - Hotelling		45.3	23.9	20.8	496.7	30.7	24.5	126.8	21.9

Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- | | | | |
|---|---------------------------------|-------|------------------------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2015: | 275 | |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: 3 |
| 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals. | Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: 0 |
| 4. Maximum of 2 one-way trips per vessel. | | | |
| 5. IMO compliance rate for NOx = | | 59% | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | |
| 7. Annual emissions assume 100% compliance with VSRP to 40 nm. | | | |
| 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%. | | | |

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2022

Note: for 2022, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Year (lb/yr)									
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	800	463	364	8,808	463	370	1,394	383
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>800</i>	<i>463</i>	<i>364</i>	<i>8,808</i>	<i>463</i>	<i>370</i>	<i>1,394</i>	<i>383</i>
Sea / Fairway - South-Bound	Diesel Engines	33,781	19,532	15,355	371,979	19,532	15,625	58,861	16,169
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>33,781</i>	<i>19,532</i>	<i>15,355</i>	<i>371,979</i>	<i>19,532</i>	<i>15,625</i>	<i>58,861</i>	<i>16,169</i>
Fairway - North-Bound	Diesel Engines	958	554	436	10,551	554	443	1,670	459
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>958</i>	<i>554</i>	<i>436</i>	<i>10,551</i>	<i>554</i>	<i>443</i>	<i>1,670</i>	<i>459</i>
Fairway - South-Bound	Diesel Engines	16,156	9,341	7,344	177,903	9,341	7,473	28,151	7,733
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>16,156</i>	<i>9,341</i>	<i>7,344</i>	<i>177,903</i>	<i>9,341</i>	<i>7,473</i>	<i>28,151</i>	<i>7,733</i>
Precautionary Zone - North-Bound	Diesel Engines	330	191	150	3,630	191	152	574	158
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
<i>Total Precautionary Zone - North-Bound</i>		<i>334</i>	<i>191</i>	<i>152</i>	<i>3,672</i>	<i>198</i>	<i>158</i>	<i>635</i>	<i>160</i>
Precautionary Zone - South-Bound	Diesel Engines	12,484	7,218	5,675	137,470	7,218	5,775	21,753	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
<i>Total Precautionary Zone - South-Bound</i>		<i>12,651</i>	<i>7,218</i>	<i>5,758</i>	<i>139,064</i>	<i>7,501</i>	<i>6,001</i>	<i>24,046</i>	<i>6,063</i>
Outer Harbor Zone1 (vessels bound to outer harbor)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor)	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor)	Diesel Engines	3,765	2,177	1,711	41,457	2,177	1,741	6,560	1,802
Outer Harbor Zone2 (vessels bound to inner harbor)	Boiler	67	-	33	637	113	90	917	35
<i>Total Outer Harbor Zone2</i>		<i>3,832</i>	<i>2,177</i>	<i>1,745</i>	<i>42,094</i>	<i>2,290</i>	<i>1,832</i>	<i>7,477</i>	<i>1,837</i>
Inner Harbor Zone (maneuvering through main chan)	Diesel Engines	4,381	2,533	1,991	48,241	2,533	2,026	7,634	2,097
Inner Harbor Zone (maneuvering through main chan)	Boiler	78	-	39	741	132	105	1,067	41
<i>Total Inner Harbor Zone</i>		<i>4,459</i>	<i>2,533</i>	<i>2,030</i>	<i>48,982</i>	<i>2,665</i>	<i>2,132</i>	<i>8,701</i>	<i>2,138</i>
Hotelling	Diesel Engines	15,087	8,723	6,858	166,125	8,723	6,978	26,287	7,221
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
<i>Total Hotelling</i>		<i>16,542</i>	<i>8,723</i>	<i>7,586</i>	<i>180,028</i>	<i>11,191</i>	<i>8,953</i>	<i>46,294</i>	<i>7,987</i>
Total (lb/yr)		89,513	50,731	40,768	983,081	53,734	42,987	177,229	42,929
boilers only						3,003			932
Average Day (lb/day) - Transit		199.9	115.1	90.9	2,200.1	116.6	93.2	358.7	95.7
Average Day (lb/day) - Hotelling		45.3	23.9	20.8	493.2	30.7	24.5	126.8	21.9

*Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year*
*NOx Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels) * Time * 2 (1-Way) Trips * Vessels per Year*
*Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 69%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%

San Pedro Waterfront

Mitigated Alternative 4 Criteria Pollutant Emissions

Year: 2037

Note: for 2037, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Year (lb/yr)		CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Spatial Allocation	Power Type								
Sea / Fairway - North-Bound	Diesel Engines	800	463	364	8,751	463	370	1,394	383
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>800</i>	<i>463</i>	<i>364</i>	<i>8,751</i>	<i>463</i>	<i>370</i>	<i>1,394</i>	<i>383</i>
Sea / Fairway - South-Bound	Diesel Engines	33,781	19,532	15,355	369,562	19,532	15,625	58,861	16,169
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>33,781</i>	<i>19,532</i>	<i>15,355</i>	<i>369,562</i>	<i>19,532</i>	<i>15,625</i>	<i>58,861</i>	<i>16,169</i>
Fairway - North-Bound	Diesel Engines	958	554	436	10,482	554	443	1,670	459
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>958</i>	<i>554</i>	<i>436</i>	<i>10,482</i>	<i>554</i>	<i>443</i>	<i>1,670</i>	<i>459</i>
Fairway - South-Bound	Diesel Engines	16,156	9,341	7,344	176,747	9,341	7,473	28,151	7,733
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>16,156</i>	<i>9,341</i>	<i>7,344</i>	<i>176,747</i>	<i>9,341</i>	<i>7,473</i>	<i>28,151</i>	<i>7,733</i>
Precautionary Zone - North-Bound	Diesel Engines	330	191	150	3,606	191	152	574	158
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
<i>Total Precautionary Zone - North-Bound</i>		<i>334</i>	<i>191</i>	<i>152</i>	<i>3,648</i>	<i>198</i>	<i>158</i>	<i>635</i>	<i>160</i>
Precautionary Zone - South-Bound	Diesel Engines	12,484	7,218	5,675	136,577	7,218	5,775	21,753	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
<i>Total Precautionary Zone - South-Bound</i>		<i>12,651</i>	<i>7,218</i>	<i>5,758</i>	<i>138,171</i>	<i>7,501</i>	<i>6,001</i>	<i>24,046</i>	<i>6,063</i>
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	3,765	2,177	1,711	41,187	2,177	1,741	6,560	1,802
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	67	-	33	637	113	90	917	35
<i>Total Outer Harbor Zone2</i>		<i>3,832</i>	<i>2,177</i>	<i>1,745</i>	<i>41,825</i>	<i>2,290</i>	<i>1,832</i>	<i>7,477</i>	<i>1,837</i>
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	4,381	2,533	1,991	47,927	2,533	2,026	7,634	2,097
Inner Harbor Zone (maneuvering through main channel)	Boiler	78	-	39	741	132	105	1,067	41
<i>Total Inner Harbor Zone</i>		<i>4,459</i>	<i>2,533</i>	<i>2,030</i>	<i>48,669</i>	<i>2,665</i>	<i>2,132</i>	<i>8,701</i>	<i>2,138</i>
Hotelling	Diesel Engines	15,087	8,723	6,858	165,046	8,723	6,978	26,287	7,221
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
<i>Total Hotelling</i>		<i>16,542</i>	<i>8,723</i>	<i>7,585</i>	<i>178,949</i>	<i>11,191</i>	<i>8,953</i>	<i>46,294</i>	<i>7,987</i>
Total (lb/yr)	boilers only	89,513	50,731	40,768	976,803	53,734	42,987	177,229	42,929
						3,003			932
Average Day (lb/day) - Transit		199.9	115.1	90.9	2,185.9	116.6	93.2	358.7	95.7
Average Day (lb/day) - Hotelling		45.3	23.9	20.8	490.3	30.7	24.5	126.8	21.9

Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 78%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Mitigated Alternative 4 Toxic Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>3.69839</i>	<i>0.99956</i>	<i>7.49673</i>	<i>0.49978</i>	<i>0.04248</i>	<i>0.07997</i>	<i>1.29943</i>	<i>0.74967</i>	<i>0.56463</i>	<i>0.00083</i>
Sea / Fairway - South-Bound	Diesel Engines	4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>4.36897</i>	<i>1.18080</i>	<i>8.85602</i>	<i>0.59040</i>	<i>0.05018</i>	<i>0.09446</i>	<i>1.53504</i>	<i>0.88560</i>	<i>0.66700</i>	<i>0.00098</i>
Fairway - North-Bound	Diesel Engines	2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.31908	0.00047
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.09002</i>	<i>0.56487</i>	<i>4.23653</i>	<i>0.28244</i>	<i>0.02401</i>	<i>0.04519</i>	<i>0.73433</i>	<i>0.42365</i>	<i>0.31908</i>	<i>0.00047</i>
Fairway - South-Bound	Diesel Engines	1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.22603	0.00033
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.48053</i>	<i>0.40014</i>	<i>3.00108</i>	<i>0.20007</i>	<i>0.01701</i>	<i>0.03201</i>	<i>0.52019</i>	<i>0.30011</i>	<i>0.22603</i>	<i>0.00033</i>
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.12697	0.00019
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	0.00605	0.00001
<i>Total Precautionary Zone - North-Bound</i>		<i>0.83167</i>	<i>0.22808</i>	<i>1.68596</i>	<i>0.11407</i>	<i>0.00966</i>	<i>0.02042</i>	<i>0.29916</i>	<i>0.17188</i>	<i>0.13302</i>	<i>0.00020</i>
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.14390	0.00021
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	0.00686	0.00001
<i>Total Precautionary Zone - South-Bound</i>		<i>0.94255</i>	<i>0.25849</i>	<i>1.91076</i>	<i>0.12928</i>	<i>0.01095</i>	<i>0.02314</i>	<i>0.33905</i>	<i>0.19480</i>	<i>0.15075</i>	<i>0.00022</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.03371	0.00005
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	0.00213	0.00000
<i>Total Outer Harbor Zone1</i>		<i>0.22079</i>	<i>0.06084</i>	<i>0.44760</i>	<i>0.03043</i>	<i>0.00257</i>	<i>0.00563</i>	<i>0.08002</i>	<i>0.04591</i>	<i>0.03584</i>	<i>0.00005</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.04213	0.00006
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	0.00266	0.00000
<i>Total Outer Harbor Zone2</i>		<i>0.27599</i>	<i>0.07604</i>	<i>0.55950</i>	<i>0.03804</i>	<i>0.00322</i>	<i>0.00704</i>	<i>0.10003</i>	<i>0.05740</i>	<i>0.04480</i>	<i>0.00007</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths).	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.04903	0.00007
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths).	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	0.00310	0.00000
<i>Total Inner Harbor Zone</i>		<i>0.32115</i>	<i>0.08849</i>	<i>0.65105</i>	<i>0.04426</i>	<i>0.00374</i>	<i>0.00819</i>	<i>0.11640</i>	<i>0.06679</i>	<i>0.05213</i>	<i>0.00008</i>
Hoteling	Diesel Engines	0.69121	0.18681	1.40109	0.09341	0.00794	0.01494	0.24286	0.14011	0.10553	0.00016
Hoteling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	0.00968	0.00001
<i>Total Hoteling</i>		<i>0.69121</i>	<i>0.19210</i>	<i>1.40134</i>	<i>0.09610</i>	<i>0.00811</i>	<i>0.01884</i>	<i>0.25398</i>	<i>0.14539</i>	<i>0.11521</i>	<i>0.00017</i>
First Peak Hour Scenario (per vessel)		1.760	0.484	3.569	0.242	0.020	0.044	0.635	0.365	0.284	0.000
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.115	0.000
Second Peak Hour Scenario (per vessel)		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.115	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.115	0.000

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 2011 year

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00299	0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
0.00299	0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
0.00353	0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
0.00353	0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
0.00169	0.00375	0.00235	0.00394	0.00375	0.00282	0.00178	1.63294	0.00272	0.00338	-	0.00006	0.01192	0.04111
0.00169	0.00375	0.00235	0.00394	0.00375	0.00282	0.00178	1.63294	0.00272	0.00338	-	0.00006	0.01192	0.04111
0.00120	0.00266	0.00166	0.00279	0.00266	0.00199	0.00126	1.15674	0.00193	0.00239	-	0.00004	0.00844	0.02912
0.00120	0.00266	0.00166	0.00279	0.00266	0.00199	0.00126	1.15674	0.00193	0.00239	-	0.00004	0.00844	0.02912
0.00067	0.00149	0.00093	0.00157	0.00149	0.00112	0.00071	0.64978	0.00108	0.00134	-	0.00002	0.00474	0.01636
0.00003	0.00007	0.00004	0.00007	0.00007	0.00005	0.00003	0.03096	0.00005	0.00006	-	0.00000	0.00023	0.00078
0.00070	0.00156	0.00098	0.00164	0.00156	0.00117	0.00074	0.68074	0.00113	0.00141	-	0.00002	0.00497	0.01714
0.00076	0.00169	0.00106	0.00178	0.00169	0.00127	0.00080	0.73642	0.00123	0.00152	-	0.00003	0.00538	0.01854
0.00004	0.00008	0.00005	0.00008	0.00008	0.00006	0.00004	0.03509	0.00006	0.00007	-	0.00000	0.00026	0.00088
0.00080	0.00177	0.00111	0.00186	0.00177	0.00133	0.00084	0.77151	0.00129	0.00160	-	0.00003	0.00563	0.01942
0.00018	0.00040	0.00025	0.00042	0.00040	0.00030	0.00019	0.17250	0.00029	0.00036	-	0.00001	0.00126	0.00434
0.00001	0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01090	0.00002	0.00002	-	0.00000	0.00008	0.00027
0.00019	0.00043	0.00026	0.00044	0.00043	0.00032	0.00020	0.18340	0.00031	0.00038	-	0.00001	0.00123	0.00460
0.00022	0.00050	0.00031	0.00052	0.00050	0.00037	0.00024	0.21563	0.00036	0.00045	-	0.00001	0.00157	0.00543
0.00001	0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01362	0.00002	0.00003	-	0.00000	0.00010	0.00034
0.00024	0.00053	0.00033	0.00055	0.00053	0.00040	0.00025	0.22925	0.00038	0.00047	-	0.00001	0.00167	0.00577
0.00026	0.00058	0.00036	0.00061	0.00058	0.00043	0.00027	0.25091	0.00042	0.00052	-	0.00001	0.00183	0.00632
0.00002	0.00004	0.00002	0.00004	0.00004	0.00003	0.00002	0.01585	0.00003	0.00003	-	0.00000	0.00012	0.00040
0.00028	0.00061	0.00038	0.00064	0.00061	0.00046	0.00029	0.26677	0.00044	0.00055	-	0.00001	0.00195	0.00672
0.00056	0.00124	0.00078	0.00130	0.00124	0.00093	0.00059	0.54004	0.00090	0.00112	-	0.00002	0.00394	0.01359
0.00005	0.00011	0.00007	0.00012	0.00011	0.00009	0.00005	0.04954	0.00008	0.00010	-	0.00000	0.00036	0.00125
0.00061	0.00136	0.00085	0.00142	0.00136	0.00102	0.00064	0.58958	0.00098	0.00122	-	0.00002	0.00430	0.01484
0.002	0.003	0.002	0.004	0.003	0.003	0.002	1.451	0.002	0.003	-	0.000	0.011	0.037
0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.590	0.001	0.001	-	0.000	0.004	0.015

San Pedro Waterfront

Mitigated Alternative 4 Toxic Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346
Sea / Fairway - South-Bound	Diesel Engines	5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409
Fairway - North-Bound	Diesel Engines	2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.36506	0.00054	0.00193
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.36506	0.00054	0.00193
Fairway - South-Bound	Diesel Engines	1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.25810	0.00038	0.00137
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.25810	0.00038	0.00137
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.14320	0.00021	0.00076
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00605	0.00001	0.00003
Total Precautionary Zone - North-Bound		0.95019	0.25681	1.92607	0.12840	0.01091	0.02054	0.33385	0.19261	0.14925	0.00022	0.00079
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.16229	0.00024	0.00086
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00686	0.00001	0.00004
Total Precautionary Zone - South-Bound		1.07689	0.29105	2.18288	0.14553	0.01237	0.02328	0.37837	0.21829	0.16915	0.00025	0.00090
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.03702	0.00005	0.00020
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00213	0.00000	0.00001
Total Outer Harbor Zone1		0.24681	0.06670	0.50029	0.03335	0.00283	0.00533	0.08671	0.05003	0.03915	0.00005	0.00021
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.04628	0.00007	0.00025
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00266	0.00000	0.00001
Total Outer Harbor Zone2		0.30851	0.08338	0.62536	0.04169	0.00354	0.00667	0.10840	0.06254	0.04894	0.00007	0.00026
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.05385	0.00008	0.00029
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00310	0.00000	0.00002
Total Inner Harbor Zone		0.35899	0.09703	0.72769	0.04851	0.00412	0.00776	0.12613	0.07277	0.05695	0.00008	0.00030
Hoteling	Diesel Engines	0.75090	0.20295	1.52210	0.10147	0.00863	0.01624	0.26383	0.15221	0.11464	0.00017	0.00061
Hoteling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00968	0.00001	0.00005
Total Hoteling		0.77046	0.20823	1.56174	0.10412	0.00885	0.01666	0.27070	0.15617	0.12432	0.00018	0.00066
First Peak Hour Scenario (per vessel)		1.991	0.538	4.036	0.269	0.023	0.043	0.700	0.404	0.314	0.000	0.002
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.		0.770	0.208	1.562	0.104	0.009	0.017	0.271	0.156	0.124	0.000	0.001
Second Peak Hour Scenario (per vessel)		0.770	0.208	1.562	0.104	0.009	0.017	0.271	0.156	0.124	0.000	0.001
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.		0.770	0.208	1.562	0.104	0.009	0.017	0.271	0.156	0.124	0.000	0.001
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels: 0.0 2011 year												

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00429	0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311	0.00387	-	0.00006	0.01364	0.04703
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00429	0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311	0.00387	-	0.00006	0.01364	0.04703
0.00304	0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220	0.00273	-	0.00005	0.00964	0.03325
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00304	0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220	0.00273	-	0.00005	0.00964	0.03325
0.00168	0.00105	0.00177	0.00168	0.00126	0.00080	0.73284	0.00122	0.00152	-	0.00003	0.00535	0.01845
0.00007	0.00004	0.00007	0.00007	0.00005	0.00003	0.03096	0.00005	0.00006	-	0.00000	0.00023	0.00078
0.00176	0.00110	0.00184	0.00176	0.00132	0.00083	0.76380	0.00127	0.00158	-	0.00003	0.00557	0.01923
0.00191	0.00119	0.00200	0.00191	0.00143	0.00091	0.83055	0.00138	0.00172	-	0.00003	0.00606	0.02091
0.00008	0.00005	0.00008	0.00008	0.00006	0.00004	0.03509	0.00006	0.00007	-	0.00000	0.00026	0.00088
0.00199	0.00124	0.00209	0.00199	0.00149	0.00095	0.86564	0.00144	0.00179	-	0.00003	0.00632	0.02179
0.00044	0.00027	0.00046	0.00044	0.00033	0.00021	0.18947	0.00032	0.00039	-	0.00001	0.00138	0.00477
0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01090	0.00002	0.00002	-	0.00000	0.00008	0.00027
0.00044	0.00027	0.00046	0.00044	0.00033	0.00021	0.18947	0.00032	0.00039	-	0.00001	0.00138	0.00477
0.00054	0.00034	0.00057	0.00054	0.00041	0.00026	0.23684	0.00039	0.00049	-	0.00001	0.00173	0.00596
0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01362	0.00002	0.00003	-	0.00000	0.00010	0.00034
0.00058	0.00036	0.00060	0.00058	0.00043	0.00027	0.25046	0.00042	0.00052	-	0.00001	0.00183	0.00630
0.00063	0.00040	0.00067	0.00063	0.00048	0.00030	0.27559	0.00046	0.00057	-	0.00001	0.00201	0.00694
0.00004	0.00002	0.00004	0.00004	0.00003	0.00002	0.01585	0.00003	0.00003	-	0.00000	0.00012	0.00040
0.00067	0.00042	0.00070	0.00067	0.00050	0.00032	0.29145	0.00049	0.00060	-	0.00001	0.00213	0.00734
0.00135	0.00084	0.00142	0.00135	0.00101	0.00064	0.58668	0.00098	0.00121	-	0.00002	0.00428	0.01477
0.00011	0.00007	0.00012	0.00011	0.00009	0.00005	0.04954	0.00008	0.00010	-	0.00000	0.00036	0.00125
0.00146	0.00097	0.00154	0.00146	0.00110	0.00069	0.63622	0.00106	0.00132	-	0.00002	0.00464	0.01602
0.004	0.002	0.004	0.004	0.003	0.002	1.608	0.003	0.003	-	0.000	0.012	0.040
0.001	0.001	0.002	0.001	0.001	0.001	0.636	0.001	0.001	-	0.000	0.005	0.016

San Pedro Waterfront

Mitigated Alternative 4 Toxic Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2.51453	0.67960	5.09701	0.33980	0.02888	0.05437	0.88348	0.50970	0.31475	0.00046
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2.51453</i>	<i>0.67960</i>	<i>5.09701</i>	<i>0.33980</i>	<i>0.02888</i>	<i>0.05437</i>	<i>0.88348</i>	<i>0.50970</i>	<i>0.31475</i>	<i>0.00046</i>
Sea / Fairway - South-Bound	Diesel Engines	2.84982	0.77022	5.77666	0.38511	0.03273	0.06162	1.00129	0.57767	0.36594	0.00054
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>2.84982</i>	<i>0.77022</i>	<i>5.77666</i>	<i>0.38511</i>	<i>0.03273</i>	<i>0.06162</i>	<i>1.00129</i>	<i>0.57767</i>	<i>0.36594</i>	<i>0.00054</i>
Fairway - North-Bound	Diesel Engines	2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.24995	0.00037
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.09002</i>	<i>0.56487</i>	<i>4.23653</i>	<i>0.28244</i>	<i>0.02401</i>	<i>0.04519</i>	<i>0.73433</i>	<i>0.42365</i>	<i>0.24995</i>	<i>0.00037</i>
Fairway - South-Bound	Diesel Engines	1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.16266	0.00024
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.48053</i>	<i>0.40014</i>	<i>3.00108</i>	<i>0.20007</i>	<i>0.01701</i>	<i>0.03201</i>	<i>0.52019</i>	<i>0.30011</i>	<i>0.16266</i>	<i>0.00024</i>
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.08376	0.00012
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00382	0.00001
<i>Total Precautionary Zone - North-Bound</i>		<i>0.84389</i>	<i>0.22808</i>	<i>1.71058</i>	<i>0.11404</i>	<i>0.00969</i>	<i>0.01825</i>	<i>0.29650</i>	<i>0.17106</i>	<i>0.08758</i>	<i>0.00013</i>
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.09493	0.00014
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00433	0.00001
<i>Total Precautionary Zone - South-Bound</i>		<i>0.95641</i>	<i>0.25849</i>	<i>1.93866</i>	<i>0.12924</i>	<i>0.01099</i>	<i>0.02068</i>	<i>0.33603</i>	<i>0.19387</i>	<i>0.09926</i>	<i>0.00015</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.02224	0.00003
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00134	0.00000
<i>Total Outer Harbor Zone1</i>		<i>0.22509</i>	<i>0.06084</i>	<i>0.45626</i>	<i>0.03042</i>	<i>0.00259</i>	<i>0.00487</i>	<i>0.07908</i>	<i>0.04563</i>	<i>0.02358</i>	<i>0.00003</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.02780	0.00004
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00168	0.00000
<i>Total Outer Harbor Zone2</i>		<i>0.28136</i>	<i>0.07604</i>	<i>0.57033</i>	<i>0.03802</i>	<i>0.00323</i>	<i>0.00608</i>	<i>0.09886</i>	<i>0.05703</i>	<i>0.02948</i>	<i>0.00004</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.03234	0.00005
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00196	0.00000
<i>Total Inner Harbor Zone</i>		<i>0.32740</i>	<i>0.08849</i>	<i>0.66366</i>	<i>0.04424</i>	<i>0.00376</i>	<i>0.00708</i>	<i>0.11503</i>	<i>0.06637</i>	<i>0.03430</i>	<i>0.00005</i>
Hoteling	Diesel Engines	0.37440	0.10119	0.75893	0.05060	0.00430	0.00810	0.13155	0.07589	0.05417	0.00008
Hoteling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00611	0.00001
<i>Total Hoteling</i>		<i>0.39396</i>	<i>0.10648</i>	<i>0.79856</i>	<i>0.05324</i>	<i>0.00453</i>	<i>0.00852</i>	<i>0.13842</i>	<i>0.07985</i>	<i>0.06028</i>	<i>0.00009</i>
First Peak Hour Scenario (per vessel)		1.790	0.484	3.629	0.242	0.021	0.039	0.629	0.363	0.187	0.000
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.		0.394	0.106	0.799	0.053	0.005	0.009	0.138	0.080	0.060	0.000
Second Peak Hour Scenario (per vessel)		0.394	0.106	0.799	0.053	0.005	0.009	0.138	0.080	0.060	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.		0.394	0.106	0.799	0.053	0.005	0.009	0.138	0.080	0.060	0.000
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:		3.0	2015+	years							

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00167	0.00370	0.00231	0.00389	0.00370	0.00278	0.00176	1.61080	0.00268	0.00333	-	0.00006	0.01176	0.04055
0.00167	0.00370	0.00231	0.00389	0.00370	0.00278	0.00176	1.61080	0.00268	0.00333	-	0.00006	0.01176	0.04055
0.00194	0.00431	0.00269	0.00452	0.00431	0.00323	0.00204	1.87276	0.00312	0.00387	-	0.00006	0.01367	0.04714
0.00194	0.00431	0.00269	0.00452	0.00431	0.00323	0.00204	1.87276	0.00312	0.00387	-	0.00006	0.01367	0.04714
0.00132	0.00294	0.00184	0.00309	0.00294	0.00221	0.00140	1.27913	0.00213	0.00265	-	0.00004	0.00934	0.03220
0.00132	0.00294	0.00184	0.00309	0.00294	0.00221	0.00140	1.27913	0.00213	0.00265	-	0.00004	0.00934	0.03220
0.00086	0.00191	0.00120	0.00201	0.00191	0.00144	0.00091	0.83242	0.00139	0.00172	-	0.00003	0.00608	0.02095
0.00086	0.00191	0.00120	0.00201	0.00191	0.00144	0.00091	0.83242	0.00139	0.00172	-	0.00003	0.00608	0.02095
0.00044	0.00099	0.00062	0.00103	0.00099	0.00074	0.00047	0.42865	0.00071	0.00089	-	0.00001	0.00313	0.01079
0.00002	0.00004	0.00003	0.00005	0.00004	0.00003	0.00002	0.01955	0.00003	0.00004	-	0.00000	0.00014	0.00049
0.00046	0.00103	0.00064	0.00108	0.00103	0.00077	0.00049	0.44820	0.00075	0.00093	-	0.00002	0.00327	0.01128
0.00050	0.00112	0.00070	0.00117	0.00112	0.00084	0.00053	0.48581	0.00081	0.00101	-	0.00002	0.00355	0.01223
0.00002	0.00005	0.00003	0.00005	0.00005	0.00004	0.00002	0.02215	0.00004	0.00005	-	0.00000	0.00016	0.00056
0.00053	0.00117	0.00073	0.00123	0.00117	0.00088	0.00055	0.50796	0.00085	0.00105	-	0.00002	0.00371	0.01279
0.00012	0.00026	0.00016	0.00027	0.00026	0.00020	0.00012	0.11380	0.00019	0.00024	-	0.00000	0.00083	0.00286
0.00001	0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00688	0.00001	0.00001	-	0.00000	0.00005	0.00017
0.00012	0.00026	0.00016	0.00029	0.00026	0.00021	0.00013	0.12066	0.00020	0.00025	-	0.00000	0.00088	0.00301
0.00015	0.00033	0.00020	0.00034	0.00033	0.00025	0.00016	0.14225	0.00024	0.00029	-	0.00000	0.00104	0.00358
0.00001	0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00860	0.00001	0.00002	-	0.00000	0.00006	0.00022
0.00016	0.00035	0.00022	0.00036	0.00035	0.00026	0.00016	0.15085	0.00025	0.00031	-	0.00001	0.00110	0.00380
0.00017	0.00038	0.00024	0.00040	0.00038	0.00029	0.00018	0.16552	0.00028	0.00034	-	0.00001	0.00121	0.00417
0.00001	0.00002	0.00001	0.00002	0.00002	0.00002	0.00001	0.01001	0.00002	0.00002	-	0.00000	0.00007	0.00025
0.00018	0.00040	0.00025	0.00042	0.00040	0.00030	0.00019	0.17553	0.00029	0.00036	-	0.00001	0.00128	0.00442
0.00029	0.00064	0.00040	0.00067	0.00064	0.00048	0.00030	0.27721	0.00046	0.00057	-	0.00001	0.00202	0.00698
0.00003	0.00007	0.00004	0.00008	0.00007	0.00005	0.00003	0.03128	0.00005	0.00006	-	0.00000	0.00023	0.00079
0.00032	0.00071	0.00044	0.00074	0.00071	0.00052	0.00034	0.30848	0.00051	0.00064	-	0.00001	0.00225	0.00772
0.001	0.002	0.001	0.002	0.002	0.002	0.001	0.955	0.002	0.002	-	0.000	0.007	0.024
0.000	0.001	0.000	0.001	0.001	0.001	0.000	0.308	0.001	0.001	-	0.000	0.002	0.008

San Pedro Waterfront

Mitigated Alternative 4 Toxic Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2.89357	0.78205	5.86535	0.39102	0.03324	0.06256	1.01666	0.58654	0.36379	0.00053
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2.89357</i>	<i>0.78205</i>	<i>5.86535</i>	<i>0.39102</i>	<i>0.03324</i>	<i>0.06256</i>	<i>1.01666</i>	<i>0.58654</i>	<i>0.36379</i>	<i>0.00053</i>
Sea / Fairway - South-Bound	Diesel Engines	3.28217	0.88707	6.65306	0.44354	0.03770	0.07097	1.15320	0.66531	0.42311	0.00062
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>3.28217</i>	<i>0.88707</i>	<i>6.65306</i>	<i>0.44354</i>	<i>0.03770</i>	<i>0.07097</i>	<i>1.15320</i>	<i>0.66531</i>	<i>0.42311</i>	<i>0.00062</i>
Fairway - North-Bound	Diesel Engines	2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.28709	0.00042
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.39121</i>	<i>0.64627</i>	<i>4.84704</i>	<i>0.32314</i>	<i>0.02747</i>	<i>0.05170</i>	<i>0.84015</i>	<i>0.48470</i>	<i>0.28709</i>	<i>0.00042</i>
Fairway - South-Bound	Diesel Engines	1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.18662	0.00027
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.69058</i>	<i>0.45691</i>	<i>3.42684</i>	<i>0.22846</i>	<i>0.01942</i>	<i>0.03655</i>	<i>0.59399</i>	<i>0.34268</i>	<i>0.18662</i>	<i>0.00027</i>
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.09447	0.00014
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00382	0.00001
<i>Total Precautionary Zone - North-Bound</i>		<i>0.95019</i>	<i>0.25681</i>	<i>1.92607</i>	<i>0.12840</i>	<i>0.01091</i>	<i>0.02054</i>	<i>0.33385</i>	<i>0.19261</i>	<i>0.09829</i>	<i>0.00014</i>
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.10706	0.00016
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00433	0.00001
<i>Total Precautionary Zone - South-Bound</i>		<i>1.07689</i>	<i>0.29105</i>	<i>2.18288</i>	<i>0.14553</i>	<i>0.01237</i>	<i>0.02328</i>	<i>0.37837</i>	<i>0.21829</i>	<i>0.11139</i>	<i>0.00016</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.02442	0.00004
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00134	0.00000
<i>Total Outer Harbor Zone1</i>		<i>0.24681</i>	<i>0.06671</i>	<i>0.50029</i>	<i>0.03335</i>	<i>0.00283</i>	<i>0.00534</i>	<i>0.08672</i>	<i>0.05003</i>	<i>0.02577</i>	<i>0.00004</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.03053	0.00004
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00168	0.00000
<i>Total Outer Harbor Zone2</i>		<i>0.30851</i>	<i>0.08338</i>	<i>0.62536</i>	<i>0.04169</i>	<i>0.00354</i>	<i>0.00667</i>	<i>0.10840</i>	<i>0.06254</i>	<i>0.03221</i>	<i>0.00005</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.03553	0.00005
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00196	0.00000
<i>Total Inner Harbor Zone</i>		<i>0.35899</i>	<i>0.09703</i>	<i>0.72769</i>	<i>0.04851</i>	<i>0.00412</i>	<i>0.00776</i>	<i>0.12613</i>	<i>0.07277</i>	<i>0.03748</i>	<i>0.00006</i>
Hoteling	Diesel Engines	0.40674	0.10993	0.82447	0.05496	0.00467	0.00879	0.14291	0.08245	0.05885	0.00009
Hoteling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00611	0.00001
<i>Total Hoteling</i>		<i>0.42629</i>	<i>0.11521</i>	<i>0.86411</i>	<i>0.05761</i>	<i>0.00489</i>	<i>0.00922</i>	<i>0.14978</i>	<i>0.08641</i>	<i>0.06496</i>	<i>0.00010</i>
First Peak Hour Scenario (per vessel)		1.991	0.538	4.036	0.269	0.023	0.043	0.700	0.404	0.207	0.000
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.											
Second Peak Hour Scenario (per vessel)		0.426	0.115	0.864	0.058	0.005	0.009	0.150	0.086	0.065	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.											
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:							0.0	2015+ years			

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00193	0.00428	0.00267	0.00449	0.00428	0.00321	0.00203	1.86172	0.00310	0.00385	-	0.00006	0.01359	0.04686
0.00193	0.00428	0.00267	0.00449	0.00428	0.00321	0.00203	1.86172	0.00310	0.00385	-	0.00006	0.01359	0.04686
0.00224	0.00498	0.00311	0.00523	0.00498	0.00373	0.00236	2.16534	0.00361	0.00448	-	0.00007	0.01580	0.05451
0.00224	0.00498	0.00311	0.00523	0.00498	0.00373	0.00236	2.16534	0.00361	0.00448	-	0.00007	0.01580	0.05451
0.00152	0.00338	0.00211	0.00355	0.00338	0.00253	0.00160	1.46922	0.00245	0.00304	-	0.00005	0.01072	0.03698
0.00152	0.00338	0.00211	0.00355	0.00338	0.00253	0.00160	1.46922	0.00245	0.00304	-	0.00005	0.01072	0.03698
0.00099	0.00220	0.00137	0.00231	0.00220	0.00165	0.00104	0.95507	0.00159	0.00198	-	0.00003	0.00697	0.02404
0.00099	0.00220	0.00137	0.00231	0.00220	0.00165	0.00104	0.95507	0.00159	0.00198	-	0.00003	0.00697	0.02404
0.00050	0.00111	0.00069	0.00117	0.00111	0.00083	0.00053	0.48345	0.00081	0.00100	-	0.00002	0.00353	0.01217
0.00002	0.00004	0.00003	0.00005	0.00004	0.00003	0.00002	0.01955	0.00003	0.00004	-	0.00000	0.00014	0.00049
0.00052	0.00116	0.00072	0.00121	0.00116	0.00087	0.00055	0.50299	0.00084	0.00104	-	0.00002	0.00367	0.01266
0.00057	0.00126	0.00079	0.00132	0.00126	0.00094	0.00060	0.54790	0.00091	0.00113	-	0.00002	0.00400	0.01379
0.00002	0.00005	0.00003	0.00005	0.00005	0.00004	0.00002	0.02215	0.00004	0.00005	-	0.00000	0.00016	0.00056
0.00059	0.00131	0.00082	0.00138	0.00131	0.00098	0.00062	0.57006	0.00095	0.00118	-	0.00002	0.00416	0.01435
0.00013	0.00029	0.00018	0.00030	0.00029	0.00022	0.00014	0.12499	0.00021	0.00026	-	0.00000	0.00091	0.00315
0.00001	0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00688	0.00001	0.00001	-	0.00000	0.00005	0.00017
0.00014	0.00030	0.00019	0.00032	0.00030	0.00023	0.00014	0.13187	0.00022	0.00027	-	0.00000	0.00096	0.00332
0.00016	0.00036	0.00022	0.00038	0.00036	0.00027	0.00017	0.15624	0.00026	0.00032	-	0.00001	0.00114	0.00393
0.00001	0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00860	0.00001	0.00002	-	0.00000	0.00006	0.00022
0.00017	0.00038	0.00024	0.00040	0.00038	0.00028	0.00018	0.16484	0.00027	0.00034	-	0.00001	0.00120	0.00415
0.00019	0.00042	0.00026	0.00044	0.00042	0.00031	0.00020	0.18181	0.00030	0.00038	-	0.00001	0.00133	0.00458
0.00001	0.00002	0.00001	0.00002	0.00002	0.00002	0.00001	0.01001	0.00002	0.00002	-	0.00000	0.00007	0.00025
0.00020	0.00044	0.00028	0.00046	0.00044	0.00033	0.00021	0.19181	0.00032	0.00040	-	0.00001	0.00140	0.00483
0.00031	0.00069	0.00043	0.00073	0.00069	0.00052	0.00033	0.30115	0.00050	0.00062	-	0.00001	0.00220	0.00758
0.00003	0.00007	0.00004	0.00008	0.00007	0.00005	0.00003	0.03128	0.00005	0.00006	-	0.00000	0.00023	0.00079
0.00034	0.00076	0.00048	0.00080	0.00076	0.00057	0.00036	0.32242	0.00055	0.00069	-	0.00001	0.00242	0.00832
0.001	0.002	0.002	0.003	0.002	0.002	0.001	1.059	0.002	0.002	-	0.000	0.008	0.027
0.000	0.001	0.000	0.001	0.001	0.001	0.000	0.332	0.001	0.001	-	0.000	0.002	0.008

San Pedro Waterfront

Mitigated Alternative 4 Toxic Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	1,547										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,547</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	65,341										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>65,341</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,033										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,033</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	17,413										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>17,413</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	355										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>355</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	13,455										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.4	4.1	2.0	-	2.8
<i>Total Precautionary Zone - South-Bound</i>		<i>13,455</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>4.1</i>	<i>2.0</i>	<i>-</i>	<i>2.8</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	4,058										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.6	0.8	-	1.1
<i>Total Outer Harbor Zone2</i>		<i>4,058</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.8</i>	<i>-</i>	<i>1.1</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,722										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	1.9	0.9	-	1.3
<i>Total Inner Harbor Zone</i>		<i>4,722</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>1.9</i>	<i>0.9</i>	<i>-</i>	<i>1.3</i>
Hoteling	Diesel Engines	44,207										
Hoteling	Boiler		-	17.1	0.8	8.7	0.6	12.6	35.9	17.1	-	24.8
<i>Total Hoteling</i>		<i>44,207</i>	<i>-</i>	<i>17.1</i>	<i>0.8</i>	<i>8.7</i>	<i>0.6</i>	<i>12.6</i>	<i>35.9</i>	<i>17.1</i>	<i>-</i>	<i>24.8</i>
		152,131	-	21	1	11	1	15	44	21	-	30

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	3.5	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	3.5	-	-	-	0.0	-	0.1
-	0.3	-	2.9	-	-	0.3	131.8	-	-	-	0.1	-	2.9
-	0.3	-	2.9	-	-	0.3	131.6	-	-	-	0.1	-	2.9
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.2	-	-	0.1	52.7	-	-	-	0.1	-	1.2
-	0.1	-	1.2	-	-	0.1	52.7	-	-	-	0.1	-	1.2
-	0.1	-	1.3	-	-	0.1	61.3	-	-	-	0.1	-	1.3
-	0.1	-	1.3	-	-	0.1	61.3	-	-	-	0.1	-	1.3
-	2.3	-	25.3	-	-	2.3	1,150.0	-	-	-	1.2	-	25.3
-	2.3	-	25.3	-	-	2.3	1,150.0	-	-	-	1.2	-	25.3
-	3	-	31	-	-	3	1,399	-	-	-	2	-	31

San Pedro Waterfront

Mitigated Alternative 4 Toxic Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	463										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>463</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	19,532										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>19,532</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	554										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>554</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	9,341										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>9,341</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	191										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>191</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>
Precautionary Zone - South-Bound	Diesel Engines	7,218										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5
<i>Total Precautionary Zone - South-Bound</i>		<i>7,218</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>1.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,177										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	0.6
<i>Total Outer Harbor Zone2</i>		<i>2,177</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>0.6</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	2,533										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	0.7
<i>Total Inner Harbor Zone</i>		<i>2,533</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>0.7</i>
Hoteling	Diesel Engines	8,723										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3
<i>Total Hoteling</i>		<i>8,723</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>13.3</i>
		50,731	-	21	1	11	1	16	45	21	-	16

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	0.6	-	-	0.1	28.3	-	-	-	0.0	-	0.6
-	0.1	-	0.6	-	-	0.1	28.3	-	-	-	0.0	-	0.6
-	0.1	-	0.7	-	-	0.1	32.9	-	-	-	0.0	-	0.7
-	0.1	-	0.7	-	-	0.1	32.9	-	-	-	0.0	-	0.7
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	2	-	17	-	-	2	751	-	-	-	1	-	17

San Pedro Waterfront

Mitigated Alternative 4 Toxic Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	463										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>463</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	19,532										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>19,532</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	554										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>554</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	9,341										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>9,341</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	191										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>191</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>
Precautionary Zone - South-Bound	Diesel Engines	7,218										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5
<i>Total Precautionary Zone - South-Bound</i>		<i>7,218</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>1.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,177										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	0.6
<i>Total Outer Harbor Zone2</i>		<i>2,177</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>0.6</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	2,533										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	0.7
<i>Total Inner Harbor Zone</i>		<i>2,533</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>0.7</i>
Hoteling	Diesel Engines	8,723										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3
<i>Total Hoteling</i>		<i>8,723</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>13.3</i>
		50,731	-	21	1	11	1	16	45	21	-	16

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	0.6	-	-	0.1	28.3	-	-	-	0.0	-	0.6
-	0.1	-	0.6	-	-	0.1	28.3	-	-	-	0.0	-	0.6
-	0.1	-	0.7	-	-	0.1	32.9	-	-	-	0.0	-	0.7
-	0.1	-	0.7	-	-	0.1	32.9	-	-	-	0.0	-	0.7
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	2	-	17	-	-	2	751	-	-	-	1	-	17

San Pedro Waterfront

Mitigated Alternative 4 Toxic Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	463										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>463</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	19,532										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>19,532</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	554										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>554</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	9,341										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>9,341</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	191										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>191</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>
Precautionary Zone - South-Bound	Diesel Engines	7,218										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5
<i>Total Precautionary Zone - South-Bound</i>		<i>7,218</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>1.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,177										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	0.6
<i>Total Outer Harbor Zone2</i>		<i>2,177</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>0.6</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	2,533										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	0.7
<i>Total Inner Harbor Zone</i>		<i>2,533</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>0.7</i>
Hoteling	Diesel Engines	8,723										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3
<i>Total Hoteling</i>		<i>8,723</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>13.3</i>
		50,731	-	21	1	11	1	16	45	21	-	16

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	0.6	-	-	0.1	28.3	-	-	-	0.0	-	0.6
-	0.1	-	0.6	-	-	0.1	28.3	-	-	-	0.0	-	0.6
-	0.1	-	0.7	-	-	0.1	32.9	-	-	-	0.0	-	0.7
-	0.1	-	0.7	-	-	0.1	32.9	-	-	-	0.0	-	0.7
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	2	-	17	-	-	2	751	-	-	-	1	-	17

San Pedro Waterfront

70-Year Average Calculations		Mitigated Alternative 4													
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year								
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
DPM															
Sea / Fairway - North-Bound	Diesel Engines	538	2,024	2,024	1,547	1,547	463	463	463	463	463	463	463		
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-		
<i>Total in Sea / Fairway - North-Bound</i>			-	-	-	-	-	-	-	-	-	-	-		
Sea / Fairway - South-Bound	Diesel Engines	22,725	85,494	85,494	65,341	65,341	19,532	19,532	19,532	19,532	19,532	19,532	19,532		
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-		
<i>Total in Sea / Fairway - South-Bound</i>			-	-	-	-	-	-	-	-	-	-	-		
Fairway - North-Bound	Diesel Engines	595	1,501	1,501	1,033	1,033	554	554	554	554	554	554	554		
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-		
<i>Total in Fairway - North-Bound</i>			-	-	-	-	-	-	-	-	-	-	-		
Fairway - South-Bound	Diesel Engines	10,028	25,308	25,308	17,413	17,413	9,341	9,341	9,341	9,341	9,341	9,341	9,341		
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-		
<i>Total in Fairway - South-Bound</i>			-	-	-	-	-	-	-	-	-	-	-		
Precautionary Zone - North-Bound	Diesel Engines	203	449	449	355	355	191	191	191	191	191	191	191		
Precautionary Zone - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-		
<i>Total Precautionary Zone - North-Bound</i>			-	-	-	-	-	-	-	-	-	-	-		
Precautionary Zone - South-Bound	Diesel Engines	7,676	16,993	16,993	13,455	13,455	7,218	7,218	7,218	7,218	7,218	7,218	7,218		
Precautionary Zone - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-		
<i>Total Precautionary Zone - South-Bound</i>			-	-	-	-	-	-	-	-	-	-	-		
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-		
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-	-		
<i>Total Outer Harbor Zone1</i>			-	-	-	-	-	-	-	-	-	-	-		
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,313	5,053	5,053	4,058	4,058	2,177	2,177	2,177	2,177	2,177	2,177	2,177		
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	-	-	-	-	-	-	-	-	-	-		
<i>Total Outer Harbor Zone2</i>			-	-	-	-	-	-	-	-	-	-	-		
Inner Harbor Zone (maneuvering through main channel: inner	Diesel Engines	2,691	5,880	5,880	4,722	4,722	2,533	2,533	2,533	2,533	2,533	2,533	2,533		
Inner Harbor Zone (maneuvering through main channel: inner	Boiler		-	-	-	-	-	-	-	-	-	-	-		
<i>Total Inner Harbor Zone</i>			-	-	-	-	-	-	-	-	-	-	-		
Hoteling	Diesel Engines	11,645	75,504	75,504	44,207	44,207	8,723	8,723	8,723	8,723	8,723	8,723	8,723		
Hoteling	Boiler		-	-	-	-	-	-	-	-	-	-	-		
<i>Total Hoteling</i>			-	-	-	-	-	-	-	-	-	-	-		

San Pedro Waterfront

Evaluation Year															Evaluation Year		
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058
463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723

San Pedro Waterfront

2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723

San Pedro Waterfront

70-Year Average Calculations		Mitigated Alternative 4											
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year						
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
PM from OGV boilers													
Sea / Fairway - North-Bound	Diesel Engines												
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>													
Sea / Fairway - South-Bound	Diesel Engines												
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>													
Fairway - North-Bound	Diesel Engines												
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>													
Fairway - South-Bound	Diesel Engines												
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>													
Precautionary Zone - North-Bound	Diesel Engines												
Precautionary Zone - North-Bound	Boiler	8	17	17	14	14	7	7	7	7	7	7	7
<i>Total Precautionary Zone - North-Bound</i>													
Precautionary Zone - South-Bound	Diesel Engines												
Precautionary Zone - South-Bound	Boiler	300	626	626	527	527	283	283	283	283	283	283	283
<i>Total Precautionary Zone - South-Bound</i>													
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁶⁾	Diesel Engines												
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁶⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>													
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines												
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	120	250	250	211	211	113	113	113	113	113	113	113
<i>Total Outer Harbor Zone2</i>													
Inner Harbor Zone (maneuvering through main channel: inner	Diesel Engines												
Inner Harbor Zone (maneuvering through main channel: inner	Boiler	139	291	291	245	245	132	132	132	132	132	132	132
<i>Total Inner Harbor Zone</i>													
Hotelling	Diesel Engines												
Hotelling	Boiler	2,614	5,460	5,460	4,600	4,600	2,468	2,468	2,468	2,468	2,468	2,468	2,468
<i>Total Hotelling</i>													

San Pedro Waterfront

Evaluation Year																Evaluation Year	
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468

San Pedro Waterfront

2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468

San Pedro Waterfront

70-Year Average Calculations		Mitigated Alternative 4											
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year						
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
VOC from OGV boilers													
Sea / Fairway - North-Bound	Diesel Engines												
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>													
Sea / Fairway - South-Bound	Diesel Engines												
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>													
Fairway - North-Bound	Diesel Engines												
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>													
Fairway - South-Bound	Diesel Engines												
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>													
Precautionary Zone - North-Bound	Diesel Engines												
Precautionary Zone - North-Bound	Boiler	2	2	2	2	2	2	2	2	2	2	2	2
<i>Total Precautionary Zone - North-Bound</i>													
Precautionary Zone - South-Bound	Diesel Engines												
Precautionary Zone - South-Bound	Boiler	88	82	82	86	88	88	88	88	88	88	88	88
<i>Total Precautionary Zone - South-Bound</i>													
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines												
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>													
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines												
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	35	33	33	34	34	35	35	35	35	35	35	35
<i>Total Outer Harbor Zone2</i>													
Inner Harbor Zone (maneuvering through main channel: inner	Diesel Engines												
Inner Harbor Zone (maneuvering through main channel: inner	Boiler	41	38	38	40	40	41	41	41	41	41	41	41
<i>Total Inner Harbor Zone</i>													
Hoteling	Diesel Engines												
Hoteling	Boiler	764	719	719	749	749	766	766	766	766	766	766	766
<i>Total Hoteling</i>													

San Pedro Waterfront

Evaluation Year															Evaluation Year		
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

Mitigated Alternative 4 Toxic Pollutant Emissions

70-Year Average

Year (lb/yr)	Spatial Allocation	Power Type	DPM	VOC							PM			
				Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	
	Sea / Fairway - North-Bound	Diesel Engines	538											
	Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - North-Bound</i>		<i>538</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Sea / Fairway - South-Bound	Diesel Engines	22,725											
	Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - South-Bound</i>		<i>22,725</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - North-Bound	Diesel Engines	595											
	Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - North-Bound</i>		<i>595</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - South-Bound	Diesel Engines	10,028											
	Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - South-Bound</i>		<i>10,028</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Precautionary Zone - North-Bound	Diesel Engines	203											
	Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	-	0.0
	<i>Total Precautionary Zone - North-Bound</i>		<i>203</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>-</i>	<i>0.0</i>
	Precautionary Zone - South-Bound	Diesel Engines	7,676											
	Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	-	1.6
	<i>Total Precautionary Zone - South-Bound</i>		<i>7,676</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>-</i>	<i>1.6</i>
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-											
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-	-
	<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,313											
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	-	0.6
	<i>Total Outer Harbor Zone2</i>		<i>2,313</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>-</i>	<i>0.6</i>
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	2,691											
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	-	0.8
	<i>Total Inner Harbor Zone</i>		<i>2,691</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>-</i>	<i>0.8</i>
	Hoteling	Diesel Engines	11,645											
	Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.6	17.4	-	-	14.1
	<i>Total Hoteling</i>		<i>11,645</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.6</i>	<i>17.4</i>	<i>-</i>	<i>-</i>	<i>14.1</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	2.0	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	2.0	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	74.9	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	74.9	-	-	-	0.1	-	1.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	0.7	-	-	0.1	30.0	-	-	-	0.0	-	0.7
-	0.1	-	0.7	-	-	0.1	30.0	-	-	-	0.0	-	0.7
-	0.1	-	0.8	-	-	0.1	34.9	-	-	-	0.0	-	0.8
-	0.1	-	0.6	-	-	0.1	34.9	-	-	-	0.0	-	0.6
-	1.3	-	14.4	-	-	1.3	653.5	-	-	-	0.7	-	14.4
-	1.3	-	14.4	-	-	1.3	653.5	-	-	-	0.7	-	14.4

San Pedro Waterfront

Unmitigated Alternative 5 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>43.2</i>	<i>78.2</i>	<i>19.6</i>	<i>549.7</i>	<i>78.2</i>	<i>62.6</i>	<i>752.5</i>	<i>20.7</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.8</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.
Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 - (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
 1 lb = 453.59

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3 All years

San Pedro Waterfront

Unmitigated Alternative 5 Criteria Pollutant Emissions

Year: 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.
Emissions = Engine Power * Load Factor * Emission Factor * Time

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = 1.053$$

$$1 \text{ lb} = 453.59$$

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0 All years

San Pedro Waterfront

Unmitigated Alternative 5 Criteria Pollutant Emissions
Year: 2011, 2015, 2022, 2037

Peak Day (lb/day) for Single Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - South-Bound	Diesel Engines	115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Fairway - North-Bound	Diesel Engines	85.6	155.0	38.9	1,089.4	155.0	124.0	1,491.4	41.0
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		85.6	155.0	38.9	1,089.4	155.0	124.0	1,491.4	41.0
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		24	42	11	301	44	35	450	11
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.7	2.65
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	136.0	3.34
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.81
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.2	158.2	3.88
Hotelling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.47
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.79
Total Hotelling		211.0	372.4	96.2	2,674.0	406.6	325.3	4,312.2	101.3
Outer Harbor Berths per Vessel - Peak Day (lb/day)		672	1,207	306	8,547	1,246	997	12,453	322
Inner Harbor Berths per Vessel - Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2011 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304
2015 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2015 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304
2022 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2022 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304
2037 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2037 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels	
	bound to Inner Harbor	bound to Outer Harbor
2011	3	0
2015	3	0
2022	3	0
2037	3	0

San Pedro Waterfront

Unmitigated Alternative 5 Criteria Pollutant Emissions
Year: 2015, 2022, 2037

Peak Day (lb/day) for Single Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>106.3</i>	<i>192.5</i>	<i>48.3</i>	<i>1,353.1</i>	<i>192.5</i>	<i>154.0</i>	<i>1,852.5</i>	<i>50.9</i>
Sea / Fairway - South-Bound	Diesel Engines	134.4	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>134.4</i>	<i>209.9</i>	<i>52.7</i>	<i>1,475.4</i>	<i>209.9</i>	<i>167.9</i>	<i>2,019.9</i>	<i>55.5</i>
Fairway - North-Bound	Diesel Engines	98.6	178.5	44.8	1,254.6	178.5	142.8	1,717.7	47.2
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>98.6</i>	<i>178.5</i>	<i>44.8</i>	<i>1,254.6</i>	<i>178.5</i>	<i>142.8</i>	<i>1,717.7</i>	<i>47.2</i>
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>49.7</i>	<i>90.1</i>	<i>22.6</i>	<i>633.1</i>	<i>90.1</i>	<i>72.0</i>	<i>866.7</i>	<i>23.8</i>
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>23.5</i>	<i>42.1</i>	<i>10.7</i>	<i>299.0</i>	<i>43.9</i>	<i>35.1</i>	<i>443.3</i>	<i>11.3</i>
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>27</i>	<i>48</i>	<i>12</i>	<i>339</i>	<i>50</i>	<i>40</i>	<i>502</i>	<i>13</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
<i>Total Outer Harbor Zone1</i>		<i>6.1</i>	<i>10.9</i>	<i>2.7</i>	<i>77.6</i>	<i>11.5</i>	<i>9.2</i>	<i>118.1</i>	<i>2.95</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.60
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
<i>Total Outer Harbor Zone2</i>		<i>7.6</i>	<i>13.6</i>	<i>3.5</i>	<i>97.0</i>	<i>14.4</i>	<i>11.5</i>	<i>147.7</i>	<i>3.7</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.19
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
<i>Total Inner Harbor Zone</i>		<i>8.9</i>	<i>15.8</i>	<i>4.0</i>	<i>112.8</i>	<i>16.7</i>	<i>13.4</i>	<i>171.8</i>	<i>4.3</i>
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	106.97
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.79
<i>Total Hotelling</i>		<i>228.8</i>	<i>404.6</i>	<i>104.2</i>	<i>2,900.0</i>	<i>438.8</i>	<i>351.0</i>	<i>4,621.8</i>	<i>109.8</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		760	1,299	329	9,193	1,338	1,070	13,338	347
Inner Harbor Berths per Vessel - Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels	
	bound to Inner Harbor	bound to Outer Harbor
2011	0	0
2015	0	0
2022	0	0
2037	0	0

San Pedro Waterfront

Unmitigated Alternative 5 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Total Peak Day (lb/day) for all Vessels

	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
2011 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2015 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2015 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2022 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2022 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2037 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2037 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304

San Pedro Waterfront

Unmitigated Alternative 5 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

8-Hour (lb/8-hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	11.5	20.8	5.2	145.9	20.8	16.6	199.8	5.5	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>11.5</i>	<i>20.8</i>	<i>5.2</i>	<i>145.9</i>	<i>20.8</i>	<i>16.6</i>	<i>199.8</i>	<i>5.5</i>	0.85
Sea / Fairway - South-Bound	Diesel Engines	14.5	26.2	6.6	184.4	26.2	21.0	252.5	6.9	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>14.5</i>	<i>26.2</i>	<i>6.6</i>	<i>184.4</i>	<i>26.2</i>	<i>21.0</i>	<i>252.5</i>	<i>6.9</i>	1.07
Fairway - North-Bound	Diesel Engines	10.7	19.4	4.9	136.2	19.4	15.5	186.4	5.1	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>10.7</i>	<i>19.4</i>	<i>4.9</i>	<i>136.2</i>	<i>19.4</i>	<i>15.5</i>	<i>186.4</i>	<i>5.1</i>	1.21
Fairway - South-Bound	Diesel Engines	5.4	9.8	2.5	68.7	9.8	7.8	94.1	2.6	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>5.4</i>	<i>9.8</i>	<i>2.5</i>	<i>68.7</i>	<i>9.8</i>	<i>7.8</i>	<i>94.1</i>	<i>2.6</i>	0.61
Precautionary Zone - North-Bound	Diesel Engines	2.6	4.7	1.2	32.8	4.7	3.7	44.9	1.2	
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.0	
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>4.7</i>	<i>1.2</i>	<i>33.2</i>	<i>4.9</i>	<i>3.9</i>	<i>49.7</i>	<i>1.2</i>	0.63
Precautionary Zone - South-Bound	Diesel Engines	2.9	5.3	1.3	37.2	5.3	4.2	50.9	1.4	
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.4	0.3	0.2	5.4	0.0	
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>5.3</i>	<i>1.3</i>	<i>37.6</i>	<i>5.6</i>	<i>4.4</i>	<i>56.3</i>	<i>1.4</i>	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	1.2	0.3	8.7	1.2	1.0	11.9	0.3	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.01	-	0.006	0.1	0.08	0.06	1.7	0.01	
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>8.8</i>	<i>1.3</i>	<i>1.1</i>	<i>13.6</i>	<i>0.3</i>	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.5	0.4	10.9	1.5	1.2	14.9	0.4	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.5</i>	<i>0.4</i>	<i>11.0</i>	<i>1.6</i>	<i>1.3</i>	<i>17.0</i>	<i>0.4</i>	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.8	0.5	12.7	1.8	1.4	17.3	0.5	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.5</i>	<i>12.9</i>	<i>1.9</i>	<i>1.5</i>	<i>19.8</i>	<i>0.5</i>	0.32
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	12
First Max 8-Hour Scenario (per vessel)		50	91	23	639	91	73	889	24	
First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Max 8-Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	
Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.										
<i>Emissions = Engine Power * Load Factor * Emission Factor * Time</i>										
(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.										
(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.										
VOC/HC = 1.053										
1 lb = 453.59										
<u>Assumptions</u>										
1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.										
2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.										
3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.										
4. Peak 8-hour emissions assume no VSRP.										
For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 2 vessels:						3	All years			

San Pedro Waterfront

Unmitigated Alternative 5 Criteria Pollutant Emissions

Year: 2015, 2022, 2037

8-Hour (lb/8-hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (
Sea / Fairway - North-Bound	Diesel Engines	13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>13.3</i>	<i>24.1</i>	<i>6.0</i>	<i>169.1</i>	<i>24.1</i>	<i>19.2</i>	<i>231.6</i>	<i>6.4</i>	
Sea / Fairway - South-Bound	Diesel Engines	16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>16.8</i>	<i>30.4</i>	<i>7.6</i>	<i>213.7</i>	<i>30.4</i>	<i>24.3</i>	<i>292.6</i>	<i>8.0</i>	
Fairway - North-Bound	Diesel Engines	12.3	22.3	5.6	156.8	22.3	17.8	214.7	5.9	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>12.3</i>	<i>22.3</i>	<i>5.6</i>	<i>156.8</i>	<i>22.3</i>	<i>17.8</i>	<i>214.7</i>	<i>5.9</i>	
Fairway - South-Bound	Diesel Engines	6.2	11.3	2.8	79.1	11.3	9.0	108.3	3.0	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>6.2</i>	<i>11.3</i>	<i>2.8</i>	<i>79.1</i>	<i>11.3</i>	<i>9.0</i>	<i>108.3</i>	<i>3.0</i>	
Precautionary Zone - North-Bound	Diesel Engines	2.9	5.3	1.3	37.0	5.3	4.2	50.7	1.4	0.63
Precautionary Zone - North-Bound	Boiler	-	-	0.02	0.4	0.2	0.2	4.7	0.0	
<i>Total Precautionary Zone - North-Bound</i>		<i>2.9</i>	<i>5.3</i>	<i>1.3</i>	<i>37.4</i>	<i>5.5</i>	<i>4.4</i>	<i>55.4</i>	<i>1.4</i>	
Precautionary Zone - South-Bound	Diesel Engines	3.3	6.0	1.5	41.9	6.0	4.8	57.4	1.6	0.71
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.4	0.3	0.2	5.4	0.0	
<i>Total Precautionary Zone - South-Bound</i>		<i>3.3</i>	<i>6.0</i>	<i>1.5</i>	<i>42.4</i>	<i>6.2</i>	<i>5.0</i>	<i>62.8</i>	<i>1.6</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	1.4	0.3	9.6	1.4	1.1	13.1	0.4	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.01	-	0.006	0.1	0.08	0.06	1.7	0.01	
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>1.4</i>	<i>0.3</i>	<i>9.7</i>	<i>1.4</i>	<i>1.2</i>	<i>14.8</i>	<i>0.4</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.7	0.4	12.0	1.7	1.4	16.4	0.4	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.7</i>	<i>0.4</i>	<i>12.1</i>	<i>1.8</i>	<i>1.4</i>	<i>18.5</i>	<i>0.5</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	2.0	0.5	13.9	2.0	1.6	19.1	0.5	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>2.0</i>	<i>0.5</i>	<i>14.1</i>	<i>2.1</i>	<i>1.7</i>	<i>21.5</i>	<i>0.5</i>	
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>19.1</i>	<i>33.7</i>	<i>8.7</i>	<i>241.7</i>	<i>36.6</i>	<i>29.3</i>	<i>385.1</i>	<i>9.1</i>	
First Max 8-Hour Scenario (per vessel)		58	104	26	734	105	84	1,020	28	
First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Max 8-Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = \frac{1.053}{453.59}$$

Assumptions

1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.
3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak 8-hour emissions assume no VSRP.

For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 3 vessels:

0

All years

San Pedro Waterfront

Alternative 5 Unmitigated Criteria Pollutant Emissions
Year: 2011

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	183.5	250.2	83.4	2,246.7	250.2	200.1	1,918.0	87.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		183.5	250.2	83.4	2,246.7	250.2	200.1	1,918.0	87.8
Sea / Fairway - South-Bound	Diesel Engines	231.8	316.2	105.4	2,839.3	316.2	252.9	2,423.9	111.0
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		231.8	316.2	105.4	2,839.3	316.2	252.9	2,423.9	111.0
Fairway - North-Bound	Diesel Engines	137.5	187.5	62.5	1,683.5	187.5	150.0	1,437.2	65.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		137.5	187.5	62.5	1,683.5	187.5	150.0	1,437.2	65.8
Fairway - South-Bound	Diesel Engines	69.4	94.6	31.5	849.5	94.6	75.7	725.2	33.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		69.4	94.6	31.5	849.5	94.6	75.7	725.2	33.2
Precautionary Zone - North-Bound	Diesel Engines	41.3	56.3	18.8	505.2	56.3	45.0	431.3	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		41.8	56.3	19.0	511.0	58.5	46.8	476.8	20.0
Precautionary Zone - South-Bound	Diesel Engines	46.8	63.8	21.3	572.6	63.8	51.0	488.8	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		47	64	22	579	66	53	540	23
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.0	14.9	5.0	134.1	14.9	11.9	114.5	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		11.2	14.9	5.1	136.1	15.7	12.5	130.5	5.3
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	13.7	18.7	6.2	167.7	18.7	14.9	143.1	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		13.9	18.7	6.3	170.2	19.6	15.7	163.1	6.7
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines	15.9	21.7	7.2	195.1	21.7	17.4	166.5	7.6
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		16.2	21.7	7.4	198.1	22.9	18.3	189.8	7.8
Hoteling	Diesel Engines	205.7	280.5	93.5	2,519.4	280.5	224.4	2,150.8	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hoteling		211.0	280.5	96.2	2,575.0	301.7	241.4	2,587.3	101.3

Alternative 5 Unmitigated Criteria Pollutant Emissions
Year: 2011

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	608	820	277	7,434	846	677	6,831	291
North-Bound Single Vessel Average Day (ton/day)	0.31	0.41	0.14	3.76	0.43	0.34	3.45	0.15
South-Bound Single Vessel Average Day (ton/day)	0.30	0.41	0.14	3.67	0.42	0.33	3.38	0.14
Temporal Allocation								
2011 Total Annual Emissions (ton/yr)	81	109	37	989	113	90	910	39

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NO_x = 53%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 5 Unmitigated Criteria Pollutant Emissions

Year: 2015

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	183.5	250.2	83.4	2,237.1	250.2	200.1	1,918.0	87.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>183.5</i>	<i>250.2</i>	<i>83.4</i>	<i>2,237.1</i>	<i>250.2</i>	<i>200.1</i>	<i>1,918.0</i>	<i>87.8</i>
Sea / Fairway - South-Bound	Diesel Engines	231.8	316.2	105.4	2,827.1	316.2	252.9	2,423.9	111.0
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>231.8</i>	<i>316.2</i>	<i>105.4</i>	<i>2,827.1</i>	<i>316.2</i>	<i>252.9</i>	<i>2,423.9</i>	<i>111.0</i>
Fairway - North-Bound	Diesel Engines	137.5	187.5	62.5	1,676.3	187.5	150.0	1,437.2	65.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>137.5</i>	<i>187.5</i>	<i>62.5</i>	<i>1,676.3</i>	<i>187.5</i>	<i>150.0</i>	<i>1,437.2</i>	<i>65.8</i>
Fairway - South-Bound	Diesel Engines	69.4	94.6	31.5	845.8	94.6	75.7	725.2	33.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>69.4</i>	<i>94.6</i>	<i>31.5</i>	<i>845.8</i>	<i>94.6</i>	<i>75.7</i>	<i>725.2</i>	<i>33.2</i>
Precautionary Zone - North-Bound	Diesel Engines	41.3	56.3	18.8	503.1	56.3	45.0	431.3	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>41.8</i>	<i>56.3</i>	<i>19.0</i>	<i>508.8</i>	<i>58.5</i>	<i>46.8</i>	<i>476.8</i>	<i>20.0</i>
Precautionary Zone - South-Bound	Diesel Engines	46.8	63.8	21.3	570.1	63.8	51.0	488.8	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>47</i>	<i>64</i>	<i>22</i>	<i>577</i>	<i>66</i>	<i>53</i>	<i>540</i>	<i>23</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.0	14.9	5.0	133.6	14.9	11.9	114.5	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
<i>Total Outer Harbor Zone1</i>		<i>11.2</i>	<i>14.9</i>	<i>5.1</i>	<i>135.6</i>	<i>15.7</i>	<i>12.5</i>	<i>130.5</i>	<i>5.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	13.7	18.7	6.2	166.9	18.7	14.9	143.1	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
<i>Total Outer Harbor Zone2</i>		<i>13.9</i>	<i>18.7</i>	<i>6.3</i>	<i>169.5</i>	<i>19.6</i>	<i>15.7</i>	<i>163.1</i>	<i>6.7</i>
Inner Harbor Zone (maneuvering through main channel: in)	Diesel Engines	15.9	21.7	7.2	194.3	21.7	17.4	166.5	7.6
Inner Harbor Zone (maneuvering through main channel: in)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
<i>Total Inner Harbor Zone</i>		<i>16.2</i>	<i>21.7</i>	<i>7.4</i>	<i>197.2</i>	<i>22.9</i>	<i>18.3</i>	<i>189.8</i>	<i>7.8</i>
Hoteling	Diesel Engines	205.7	280.5	93.5	2,508.6	280.5	224.4	2,150.8	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
<i>Total Hoteling</i>		<i>211.0</i>	<i>280.5</i>	<i>96.2</i>	<i>2,564.2</i>	<i>301.7</i>	<i>241.4</i>	<i>2,587.3</i>	<i>101.3</i>

Alternative 5 Unmitigated Criteria Pollutant Emissions

Year: 2015

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	608	820	277	7,402	846	677	6,831	291
North-Bound Single Vessel Average Day (ton/day)	0.31	0.41	0.14	3.74	0.43	0.34	3.45	0.15
South-Bound Single Vessel Average Day (ton/day)	0.30	0.41	0.14	3.66	0.42	0.33	3.38	0.14
Temporal Allocation								
2015 Total Annual Emissions (ton/yr)	83	112	36	1,007	115	92	930	40

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.

$1 lb = 453.59$ grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x - 59%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 5 Unmitigated Criteria Pollutant Emissions

Year: 2022

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	183.5	250.2	83.4	2,220.0	250.2	200.1	1,918.0	87.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>183.5</i>	<i>250.2</i>	<i>83.4</i>	<i>2,220.0</i>	<i>250.2</i>	<i>200.1</i>	<i>1,918.0</i>	<i>87.8</i>
Sea / Fairway - South-Bound	Diesel Engines	231.8	316.2	105.4	2,805.5	316.2	252.9	2,423.9	111.0
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>231.8</i>	<i>316.2</i>	<i>105.4</i>	<i>2,805.5</i>	<i>316.2</i>	<i>252.9</i>	<i>2,423.9</i>	<i>111.0</i>
Fairway - North-Bound	Diesel Engines	137.5	187.5	62.5	1,663.4	187.5	150.0	1,437.2	65.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>137.5</i>	<i>187.5</i>	<i>62.5</i>	<i>1,663.4</i>	<i>187.5</i>	<i>150.0</i>	<i>1,437.2</i>	<i>65.8</i>
Fairway - South-Bound	Diesel Engines	69.4	94.6	31.5	839.3	94.6	75.7	725.2	33.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>69.4</i>	<i>94.6</i>	<i>31.5</i>	<i>839.3</i>	<i>94.6</i>	<i>75.7</i>	<i>725.2</i>	<i>33.2</i>
Precautionary Zone - North-Bound	Diesel Engines	41.3	56.3	18.8	499.2	56.3	45.0	431.3	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>41.8</i>	<i>56.3</i>	<i>19.0</i>	<i>505.0</i>	<i>58.5</i>	<i>46.8</i>	<i>476.8</i>	<i>20.0</i>
Precautionary Zone - South-Bound	Diesel Engines	46.8	63.8	21.3	565.8	63.8	51.0	488.8	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>47</i>	<i>64</i>	<i>22</i>	<i>572</i>	<i>66</i>	<i>53</i>	<i>540</i>	<i>23</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Diesel Engines	11.0	14.9	5.0	132.5	14.9	11.9	114.5	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
<i>Total Outer Harbor Zone1</i>		<i>11.2</i>	<i>14.9</i>	<i>5.1</i>	<i>134.5</i>	<i>15.7</i>	<i>12.5</i>	<i>130.5</i>	<i>5.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	13.7	18.7	6.2	165.7	18.7	14.9	143.1	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
<i>Total Outer Harbor Zone2</i>		<i>13.9</i>	<i>18.7</i>	<i>6.3</i>	<i>168.2</i>	<i>19.6</i>	<i>15.7</i>	<i>163.1</i>	<i>6.7</i>
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	15.9	21.7	7.2	192.8	21.7	17.4	166.5	7.6
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
<i>Total Inner Harbor Zone</i>		<i>16.2</i>	<i>21.7</i>	<i>7.4</i>	<i>195.7</i>	<i>22.9</i>	<i>18.3</i>	<i>189.8</i>	<i>7.8</i>
Hotelling	Diesel Engines	205.7	280.5	93.5	2,489.4	280.5	224.4	2,150.8	98.5
Hotelling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
<i>Total Hotelling</i>		<i>211.0</i>	<i>280.5</i>	<i>96.2</i>	<i>2,544.9</i>	<i>301.7</i>	<i>241.4</i>	<i>2,587.3</i>	<i>101.3</i>

Alternative 5 Unmitigated Criteria Pollutant Emissions

Year: 2022

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	608	820	277	7,346	846	677	6,831	291
North-Bound Single Vessel Average Day (ton/day)	0.31	0.41	0.14	3.72	0.43	0.34	3.45	0.15
South-Bound Single Vessel Average Day (ton/day)	0.30	0.41	0.14	3.63	0.42	0.33	3.38	0.14
Temporal Allocation								
<i>2022 Total Annual Emissions (ton/yr)</i>	<i>83</i>	<i>112</i>	<i>38</i>	<i>995</i>	<i>111</i>	<i>92</i>	<i>930</i>	<i>41</i>

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = 69%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 5 Unmitigated Criteria Pollutant Emissions

Year: 2037

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	183.5	250.2	83.4	2,205.5	250.2	200.1	1,918.0	87.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		183.5	250.2	83.4	2,205.5	250.2	200.1	1,918.0	87.8
Sea / Fairway - South-Bound	Diesel Engines	231.8	316.2	105.4	2,787.2	316.2	252.9	2,423.9	111.0
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		231.8	316.2	105.4	2,787.2	316.2	252.9	2,423.9	111.0
Fairway - North-Bound	Diesel Engines	137.5	187.5	62.5	1,652.6	187.5	150.0	1,437.2	65.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		137.5	187.5	62.5	1,652.6	187.5	150.0	1,437.2	65.8
Fairway - South-Bound	Diesel Engines	69.4	94.6	31.5	833.9	94.6	75.7	725.2	33.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		69.4	94.6	31.5	833.9	94.6	75.7	725.2	33.2
Precautionary Zone - North-Bound	Diesel Engines	41.3	56.3	18.8	496.0	56.3	45.0	431.3	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		41.8	56.3	19.0	501.8	58.5	46.8	476.8	20.0
Precautionary Zone - South-Bound	Diesel Engines	46.8	63.8	21.3	562.1	63.8	51.0	488.8	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		47	64	22	569	66	53	540	23
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	11.0	14.9	5.0	131.7	14.9	11.9	114.5	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		11	15	5	134	16	13	131	5
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	13.7	18.7	6.2	164.6	18.7	14.9	143.1	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		13.9	18.7	6.3	167.1	19.6	15.7	163.1	6.7
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	15.9	21.7	7.2	191.5	21.7	17.4	166.5	7.6
Inner Harbor Zone (maneuvering through main channel)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		16.2	21.7	7.4	194.5	22.9	18.3	189.8	7.8
Hoteling	Diesel Engines	205.7	280.5	93.5	2,473.2	280.5	224.4	2,150.8	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hoteling		211.0	280.5	96.2	2,528.8	301.7	241.4	2,587.3	101.3

Alternative 5 Unmitigated Criteria Pollutant Emissions

Year: 2037

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)		820	277	7,299	846	677	6,831	291
North-Bound Single Vessel Average Day (ton/day)	0.31	0.41	0.14	3.69	0.43	0.34	3.45	0.15
South-Bound Single Vessel Average Day (ton/day)	0.30	0.41	0.14	3.61	0.42	0.33	3.38	0.14
Temporal Allocation								
2037 Total Annual Emissions (ton/yr)	83	112	38	994	115	92	930	40

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NOx = 78%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Unmitigated Alternative 5 Criteria Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,434	1,955	652	17,561	1,955	1,564	14,991	686
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,434</i>	<i>1,955</i>	<i>652</i>	<i>17,561</i>	<i>1,955</i>	<i>1,564</i>	<i>14,991</i>	<i>686</i>
Sea / Fairway - South-Bound	Diesel Engines	60,555	82,575	27,525	741,578	82,575	66,060	633,074	28,984
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>60,555</i>	<i>82,575</i>	<i>27,525</i>	<i>741,578</i>	<i>82,575</i>	<i>66,060</i>	<i>633,074</i>	<i>28,984</i>
Fairway - North-Bound	Diesel Engines	1,074	1,465	488	13,158	1,465	1,172	11,233	514
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,074</i>	<i>1,465</i>	<i>488</i>	<i>13,158</i>	<i>1,465</i>	<i>1,172</i>	<i>11,233</i>	<i>514</i>
Fairway - South-Bound	Diesel Engines	18,117	24,705	8,235	221,869	24,705	19,764	189,406	8,672
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>18,117</i>	<i>24,705</i>	<i>8,235</i>	<i>221,869</i>	<i>24,705</i>	<i>19,764</i>	<i>189,406</i>	<i>8,672</i>
Precautionary Zone - North-Bound	Diesel Engines	322	440	147	3,949	440	352	3,371	154
Precautionary Zone - North-Bound	Boiler	4	-	2	45	17	14	355	2
<i>Total Precautionary Zone - North-Bound</i>		<i>327</i>	<i>440</i>	<i>149</i>	<i>3,994</i>	<i>457</i>	<i>366</i>	<i>3,726</i>	<i>157</i>
Precautionary Zone - South-Bound	Diesel Engines	12,212	16,653	5,551	149,553	16,653	13,322	127,671	5,845
Precautionary Zone - South-Bound	Boiler	163	-	82	1,713	653	522	13,460	86
<i>Total Precautionary Zone - South-Bound</i>		<i>12,375</i>	<i>16,653</i>	<i>5,632</i>	<i>151,266</i>	<i>17,305</i>	<i>13,844</i>	<i>141,131</i>	<i>5,931</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	3,683	5,022	1,674	45,100	5,022	4,018	38,502	1,763
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	65	-	33	685	261	209	5,382	34
<i>Total Outer Harbor Zone2</i>		<i>3,748</i>	<i>5,022</i>	<i>1,707</i>	<i>45,785</i>	<i>5,283</i>	<i>4,226</i>	<i>43,883</i>	<i>1,797</i>
Inner Harbor Zone (maneuvering through main channel: inn	Diesel Engines	4,285	5,844	1,948	52,481	5,844	4,675	44,802	2,051
Inner Harbor Zone (maneuvering through main channel: inn	Boiler	76	-	38	797	304	243	6,263	40
<i>Total Inner Harbor Zone</i>		<i>4,361</i>	<i>5,844</i>	<i>1,986</i>	<i>53,278</i>	<i>6,147</i>	<i>4,918</i>	<i>51,064</i>	<i>2,091</i>
Hotelling	Diesel Engines	55,341	75,465	25,155	677,724	75,465	60,372	578,563	26,488
Hotelling	Boiler	1,423	-	712	14,945	5,693	4,555	117,423	749
<i>Total Hotelling</i>		<i>56,764</i>	<i>75,465</i>	<i>25,867</i>	<i>692,669</i>	<i>81,158</i>	<i>64,926</i>	<i>695,986</i>	<i>27,237</i>
<i>Total (lb/yr)</i>		<i>158,756</i>	<i>214,124</i>	<i>72,240</i>	<i>1,941,158</i>	<i>221,051</i>	<i>176,841</i>	<i>1,784,496</i>	<i>76,069</i>
boilers only						6,928			912
Average Day (lb/day) - Transit		279	380	127	3,421	383	307	2,982	133.8
Average Day (lb/day) - Hotelling		156	207	71	1,898	222	178	1,907	75

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- | | | | |
|--|---------------------------------|-------|------------------------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2011: | 269 | |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: 3 |
| 3. Annual emissions are based on residual fuel with 2.7% sulfur content. | Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: 0 |
| 4. Maximum of 2 one-way trips per vessel. | | | |
| 5. IMO compliance rate for NOx = 53% | | | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | |
| 7. Annual emissions assume 80% compliance with VSRP to 20 nm. | | | |

San Pedro Waterfront

Unmitigated Alternative 5 Criteria Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,466	1,999	666	17,875.1	1,999	1,599	15,326	702
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,466</i>	<i>1,999</i>	<i>666</i>	<i>17,875.1</i>	<i>1,999</i>	<i>1,599</i>	<i>15,326</i>	<i>702</i>
Sea / Fairway - South-Bound	Diesel Engines	61,906	84,417	28,139	754,862.4	84,417	67,533	647,195	29,630
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>61,906</i>	<i>84,417</i>	<i>28,139</i>	<i>754,862.4</i>	<i>84,417</i>	<i>67,533</i>	<i>647,195</i>	<i>29,630</i>
Fairway - North-Bound	Diesel Engines	1,098	1,498	499	13,393.9	1,498	1,198	11,484	526
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,098</i>	<i>1,498</i>	<i>499</i>	<i>13,393.9</i>	<i>1,498</i>	<i>1,198</i>	<i>11,484</i>	<i>526</i>
Fairway - South-Bound	Diesel Engines	18,521	25,256	8,419	225,843.6	25,256	20,205	193,631	8,865
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>18,521</i>	<i>25,256</i>	<i>8,419</i>	<i>225,843.6</i>	<i>25,256</i>	<i>20,205</i>	<i>193,631</i>	<i>8,865</i>
Precautionary Zone - North-Bound	Diesel Engines	330	450	150	4,019.6	450	360	3,446	158
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
<i>Total Precautionary Zone - North-Bound</i>		<i>334</i>	<i>450</i>	<i>152</i>	<i>4,065.9</i>	<i>467</i>	<i>374</i>	<i>3,810</i>	<i>160</i>
Precautionary Zone - South-Bound	Diesel Engines	12,484	17,024	5,675	152,231.8	17,024	13,619	130,519	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
<i>Total Precautionary Zone - South-Bound</i>		<i>12,651</i>	<i>17,024</i>	<i>5,758</i>	<i>153,983</i>	<i>17,691</i>	<i>14,153</i>	<i>144,279</i>	<i>6,063</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	3,765	5,134	1,711	45,908.3	5,134	4,107	39,360	1,802
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	67	-	33	700.2	267	213	5,502	35
<i>Total Outer Harbor Zone2</i>		<i>3,832</i>	<i>5,134</i>	<i>1,745</i>	<i>46,608.6</i>	<i>5,401</i>	<i>4,321</i>	<i>44,862</i>	<i>1,837</i>
Inner Harbor Zone (maneuvering through main channel: in	Diesel Engines	4,381	5,974	1,991	53,420.6	5,974	4,779	45,801	2,097
Inner Harbor Zone (maneuvering through main channel: in	Boiler	78	-	39	814.8	310	248	6,402	41
<i>Total Inner Harbor Zone</i>		<i>4,459</i>	<i>5,974</i>	<i>2,030</i>	<i>54,235.4</i>	<i>6,284</i>	<i>5,026</i>	<i>52,203</i>	<i>2,138</i>
Hotelling	Diesel Engines	56,575	77,148	25,716	689,864.3	77,148	61,718	591,468	27,079
Hotelling	Boiler	1,455	-	728	15,278.0	5,820	4,656	120,042	766
<i>Total Hotelling</i>		<i>58,030</i>	<i>77,148</i>	<i>26,444</i>	<i>705,142.3</i>	<i>82,968</i>	<i>66,375</i>	<i>711,509</i>	<i>27,845</i>
<i>Total (lb/yr)</i>		<i>162,297</i>	<i>218,899</i>	<i>73,852</i>	<i>1,976,010</i>	<i>225,982</i>	<i>180,785</i>	<i>1,824,298</i>	<i>77,166</i>
boilers only						7,082			932
Average Day (lb/day) - Transit		286	388	130	3,482	392	313	3,049	136.8
Average Day (lb/day) - Hotelling		159	211	72	1,932	227	182	1,949	76

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- | | | | |
|--|---------------------------------|-------|------------------------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2015: | 275 | |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: 3 |
| 3. Annual emissions are based on residual fuel with 2.7% sulfur content. | Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: 0 |
| 4. Maximum of 2 one-way trips per vessel. | | | |
| 5. IMO compliance rate for NOx = 59% | | | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | |
| 7. Annual emissions assume 80% compliance with VSRP to 20 nm. | | | |

San Pedro Waterfront

Unmitigated Alternative 5 Criteria Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	
Sea / Fairway - North-Bound	Diesel Engines	1,466	1,999	666	17,738.2	1,999	1,599	15,326	702	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,466</i>	<i>1,999</i>	<i>666</i>	<i>17,738.2</i>	<i>1,999</i>	<i>1,599</i>	<i>15,326</i>	<i>702</i>	
Sea / Fairway - South-Bound	Diesel Engines	61,906	84,417	28,139	749,083.4	84,417	67,533	647,195	29,630	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>61,906</i>	<i>84,417</i>	<i>28,139</i>	<i>749,083.4</i>	<i>84,417</i>	<i>67,533</i>	<i>647,195</i>	<i>29,630</i>	
Fairway - North-Bound	Diesel Engines	1,098	1,498	499	13,291.4	1,498	1,198	11,484	526	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>1,098</i>	<i>1,498</i>	<i>499</i>	<i>13,291.4</i>	<i>1,498</i>	<i>1,198</i>	<i>11,484</i>	<i>526</i>	
Fairway - South-Bound	Diesel Engines	18,521	25,256	8,419	224,114.6	25,256	20,205	193,631	8,865	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>18,521</i>	<i>25,256</i>	<i>8,419</i>	<i>224,114.6</i>	<i>25,256</i>	<i>20,205</i>	<i>193,631</i>	<i>8,865</i>	
Precautionary Zone - North-Bound	Diesel Engines	330	450	150	3,988.8	450	360	3,446	158	
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2	
<i>Total Precautionary Zone - North-Bound</i>		<i>334</i>	<i>450</i>	<i>152</i>	<i>4,035.1</i>	<i>467</i>	<i>374</i>	<i>3,870</i>	<i>160</i>	
Precautionary Zone - South-Bound	Diesel Engines	12,484	17,024	5,675	151,066.4	17,024	13,619	130,519	5,975	
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88	
<i>Total Precautionary Zone - South-Bound</i>		<i>12,651</i>	<i>17,024</i>	<i>5,758</i>	<i>152,818</i>	<i>17,691</i>	<i>14,153</i>	<i>144,279</i>	<i>6,063</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	-	-	-	-	-	-	-	-	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	-	-	-	-	-	-	-	-	
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,765	5,134	1,711	45,556.9	5,134	4,107	39,360	1,802	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	67	-	33	700.2	267	213	5,502	35	
<i>Total Outer Harbor Zone2</i>		<i>3,832</i>	<i>5,134</i>	<i>1,745</i>	<i>46,257.1</i>	<i>5,401</i>	<i>4,321</i>	<i>44,862</i>	<i>1,837</i>	
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	4,381	5,974	1,991	53,011.6	5,974	4,779	45,801	2,097	
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	78	-	39	814.8	310	248	6,402	41	
<i>Total Inner Harbor Zone</i>		<i>4,459</i>	<i>5,974</i>	<i>2,030</i>	<i>53,826.5</i>	<i>6,284</i>	<i>5,028</i>	<i>52,203</i>	<i>2,138</i>	
Hotelling	Diesel Engines	56,575	77,148	25,716	684,583	77,148	61,718	591,468	27,079	
Hotelling	Boiler	1,455	-	728	15,278	5,820	4,656	120,042	766	
<i>Total Hotelling</i>		<i>58,030</i>	<i>77,148</i>	<i>26,444</i>	<i>699,860.9</i>	<i>82,968</i>	<i>66,375</i>	<i>711,509</i>	<i>27,845</i>	
<i>Total (lb/yr)</i>		<i>162,297</i>	<i>218,899</i>	<i>73,852</i>	<i>1,961,025</i>	<i>225,982</i>	<i>180,785</i>	<i>1,824,298</i>	<i>77,766</i>	
		boilers only								
						7,082			932	
Average Day (lb/day) - Transit		286	388	130	3,455	392	313	3,049	137	
Average Day (lb/day) - Hotelling		159	211	72	1,917	227	182	1,949	76	

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 69%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2022:	275		
Percent of North-Bound Vessels:	2.9%	Inner Harbor Berths:	3
Percent of South-Bound Vessels:	97.1%	Outer Harbor Berths:	0

San Pedro Waterfront

Unmitigated Alternative 5 Criteria Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,466	1,999	666	17,623.0	1,999	1,599	15,326	702
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,466</i>	<i>1,999</i>	<i>666</i>	<i>17,623.0</i>	<i>1,999</i>	<i>1,599</i>	<i>15,326</i>	<i>702</i>
Sea / Fairway - South-Bound	Diesel Engines	61,906	84,417	28,139	744,215.6	84,417	67,533	647,195	29,630
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>61,906</i>	<i>84,417</i>	<i>28,139</i>	<i>744,215.6</i>	<i>84,417</i>	<i>67,533</i>	<i>647,195</i>	<i>29,630</i>
Fairway - North-Bound	Diesel Engines	1,098	1,498	499	13,205.0	1,498	1,198	11,484	526
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,098</i>	<i>1,498</i>	<i>499</i>	<i>13,205.0</i>	<i>1,498</i>	<i>1,198</i>	<i>11,484</i>	<i>526</i>
Fairway - South-Bound	Diesel Engines	18,521	25,256	8,419	222,658.2	25,256	20,205	193,631	8,865
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>18,521</i>	<i>25,256</i>	<i>8,419</i>	<i>222,658.2</i>	<i>25,256</i>	<i>20,205</i>	<i>193,631</i>	<i>8,865</i>
Precautionary Zone - North-Bound	Diesel Engines	330	450	150	3,962.9	450	360	3,446	158
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
<i>Total Precautionary Zone - North-Bound</i>		<i>334</i>	<i>450</i>	<i>152</i>	<i>4,009.2</i>	<i>467</i>	<i>374</i>	<i>3,810</i>	<i>160</i>
Precautionary Zone - South-Bound	Diesel Engines	12,484	17,024	5,675	150,084.7	17,024	13,619	130,519	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
<i>Total Precautionary Zone - South-Bound</i>		<i>12,651</i>	<i>17,024</i>	<i>5,758</i>	<i>151,836</i>	<i>17,691</i>	<i>14,153</i>	<i>144,279</i>	<i>6,063</i>
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	3,765	5,134	1,711	45,260.8	5,134	4,107	39,360	1,802
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	67	-	33	700.2	267	213	5,502	35
<i>Total Outer Harbor Zone2</i>		<i>3,832</i>	<i>5,134</i>	<i>1,745</i>	<i>45,961.1</i>	<i>5,401</i>	<i>4,321</i>	<i>44,862</i>	<i>1,837</i>
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	4,381	5,974	1,991	52,667.2	5,974	4,779	45,801	2,097
Inner Harbor Zone (maneuvering through main channel)	Boiler	78	-	39	814.8	310	248	6,402	41
<i>Total Inner Harbor Zone</i>		<i>4,459</i>	<i>5,974</i>	<i>2,030</i>	<i>53,482.0</i>	<i>6,284</i>	<i>5,028</i>	<i>52,203</i>	<i>2,138</i>
Hoteling	Diesel Engines	56,575	77,148	25,716	680,134.3	77,148	61,718	591,468	27,079
Hoteling	Boiler	1,455	-	728	15,278.0	5,820	4,656	120,042	766
<i>Total Hoteling</i>		<i>58,030</i>	<i>77,148</i>	<i>26,444</i>	<i>695,412.3</i>	<i>82,968</i>	<i>66,375</i>	<i>711,509</i>	<i>27,845</i>
Total (lb/yr)		162,297	218,899	73,852	1,948,402	225,982	180,785	1,824,298	77,766
boilers only						7,082			932
Average Day (lb/day) - Transit		286	388	130	3,433	392	313	3,049	137
Average Day (lb/day) - Hotelling		159	211	72	1,905	227	182	1,949	76

$Emissions (lb/yr) = Average\ Engine\ Power * Load\ Factor * Emission\ Factor * Time * 2 (1-Way)\ Trips * Vessels\ per\ Year$

$NOx\ Emissions (lb/yr) = Average\ Engine\ Power * Load\ Factor * ((IMO\ NOx\ Emission\ Factor * \% IMO\ vessels) + (non-IMO\ NOx\ Emission\ Factor * \% non-IMO\ vessels)) * Time * 2 (1-Way)\ Trips * Vessels\ per\ Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 $1\ lb = 453.59\ grams$

Assumptions

- | | | | |
|--|---------------------------------|-------|------------------------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2037: | 275 | |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: 3 |
| 3. Annual emissions are based on residual fuel with 2.7% sulfur content. | Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: 0 |
| 4. Maximum of 2 one-way trips per vessel. | | | |
| 5. IMO compliance rate for NOx = | | 78% | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | |
| 7. Annual emissions assume 80% compliance with VSRP to 20 nm. | | | |

San Pedro Waterfront

Unmitigated Alternative 5 Toxic Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>3.69839</i>	<i>0.99956</i>	<i>7.49673</i>	<i>0.49978</i>	<i>0.04248</i>	<i>0.07997</i>	<i>1.29943</i>	<i>0.74967</i>	<i>0.56463</i>	<i>0.00083</i>
Sea / Fairway - South-Bound	Diesel Engines	4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>4.36897</i>	<i>1.18080</i>	<i>8.85602</i>	<i>0.59040</i>	<i>0.05018</i>	<i>0.09446</i>	<i>1.53504</i>	<i>0.88560</i>	<i>0.66700</i>	<i>0.00098</i>
Fairway - North-Bound	Diesel Engines	2.84938	0.77010	5.77577	0.38505	0.03273	0.06161	1.00113	0.57758	0.43501	0.00064
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.84938</i>	<i>0.77010</i>	<i>5.77577</i>	<i>0.38505</i>	<i>0.03273</i>	<i>0.06161</i>	<i>1.00113</i>	<i>0.57758</i>	<i>0.43501</i>	<i>0.00064</i>
Fairway - South-Bound	Diesel Engines	1.74129	0.47062	3.52964	0.23531	0.02000	0.03765	0.61180	0.35296	0.26584	0.00039
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.74129</i>	<i>0.47062</i>	<i>3.52964</i>	<i>0.23531</i>	<i>0.02000</i>	<i>0.03765</i>	<i>0.61180</i>	<i>0.35296</i>	<i>0.26584</i>	<i>0.00039</i>
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.12697	0.00019
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	-	0.00961
<i>Total Precautionary Zone - North-Bound</i>		<i>0.83167</i>	<i>0.22808</i>	<i>1.68596</i>	<i>0.11407</i>	<i>0.00966</i>	<i>0.02042</i>	<i>0.29916</i>	<i>0.17188</i>	<i>0.12697</i>	<i>0.00980</i>
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.14390	0.00021
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	-	0.01089
<i>Total Precautionary Zone - South-Bound</i>		<i>0.94255</i>	<i>0.25849</i>	<i>1.91076</i>	<i>0.12928</i>	<i>0.01095</i>	<i>0.02314</i>	<i>0.33905</i>	<i>0.19480</i>	<i>0.14390</i>	<i>0.01110</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.03371	0.00005
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	-	0.00338
<i>Total Outer Harbor Zone1</i>		<i>0.22079</i>	<i>0.06084</i>	<i>0.44760</i>	<i>0.03043</i>	<i>0.00257</i>	<i>0.00563</i>	<i>0.08002</i>	<i>0.04592</i>	<i>0.03371</i>	<i>0.00343</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.04213	0.00006
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	-	0.00423
<i>Total Outer Harbor Zone2</i>		<i>0.27599</i>	<i>0.07604</i>	<i>0.55950</i>	<i>0.03804</i>	<i>0.00322</i>	<i>0.00704</i>	<i>0.10003</i>	<i>0.05740</i>	<i>0.04213</i>	<i>0.00429</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.04903	0.00007
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	-	0.00492
<i>Total Inner Harbor Zone</i>		<i>0.32115</i>	<i>0.08849</i>	<i>0.65105</i>	<i>0.04426</i>	<i>0.00374</i>	<i>0.00819</i>	<i>0.11640</i>	<i>0.06679</i>	<i>0.04903</i>	<i>0.00499</i>
Hoteling	Diesel Engines	0.69121	0.18681	1.40109	0.09341	0.00794	0.01494	0.24286	0.14011	0.10553	0.00016
Hoteling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	-	0.01537
<i>Total Hoteling</i>		<i>0.69121</i>	<i>0.19210</i>	<i>1.40134</i>	<i>0.09610</i>	<i>0.00811</i>	<i>0.01884</i>	<i>0.25398</i>	<i>0.14539</i>	<i>0.10553</i>	<i>0.01553</i>
First Peak Hour Scenario (per vessel)		1.760	0.484	3.569	0.242	0.020	0.044	0.635	0.365	0.269	0.024
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.											
Second Peak Hour Scenario (per vessel)		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.106	0.016
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.											
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:							3	Year 2011 only			
							0	All other years			

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00299	0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00299	0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
0.00353	0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00353	0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
0.00230	0.00512	0.00320	0.00537	0.00512	0.00384	0.00243	2.22623	0.00371	0.00461	-	0.00008	0.01625	0.05604
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00230	0.00512	0.00320	0.00537	0.00512	0.00384	0.00243	2.22623	0.00371	0.00461	-	0.00008	0.01625	0.05604
0.00141	0.00313	0.00195	0.00328	0.00313	0.00235	0.00149	1.36047	0.00227	0.00281	-	0.00005	0.00993	0.03425
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00141	0.00313	0.00195	0.00328	0.00313	0.00235	0.00149	1.36047	0.00227	0.00281	-	0.00005	0.00993	0.03425
0.00067	0.00149	0.00093	0.00157	0.00149	0.00112	0.00071	0.64978	0.00108	0.00134	-	0.00002	0.00474	0.01636
-	0.00089	-	0.00979	-	-	0.00089	0.44485	-	-	-	0.00048	-	0.00979
0.00067	0.00238	0.00093	0.01136	0.00149	0.00112	0.00160	1.09463	0.00108	0.00134	-	0.00050	0.00474	0.02614
0.00076	0.00169	0.00106	0.00178	0.00169	0.00127	0.00080	0.73642	0.00123	0.00152	-	0.00003	0.00538	0.01854
-	0.00101	-	0.01109	-	-	0.00101	0.50417	-	-	-	0.00054	-	0.01109
0.00076	0.00270	0.00106	0.01287	0.00169	0.00127	0.00181	1.24059	0.00123	0.00152	-	0.00057	0.00538	0.02963
0.00018	0.00040	0.00025	0.00042	0.00040	0.00030	0.00019	0.17250	0.00029	0.00036	-	0.00001	0.00126	0.00434
-	0.00031	-	0.00344	-	-	0.00031	0.15659	-	-	-	0.00017	-	0.00344
0.00018	0.00071	0.00025	0.00386	0.00040	0.00030	0.00050	0.32905	0.00029	0.00036	-	0.00018	0.00126	0.00719
0.00022	0.00050	0.00031	0.00052	0.00050	0.00037	0.00024	0.21563	0.00036	0.00045	-	0.00001	0.00157	0.00543
-	0.00039	-	0.00431	-	-	0.00039	0.19573	-	-	-	0.00021	-	0.00431
0.00022	0.00089	0.00031	0.00483	0.00050	0.00037	0.00063	0.41136	0.00036	0.00045	-	0.00022	0.00157	0.00973
0.00026	0.00058	0.00036	0.00061	0.00058	0.00043	0.00027	0.25091	0.00042	0.00052	-	0.00001	0.00183	0.00632
-	0.00046	-	0.00501	-	-	0.00046	0.22776	-	-	-	0.00025	-	0.00501
0.00026	0.00103	0.00036	0.00562	0.00058	0.00043	0.00073	0.47868	0.00042	0.00052	-	0.00025	0.00183	0.01133
0.00056	0.00124	0.00078	0.00130	0.00124	0.00093	0.00059	0.54004	0.00090	0.00112	-	0.00002	0.00394	0.01359
-	0.00142	-	0.01566	-	-	0.00142	0.71176	-	-	-	0.00077	-	0.01566
0.00056	0.00266	0.00078	0.01696	0.00124	0.00093	0.00201	1.25180	0.00090	0.00112	-	0.00079	0.00394	0.02926
0.001	0.005	0.002	0.027	0.003	0.002	0.004	2.460	0.002	0.003	-	0.001	0.010	0.058
0.001	0.003	0.001	0.017	0.001	0.001	0.002	1.252	0.001	0.001	-	0.001	0.004	0.029

San Pedro Waterfront

Unmitigated Alternative 5 Toxic Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>4.28639</i>	<i>1.15848</i>	<i>8.68863</i>	<i>0.57924</i>	<i>0.04924</i>	<i>0.09268</i>	<i>1.50603</i>	<i>0.86886</i>	<i>0.65440</i>	<i>0.00096</i>	<i>0.00346</i>
Sea / Fairway - South-Bound	Diesel Engines	5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>5.06359</i>	<i>1.36854</i>	<i>10.26404</i>	<i>0.68427</i>	<i>0.05816</i>	<i>0.10948</i>	<i>1.77910</i>	<i>1.02640</i>	<i>0.77305</i>	<i>0.00114</i>	<i>0.00409</i>
Fairway - North-Bound	Diesel Engines	3.28166	0.88693	6.65201	0.44347	0.03769	0.07095	1.15302	0.66520	0.50101	0.00074	0.00265
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>3.28166</i>	<i>0.88693</i>	<i>6.65201</i>	<i>0.44347</i>	<i>0.03769</i>	<i>0.07095</i>	<i>1.15302</i>	<i>0.66520</i>	<i>0.50101</i>	<i>0.00074</i>	<i>0.00265</i>
Fairway - South-Bound	Diesel Engines	2.00546	0.54202	4.06512	0.27101	0.02304	0.04336	0.70462	0.40651	0.30617	0.00045	0.00162
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>2.00546</i>	<i>0.54202</i>	<i>4.06512</i>	<i>0.27101</i>	<i>0.02304</i>	<i>0.04336</i>	<i>0.70462</i>	<i>0.40651</i>	<i>0.30617</i>	<i>0.00045</i>	<i>0.00162</i>
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.14320	0.00021	0.00076
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	-	0.00961	-
<i>Total Precautionary Zone - North-Bound</i>		<i>0.93797</i>	<i>0.25681</i>	<i>1.90145</i>	<i>0.12844</i>	<i>0.01088</i>	<i>0.02271</i>	<i>0.33651</i>	<i>0.19343</i>	<i>0.14320</i>	<i>0.00982</i>	<i>0.00076</i>
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.16229	0.00024	0.00086
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	-	0.01089	-
<i>Total Precautionary Zone - South-Bound</i>		<i>1.06304</i>	<i>0.29105</i>	<i>2.15498</i>	<i>0.14556</i>	<i>0.01233</i>	<i>0.02574</i>	<i>0.38138</i>	<i>0.21922</i>	<i>0.16229</i>	<i>0.01113</i>	<i>0.00086</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.03702	0.00005	0.00020
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	-	0.00338	-
<i>Total Outer Harbor Zone1</i>		<i>0.24251</i>	<i>0.06670</i>	<i>0.49162</i>	<i>0.03336</i>	<i>0.00282</i>	<i>0.00610</i>	<i>0.08765</i>	<i>0.05032</i>	<i>0.03702</i>	<i>0.00344</i>	<i>0.00020</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.04628	0.00007	0.00025
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	-	0.00423	-
<i>Total Outer Harbor Zone2</i>		<i>0.30313</i>	<i>0.08338</i>	<i>0.61453</i>	<i>0.04171</i>	<i>0.00353</i>	<i>0.00762</i>	<i>0.10957</i>	<i>0.06290</i>	<i>0.04628</i>	<i>0.00430</i>	<i>0.00025</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.05385	0.00008	0.00029
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	-	0.00492	-
<i>Total Inner Harbor Zone</i>		<i>0.35274</i>	<i>0.09703</i>	<i>0.71509</i>	<i>0.04853</i>	<i>0.00411</i>	<i>0.00887</i>	<i>0.12749</i>	<i>0.07319</i>	<i>0.05385</i>	<i>0.00500</i>	<i>0.00029</i>
Holding	Diesel Engines	0.75090	0.20295	1.52210	0.10147	0.00863	0.01624	0.26383	0.15221	0.11464	0.00017	0.00061
Holding	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	-	0.01537	-
<i>Total Holding</i>		<i>0.75090</i>	<i>0.20823</i>	<i>1.52235</i>	<i>0.10417</i>	<i>0.00880</i>	<i>0.02013</i>	<i>0.27496</i>	<i>0.15749</i>	<i>0.11464</i>	<i>0.01554</i>	<i>0.00061</i>

First Peak Hour Scenario (per vessel) 1.961 0.538 3.976 0.269 0.023 0.048 0.706 0.406 0.299 0.024 0.002

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel) 0.751 0.208 1.522 0.104 0.009 0.020 0.275 0.157 0.115 0.016 0.001

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels: 0 Year 2011 only
0 All other years

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00589	0.00368	0.00619	0.00589	0.00442	0.00280	2.56397	0.00427	0.00530	-	0.00009	0.01871	0.06454
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00589	0.00368	0.00619	0.00589	0.00442	0.00280	2.56397	0.00427	0.00530	-	0.00009	0.01871	0.06454
0.00360	0.00225	0.00378	0.00360	0.00270	0.00171	1.56687	0.00261	0.00324	-	0.00005	0.01144	0.03944
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00360	0.00225	0.00378	0.00360	0.00270	0.00171	1.56687	0.00261	0.00324	-	0.00005	0.01144	0.03944
0.00168	0.00105	0.00177	0.00168	0.00126	0.00080	0.73284	0.00122	0.00152	-	0.00003	0.00535	0.01845
0.00089	-	0.00979	-	-	0.00089	0.44485	-	-	-	0.00048	-	0.00979
0.00257	0.00105	0.01156	0.00168	0.00126	0.00169	1.17769	0.00122	0.00152	-	0.00051	0.00535	0.02823
0.00191	0.00119	0.00200	0.00191	0.00143	0.00091	0.83055	0.00138	0.00172	-	0.00003	0.00606	0.02091
0.00101	-	0.01109	-	-	0.00101	0.50417	-	-	-	0.00054	-	0.01109
0.00292	0.00119	0.01310	0.00191	0.00143	0.00192	1.33472	0.00138	0.00172	-	0.00057	0.00606	0.03200
0.00044	0.00027	0.00046	0.00044	0.00033	0.00021	0.18947	0.00032	0.00039	-	0.00001	0.00138	0.00477
0.00031	-	0.00344	-	-	0.00031	0.15659	-	-	-	0.00017	-	0.00344
0.00075	0.00027	0.00390	0.00044	0.00033	0.00052	0.34605	0.00032	0.00039	-	0.00018	0.00138	0.00821
0.00054	0.00034	0.00057	0.00054	0.00041	0.00026	0.23684	0.00039	0.00049	-	0.00001	0.00173	0.00596
0.00039	-	0.00431	-	-	0.00039	0.19573	-	-	-	0.00021	-	0.00431
0.00094	0.00034	0.00488	0.00054	0.00041	0.00065	0.43257	0.00039	0.00049	-	0.00022	0.00173	0.01027
0.00063	0.00040	0.00067	0.00063	0.00048	0.00030	0.27559	0.00046	0.00057	-	0.00001	0.00201	0.00694
0.00046	-	0.00501	-	-	0.00046	0.22776	-	-	-	0.00025	-	0.00501
0.00109	0.00040	0.00568	0.00063	0.00048	0.00076	0.50336	0.00046	0.00057	-	0.00026	0.00201	0.01195
0.00135	0.00084	0.00142	0.00135	0.00101	0.00064	0.58668	0.00098	0.00121	-	0.00002	0.00428	0.01477
0.00142	-	0.01566	-	-	0.00142	0.71176	-	-	-	0.00077	-	0.01566
0.00277	0.00084	0.01707	0.00135	0.00101	0.00206	1.29845	0.00098	0.00121	-	0.00079	0.00428	0.03043
0.006	0.002	0.028	0.004	0.003	0.004	2.617	0.003	0.003	-	0.001	0.011	0.062
0.003	0.001	0.017	0.001	0.001	0.002	1.298	0.001	0.001	-	0.001	0.004	0.030

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia
Sea / Fairway - North-Bound	Diesel Engines	1,955									
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,955</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	82,575									
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>82,575</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,465									
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,465</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	24,705									
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>24,705</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	440									
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-
<i>Total Precautionary Zone - North-Bound</i>		<i>440</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>
Precautionary Zone - South-Bound	Diesel Engines	16,653									
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.4	4.1	2.0	-
<i>Total Precautionary Zone - South-Bound</i>		<i>16,653</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>4.1</i>	<i>2.0</i>	<i>-</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-									
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,022									
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.6	0.8	-
<i>Total Outer Harbor Zone2</i>		<i>5,022</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.8</i>	<i>-</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,844									
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	1.9	0.9	-
<i>Total Inner Harbor Zone</i>		<i>5,844</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>1.9</i>	<i>0.9</i>	<i>-</i>
Hoteling	Diesel Engines	75,465									
Hoteling	Boiler		-	17.1	0.8	8.7	0.6	12.6	35.9	17.1	-
<i>Total Hoteling</i>		<i>75,465</i>	<i>-</i>	<i>17.1</i>	<i>0.8</i>	<i>8.7</i>	<i>0.6</i>	<i>12.6</i>	<i>35.9</i>	<i>17.1</i>	<i>-</i>
		214,124	-	21	1	11	1	15	44	21	-

San Pedro Waterfront

Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.1	-	0.0	-	0.1	-	-	0.0	4.3	-	-	-	0.0	-	0.1
0.1	-	0.0	-	0.1	0.0	-	0.0	4.3	-	-	-	0.0	-	0.1
3.5	-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	0.2	-	3.6
3.5	-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	0.2	-	3.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4	-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	0.1	-	1.4
1.4	-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	0.1	-	1.4
1.6	-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	0.1	-	1.7
1.6	-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	0.1	-	1.7
30.7	-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	1.5	-	31.3
30.7	-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	1.5	-	31.3
37	-	3	-	38	-	-	3	1,732	-	-	-	2	-	38

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia
Sea / Fairway - North-Bound	Diesel Engines	1,999									
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,999</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	84,417									
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>84,417</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,498									
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,498</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	25,256									
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>25,256</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	450									
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-
<i>Total Precautionary Zone - North-Bound</i>		<i>450</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>
Precautionary Zone - South-Bound	Diesel Engines	17,024									
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-
<i>Total Precautionary Zone - South-Bound</i>		<i>17,024</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-									
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,134									
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-
<i>Total Outer Harbor Zone2</i>		<i>5,134</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,974									
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-
<i>Total Inner Harbor Zone</i>		<i>5,974</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>
Hoteling	Diesel Engines	77,148									
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-
<i>Total Hoteling</i>		<i>77,148</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>
		218,899	-	21	1	11	1	16	45	21	-

San Pedro Waterfront

Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.1	-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
0.1	-	0.0	-	0.1	0.0	-	0.0	4.4	-	-	-	0.0	-	0.1
3.6	-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
3.6	-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4	-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
1.4	-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
1.7	-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
1.7	-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
31.4	-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
31.4	-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
38	-	4	-	39	-	-	4	1,771	-	-	-	2	-	39

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia
Sea / Fairway - North-Bound	Diesel Engines	1,999									
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,999</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	84,417									
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>84,417</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,498									
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,498</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	25,256									
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>25,256</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	450									
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-
<i>Total Precautionary Zone - North-Bound</i>		<i>450</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>
Precautionary Zone - South-Bound	Diesel Engines	17,024									
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-
<i>Total Precautionary Zone - South-Bound</i>		<i>17,024</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-									
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,134									
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-
<i>Total Outer Harbor Zone2</i>		<i>5,134</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,974									
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-
<i>Total Inner Harbor Zone</i>		<i>5,974</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>
Hoteling	Diesel Engines	77,148									
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-
<i>Total Hoteling</i>		<i>77,148</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>
		218,899	-	21	1	11	1	16	45	21	-

San Pedro Waterfront

Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.1	-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
0.1	-	0.0	-	0.1	0.0	-	0.0	4.4	-	-	-	0.0	-	0.1
3.6	-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
3.6	-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4	-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
1.4	-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
1.7	-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
1.7	-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
31.4	-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
31.4	-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
38	-	4	-	39	-	-	4	1,771	-	-	-	2	-	39

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia
Sea / Fairway - North-Bound	Diesel Engines	1,999									
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,999</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	84,417									
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>84,417</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,498									
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,498</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	25,256									
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>25,256</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	450									
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-
<i>Total Precautionary Zone - North-Bound</i>		<i>450</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>
Precautionary Zone - South-Bound	Diesel Engines	17,024									
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-
<i>Total Precautionary Zone - South-Bound</i>		<i>17,024</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-									
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,134									
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-
<i>Total Outer Harbor Zone2</i>		<i>5,134</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,974									
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-
<i>Total Inner Harbor Zone</i>		<i>5,974</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>
Hoteling	Diesel Engines	77,148									
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-
<i>Total Hoteling</i>		<i>77,148</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>
		218,899	-	21	1	11	1	16	45	21	-

San Pedro Waterfront

Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.1	-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
0.1	-	0.0	-	0.1	0.0	-	0.0	4.4	-	-	-	0.0	-	0.1
3.6	-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
3.6	-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4	-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
1.4	-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
1.7	-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
1.7	-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
31.4	-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
31.4	-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
38	-	4	-	39	-	-	4	1,771	-	-	-	2	-	39

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70-Year Average Calculations		Unmitigated Alternative 5												
		70-year average	Project Start Year 2009	Evaluation Year		2012	2013	Evaluation Year		2016	2017	2018	2019	2020
			2010	2011	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
DPM														
Sea / Fairway - North-Bound	Diesel Engines	1,997	2,024	2,024	1,955	1,955	1,955	1,955	1,999	1,999	1,999	1,999	1,999	1,999
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>														
Sea / Fairway - South-Bound	Diesel Engines	84,342	85,494	85,494	82,575	82,575	82,575	82,575	84,417	84,417	84,417	84,417	84,417	84,417
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>														
Fairway - North-Bound	Diesel Engines	1,496	1,501	1,501	1,465	1,465	1,465	1,465	1,498	1,498	1,498	1,498	1,498	1,498
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>														
Fairway - South-Bound	Diesel Engines	25,226	25,308	25,308	24,705	24,705	24,705	24,705	25,256	25,256	25,256	25,256	25,256	25,256
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>														
Precautionary Zone - North-Bound	Diesel Engines	449	449	449	440	440	440	440	450	450	450	450	450	450
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - North-Bound</i>														
Precautionary Zone - South-Bound	Diesel Engines	17,002	16,993	16,993	16,653	16,653	16,653	16,653	17,024	17,024	17,024	17,024	17,024	17,024
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - South-Bound</i>														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁸	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁸	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁹	Diesel Engines	5,125	5,053	5,053	5,022	5,022	5,022	5,022	5,134	5,134	5,134	5,134	5,134	5,134
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁹	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone2</i>														
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	5,964	5,880	5,880	5,844	5,844	5,844	5,844	5,974	5,974	5,974	5,974	5,974	5,974
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Inner Harbor Zone</i>														
Hoteling	Diesel Engines	77,005	75,504	75,504	75,465	75,465	75,465	75,465	77,148	77,148	77,148	77,148	77,148	77,148
Hoteling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Hoteling</i>														

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Evaluation Year																Evaluation Year		
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148

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2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059
1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148

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2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148

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70-Year Average Calculations		Unmitigated Alternative 5												
		70-year average	Project Start Year 2009	2010	Evaluation Year 2011	2012	2013	Evaluation Year 2014	2015	2016	2017	2018	2019	2020
PM from OGV boilers														
Sea / Fairway - North-Bound	Diesel Engines													
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>														
Sea / Fairway - South-Bound	Diesel Engines													
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>														
Fairway - North-Bound	Diesel Engines													
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>														
Fairway - South-Bound	Diesel Engines													
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>														
Precautionary Zone - North-Bound	Diesel Engines													
Precautionary Zone - North-Bound	Boiler	18	17	17	17	17	17	17	18	18	18	18	18	18
<i>Total Precautionary Zone - North-Bound</i>														
Precautionary Zone - South-Bound	Diesel Engines													
Precautionary Zone - South-Bound	Boiler	665	626	626	653	653	653	653	667	667	667	667	667	667
<i>Total Precautionary Zone - South-Bound</i>														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁸	Diesel Engines													
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁸	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁹	Diesel Engines													
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁹	Boiler	266	250	250	261	261	261	261	267	267	267	267	267	267
<i>Total Outer Harbor Zone2</i>														
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines													
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	309	291	291	304	304	304	304	310	310	310	310	310	310
<i>Total Inner Harbor Zone</i>														
Hoteling	Diesel Engines													
Hoteling	Boiler	5,803	5,460	5,460	5,693	5,693	5,693	5,693	5,820	5,820	5,820	5,820	5,820	5,820
<i>Total Hoteling</i>														

San Pedro Waterfront

Evaluation Year															Evaluation Year			
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
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667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
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267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

San Pedro Waterfront

2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
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667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
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267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

San Pedro Waterfront

2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
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267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 5												
		70-year average	Project Start Year 2009	2010	Evaluation Year 2011	2012	2013	Evaluation Year 2014	2015	2016	2017	2018	2019	2020
VOC from OGV boilers														
Sea / Fairway - North-Bound	Diesel Engines													
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>														
Sea / Fairway - South-Bound	Diesel Engines													
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>														
Fairway - North-Bound	Diesel Engines													
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>														
Fairway - South-Bound	Diesel Engines													
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>														
Precautionary Zone - North-Bound	Diesel Engines													
Precautionary Zone - North-Bound	Boiler	2	2	2	2	2	2	2	2	2	2	2	2	2
<i>Total Precautionary Zone - North-Bound</i>														
Precautionary Zone - South-Bound	Diesel Engines													
Precautionary Zone - South-Bound	Boiler	88	82	82	86	86	86	86	88	88	88	88	88	88
<i>Total Precautionary Zone - South-Bound</i>														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁸	Diesel Engines													
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁸	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁷	Diesel Engines													
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁷	Boiler	35	33	33	34	34	34	34	35	35	35	35	35	35
<i>Total Outer Harbor Zone2</i>														
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines													
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	41	38	38	40	40	40	40	41	41	41	41	41	41
<i>Total Inner Harbor Zone</i>														
Hoteling	Diesel Engines													
Hoteling	Boiler	764	719	719	749	749	749	749	766	766	766	766	766	766
<i>Total Hoteling</i>														

San Pedro Waterfront

Evaluation Year															Evaluation Year			
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
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35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
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35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
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41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
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766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
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88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
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35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

Unmitigated Alternative 5 Toxic Pollutant Emissions
70-Year Average

Year (lb/yr)	Spatial Allocation	Power Type	VOC								PM		
			DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	
	Sea / Fairway - North-Bound	Diesel Engines	1,997										
	Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - North-Bound</i>		<i>1,997</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Sea / Fairway - South-Bound	Diesel Engines	84,342										
	Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - South-Bound</i>		<i>84,342</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - North-Bound	Diesel Engines	1,496										
	Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - North-Bound</i>		<i>1,496</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Fairway - South-Bound	Diesel Engines	25,226										
	Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - South-Bound</i>		<i>25,226</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Precautionary Zone - North-Bound	Diesel Engines	449										
	Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	-
	<i>Total Precautionary Zone - North-Bound</i>		<i>449</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>
	Precautionary Zone - South-Bound	Diesel Engines	17,002										
	Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	-
	<i>Total Precautionary Zone - South-Bound</i>		<i>17,002</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>-</i>
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,125										
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	-
	<i>Total Outer Harbor Zone2</i>		<i>5,125</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>-</i>
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,964										
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	-
	<i>Total Inner Harbor Zone</i>		<i>5,964</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>-</i>
	Hoteling	Diesel Engines	77,005										
	Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.6	17.4	-	-
	<i>Total Hoteling</i>		<i>77,005</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.6</i>	<i>17.4</i>	<i>-</i>	<i>-</i>

San Pedro Waterfront

Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.1	-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-
0.1	-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-
3.6	-	0.3	-	3.7	-	-	0.3	166.3	-	-	-	0.2	-
3.6	-	0.3	-	3.7	-	-	0.3	166.3	-	-	-	0.2	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4	-	0.1	-	1.5	-	-	0.1	66.5	-	-	-	0.1	-
1.4	-	0.1	-	1.5	-	-	0.1	66.5	-	-	-	0.1	-
1.7	-	0.2	-	1.7	-	-	0.2	77.4	-	-	-	0.1	-
1.7	-	0.2	-	1.7	-	-	0.2	77.4	-	-	-	0.1	-
31.3	-	2.9	-	31.9	-	-	2.9	1,450.7	-	-	-	1.6	-
31.3	-	2.9	-	31.9	-	-	2.9	1,450.7	-	-	-	1.6	-

San Pedro Waterfront

Zinc
-
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0.1
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3.7
3.7
-
-
1.5
1.5
1.7
1.7
31.9
31.9

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 2 Vessel with No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		23.7	42.3	10.8	300.8	44.3	35.5	450.3	11.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.6	2.7	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	135.9	3.3	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.3	158.2	3.9	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		17.6	31.0	8.0	222.8	33.9	27.1	359.3	8.4	

First Peak Hour Scenario (per vessel)

44 79 20 563 83 67 853 21

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel) 18 31 8 223 34 27 359 8

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.
5. No VSRP

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 Divide by 2 = Half of 2011 Type 2 vessels

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 3 Vessel with No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.2	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = 1.053$$

$$1 \text{ lb} = 453.59$$

Assumptions

- Residual fuel with 4.5% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this unmitigated profile for the peak scenario.
- No VSRP

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0 Divide by 2 = Half of 2011 Type 3 vessels

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 2 Vessel with Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	33.0	59.8	15.0	420.1	59.8	47.8	575.1	15.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>33.0</i>	<i>59.8</i>	<i>15.0</i>	<i>420.1</i>	<i>59.8</i>	<i>47.8</i>	<i>575.1</i>	<i>15.8</i>	
Fairway - South-Bound	Diesel Engines	30.3	54.8	13.8	385.1	54.8	43.8	527.2	14.5	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>30.3</i>	<i>54.8</i>	<i>13.8</i>	<i>385.1</i>	<i>54.8</i>	<i>43.8</i>	<i>527.2</i>	<i>14.5</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.6</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	

First Peak Hour Scenario (per vessel)

44 79 20 563 83 67 853 21

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel) 18 31 8 223 34 27 359 8

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

*Emissions = Engine Power * Load Factor * Emission Factor * Time*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. 2.7% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 2 vessels will have this mitigated profile for the peak scenario.
5. VSRP = 100% within 20 nm

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 Divide by 2 = Half of 2011 Type 2 vessels

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Type 3 Vessel with Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engines	37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		37.2	67.4	16.9	473.8	67.4	53.9	648.6	17.8	
Fairway - South-Bound	Diesel Engines	34.1	61.8	15.5	434.3	61.8	49.4	594.5	16.3	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		34.1	61.8	15.5	434.3	61.8	49.4	594.5	16.3	
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.1	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = 1.053$$

$$1 \text{ lb} = 453.59$$

Assumptions

- 2.7% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this mitigated profile for the peak scenario.
- VSRP = 100% within 20 nm

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0 Divide by 2 = Half of 2011 Type 3 vessels

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 2 Vessel No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>43.2</i>	<i>78.2</i>	<i>19.6</i>	<i>549.7</i>	<i>78.2</i>	<i>62.6</i>	<i>752.5</i>	<i>20.7</i>	
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.6</i>	<i>2.7</i>	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	

First Peak Hour Scenario (per vessel)

44 79 20 563 83 67 853 21

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel) 18 31 8 223 34 27 359 8

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

*Emissions = Engine Power * Load Factor * Emission Factor * Time*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 2 vessels will have this unmitigated profile for the peak scenario.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 Divide by 2 = Half of 2015+ Type 2 vessels

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 3 Vessel No Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - South-Bound	Diesel Engines	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Fairway - North-Bound	Diesel Engines	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - South-Bound	Diesel Engines	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	0.63
Precautionary Zone - South-Bound	Diesel Engines	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.2	338.9	49.7	39.8	502.4	12.8	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.8	77.6	11.5	9.2	118.1	2.9	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	0.32
Hoteling	Diesel Engines	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	12.00
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\text{VOC/HC} = 1.053$$

$$1 \text{ lb} = 453.59$$

Assumptions

- Residual fuel with 4.5% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 3 vessels will have this unmitigated profile for the peak scenario.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0 Divide by 2 = Half of 2015+ Type 3 vessels

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 2 Vessel With Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.52
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	
Sea / Fairway - South-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.92
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	
Fairway - North-Bound	Diesel Engines	33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		33.0	19.1	15.0	382.3	19.1	15.3	57.5	15.8	
Fairway - South-Bound	Diesel Engines	30.3	17.5	13.8	350.4	17.5	14.0	52.7	14.5	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		30.3	17.5	13.8	350.4	17.5	14.0	52.7	14.5	
Precautionary Zone - North-Bound	Diesel Engines	20.6	11.9	9.4	238.9	11.9	9.5	35.9	9.9	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.6	0.5	0.4	3.8	0.1	
Total Precautionary Zone - North-Bound		20.9	11.9	9.5	241.5	12.4	9.9	39.7	10.0	
Precautionary Zone - South-Bound	Diesel Engines	23.4	13.5	10.6	270.8	13.5	10.8	40.7	11.2	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.0	0.5	0.4	4.3	0.2	
Total Precautionary Zone - South-Bound		23.7	13.5	10.8	273.7	14.0	11.2	45.0	11.4	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	3.2	2.5	63.4	3.2	2.5	9.5	2.6	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	0.9	0.2	0.1	1.3	0.05	
Total Outer Harbor Zone1		5.6	3.2	2.5	64.3	3.3	2.7	10.9	2.7	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	4.0	3.1	79.3	4.0	3.2	11.9	3.3	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.2	0.2	1.7	0.06	
Total Outer Harbor Zone2		7.0	4.0	3.2	80.4	4.2	3.3	13.6	3.3	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	4.6	3.6	92.3	4.6	3.7	13.9	3.8	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.3	0.2	0.2	1.9	0.07	
Total Inner Harbor Zone		8.1	4.6	3.7	93.6	4.8	3.9	15.8	3.9	
Hoteling	Diesel Engines	1.4	0.8	0.6	16.5	0.8	0.7	2.5	0.7	12
Hoteling	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
Total Hoteling		1.9	0.8	0.9	20.8	1.6	1.3	8.6	0.9	
First Peak Hour Scenario (per vessel)		44	25	20	512	26	21	85	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		2	1	1	21	2	1	9	1	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

- Residual fuel with 2.7% sulfur content.
- Only non-IMO compliant ships were considered in calculating peak hourly emissions.
- Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
- Half of all Type 2 vessels will have this mitigated profile for the peak scenario.
- AMP applied to hoteling: 80% to inner harbor; 90% to outer harbor.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3.0 Divide by 2 = Half of 2015+ Type 2 vessels

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Type 3 Vessel With Applied Mitigations

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.52
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	
Sea / Fairway - South-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.92
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	
Fairway - North-Bound	Diesel Engines	37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	1.82
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		37.2	21.5	16.9	431.1	21.5	17.2	64.9	17.8	
Fairway - South-Bound	Diesel Engines	34.1	19.7	15.5	395.2	19.7	15.8	59.5	16.3	0.92
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		34.1	19.7	15.5	395.2	19.7	15.8	59.5	16.3	
Precautionary Zone - North-Bound	Diesel Engines	23.3	13.5	10.6	269.4	13.5	10.8	40.5	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.6	0.5	0.4	3.8	0.1	
Total Precautionary Zone - North-Bound		23.5	13.5	10.7	272.1	13.9	11.1	44.3	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	15.2	12.0	305.4	15.2	12.2	45.9	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.0	0.5	0.4	4.3	0.2	
Total Precautionary Zone - South-Bound		26.7	15.2	12.1	308.4	15.8	12.6	50.2	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	3.5	2.7	69.7	3.5	2.8	10.5	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	0.9	0.2	0.1	1.3	0.05	
Total Outer Harbor Zone1		6.1	3.5	2.8	70.6	3.6	2.9	11.8	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	4.3	3.4	87.1	4.3	3.5	13.1	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.2	0.2	1.7	0.06	
Total Outer Harbor Zone2		7.6	4.3	3.5	88.2	4.6	3.6	14.8	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	5.1	4.0	101.3	5.1	4.0	15.2	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.3	0.2	0.2	1.9	0.07	
Total Inner Harbor Zone		8.9	5.1	4.0	102.7	5.3	4.2	17.2	4.3	
Hoteling	Diesel Engines	1.6	0.9	0.7	18.0	0.9	0.7	2.7	0.7	12.00
Hoteling	Boiler	0.4	-	0.2	4.2	0.7	0.6	6.1	0.23	
Total Hoteling		2.0	0.9	0.9	22.2	1.6	1.3	8.8	1.0	

First Peak Hour Scenario (per vessel)

49 28 22 570 29 23 94 24

First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.

Second Peak Hour Scenario (per vessel)

2 1 1 22 2 1 9 1

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

Assumptions

1. Residual fuel with 2.7% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Half of all Type 3 vessels will have this mitigated profile for the peak scenario.
5. AMP applied to hoteling: 80% to inner harbor; 90% to outer harbor.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0 Divide by 2 = Half of 2015+ Type 3 vessels

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2011

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>
Sea / Fairway - South-Bound	Diesel Engines	115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>115.9</i>	<i>209.9</i>	<i>52.7</i>	<i>1,475.4</i>	<i>209.9</i>	<i>167.9</i>	<i>2,019.9</i>	<i>55.5</i>
Fairway - North-Bound	Diesel Engines	62.8	113.7	28.5	799.1	113.7	90.9	1,093.9	30.1
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>62.8</i>	<i>113.7</i>	<i>28.5</i>	<i>799.1</i>	<i>113.7</i>	<i>90.9</i>	<i>1,093.9</i>	<i>30.1</i>
Fairway - South-Bound	Diesel Engines	31.7	57.4	14.4	403.2	57.4	45.9	552.0	15.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>31.7</i>	<i>57.4</i>	<i>14.4</i>	<i>403.2</i>	<i>57.4</i>	<i>45.9</i>	<i>552.0</i>	<i>15.2</i>
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9
Precautionary Zone - North-Bound	Boiler	0.2	-	0.1	2.4	1.4	1.2	30.8	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>264.9</i>	<i>38.8</i>	<i>37.0</i>	<i>390.2</i>	<i>10.0</i>
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.1
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.8</i>	<i>2.7</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.1
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.1
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>
Hotelling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.5
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hotelling</i>		<i>211.0</i>	<i>372.4</i>	<i>96.2</i>	<i>2,673.9</i>	<i>406.6</i>	<i>325.3</i>	<i>4,312.2</i>	<i>101.3</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		627	1,124	285	7,966	1,163	931	11,658	300
Inner Harbor Berths per Vessel - Peak Day (lb/day)		646	1,158	294	8,207	1,199	959	12,029	309
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		1,938	3,473	882	24,621	3,598	2,878	36,086	928
2011 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,305	2,356	593	16,599	2,378	1,903	23,150	625
2011 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels	Activity - Vessels
	bound to Inner Harbor	bound to Outer Harbor
2011	3	0

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2011

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>106.3</i>	<i>192.5</i>	<i>48.3</i>	<i>1,353.1</i>	<i>192.5</i>	<i>154.0</i>	<i>1,852.5</i>	<i>50.9</i>
Sea / Fairway - South-Bound	Diesel Engines	134.4	243.2	61.1	1,710.0	243.2	194.6	2,341.0	64.3
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>134.4</i>	<i>243.2</i>	<i>61.1</i>	<i>1,710.0</i>	<i>243.2</i>	<i>194.6</i>	<i>2,341.0</i>	<i>64.3</i>
Fairway - North-Bound	Diesel Engines	71.8	130.0	32.6	914.2	130.0	104.0	1,251.6	34.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>71.8</i>	<i>130.0</i>	<i>32.6</i>	<i>914.2</i>	<i>130.0</i>	<i>104.0</i>	<i>1,251.6</i>	<i>34.4</i>
Fairway - South-Bound	Diesel Engines	36.2	65.6	16.5	461.3	65.6	52.5	631.5	17.3
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>36.2</i>	<i>65.6</i>	<i>16.5</i>	<i>461.3</i>	<i>65.6</i>	<i>52.5</i>	<i>631.5</i>	<i>17.3</i>
Precautionary Zone - North-Bound	Diesel Engines	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>23.5</i>	<i>42.1</i>	<i>10.7</i>	<i>299.0</i>	<i>43.9</i>	<i>35.1</i>	<i>443.3</i>	<i>11.3</i>
Precautionary Zone - South-Bound	Diesel Engines	22.5	40.8	10.2	286.6	40.8	32.6	392.4	10.8
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>22.8</i>	<i>40.8</i>	<i>10.4</i>	<i>289.9</i>	<i>42.8</i>	<i>34.2</i>	<i>435.4</i>	<i>10.9</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.1
<i>Total Outer Harbor Zone1</i>		<i>6.1</i>	<i>10.9</i>	<i>2.8</i>	<i>77.6</i>	<i>11.5</i>	<i>9.2</i>	<i>118.1</i>	<i>2.9</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.1
<i>Total Outer Harbor Zone2</i>		<i>7.6</i>	<i>13.6</i>	<i>3.5</i>	<i>97.0</i>	<i>14.4</i>	<i>11.5</i>	<i>147.7</i>	<i>3.7</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.1
<i>Total Inner Harbor Zone</i>		<i>8.9</i>	<i>15.8</i>	<i>4.0</i>	<i>112.8</i>	<i>16.7</i>	<i>13.4</i>	<i>171.8</i>	<i>4.3</i>
Hotelling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	107.0
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hotelling</i>		<i>228.8</i>	<i>404.6</i>	<i>104.2</i>	<i>2,900.0</i>	<i>438.8</i>	<i>351.0</i>	<i>4,621.8</i>	<i>109.8</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		700	1,257	319	8,902	1,296	1,037	12,930	336
Inner Harbor Berths per Vessel - Peak Day (lb/day)		721	1,294	328	9,166	1,335	1,068	13,333	346
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Activity -	Activity - Vessels
Vessels bound to Inner Harbor	bound to Outer Harbor
Year	
2011	0

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2015+

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	59.8	91.1	27.2	745.5	91.1	72.9	823.5	28.6
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>59.8</i>	<i>91.1</i>	<i>27.2</i>	<i>745.5</i>	<i>91.1</i>	<i>72.9</i>	<i>823.5</i>	<i>28.6</i>
Sea / Fairway - South-Bound	Diesel Engines	75.6	115.1	34.4	942.2	115.1	92.1	1,040.7	36.2
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>75.6</i>	<i>115.1</i>	<i>34.4</i>	<i>942.2</i>	<i>115.1</i>	<i>92.1</i>	<i>1,040.7</i>	<i>36.2</i>
Fairway - North-Bound	Diesel Engines	62.8	89.0	28.5	776.2	89.0	71.2	780.5	30.1
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>62.8</i>	<i>89.0</i>	<i>28.5</i>	<i>776.2</i>	<i>89.0</i>	<i>71.2</i>	<i>780.5</i>	<i>30.1</i>
Fairway - South-Bound	Diesel Engines	31.7	44.9	14.4	391.6	44.9	35.9	393.8	15.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>31.7</i>	<i>44.9</i>	<i>14.4</i>	<i>391.6</i>	<i>44.9</i>	<i>35.9</i>	<i>393.8</i>	<i>15.2</i>
Precautionary Zone - North-Bound	Diesel Engines	20.6	24.6	9.4	250.7	24.6	19.7	197.7	9.9
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.8	1.1	0.9	20.8	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>24.6</i>	<i>9.5</i>	<i>253.5</i>	<i>25.8</i>	<i>20.6</i>	<i>218.5</i>	<i>10.0</i>
Precautionary Zone - South-Bound	Diesel Engines	23.4	27.9	10.6	284.2	27.9	22.3	224.0	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.1	1.3	1.0	23.6	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>27.9</i>	<i>10.8</i>	<i>287.3</i>	<i>29.2</i>	<i>23.4</i>	<i>247.7</i>	<i>11.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	6.5	2.5	66.6	6.5	5.2	52.5	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.4	0.3	7.3	0.1
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>6.5</i>	<i>2.5</i>	<i>67.6</i>	<i>6.9</i>	<i>5.5</i>	<i>59.8</i>	<i>2.7</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	8.2	3.1	83.2	8.2	6.5	65.6	3.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.5	0.4	9.2	0.1
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>8.2</i>	<i>3.2</i>	<i>84.4</i>	<i>8.7</i>	<i>6.9</i>	<i>74.8</i>	<i>3.3</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	9.5	3.6	96.8	9.5	7.6	76.3	3.8
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.4	0.6	0.5	10.7	0.1
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>9.5</i>	<i>3.7</i>	<i>98.2</i>	<i>10.1</i>	<i>8.1</i>	<i>87.0</i>	<i>3.9</i>
Hotelling	Diesel Engines	111.4	191.2	50.7	1,408.5	191.2	152.9	1,807.3	53.3
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hotelling</i>		<i>116.7</i>	<i>191.2</i>	<i>53.3</i>	<i>1,461.6</i>	<i>212.7</i>	<i>170.2</i>	<i>2,207.4</i>	<i>56.1</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		452	668	206	5,608	693	555	6,465	217
Inner Harbor Berths per Vessel - Peak Day (lb/day)		471	691	214	5,838	717	574	6,669	226
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		1,413	2,072	643	17,514	2,151	1,721	20,006	677
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		1,413	2,072	643	17,514	2,151	1,721	20,006	677
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		1,413	2,072	643	17,514	2,151	1,721	20,006	677
2015 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,063	1,499	483	13,129	1,513	1,210	13,384	509
2015 Vessel Type 2 Hotelling Peak Day (lb/day)		350	574	160	4,385	638	511	6,622	168
2022 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,063	1,499	483	13,129	1,513	1,210	13,384	509
2022 Vessel Type 2 Hotelling Peak Day (lb/day)		350	574	160	4,385	638	511	6,622	168
2037 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,063	1,499	483	13,129	1,513	1,210	13,384	509
2037 Vessel Type 2 Hotelling Peak Day (lb/day)		350	574	160	4,385	638	511	6,622	168

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels	
	bound to Inner Harbor	bound to Outer Harbor
2011	3	0
2015	3	0
2022	3	0
2037	3	0

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2015+

Transit Time

Peak Day (lb/day) for Unmitigated/Mitigated Combined Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time
Sea / Fairway - North-Bound	Diesel Engines	68.9	105.3	31.3	859.0	105.3	84.3	953.7	33.0	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		68.9	105.3	31.3	859.0	105.3	84.3	953.7	33.0	
Sea / Fairway - South-Bound	Diesel Engines	87.1	133.1	39.6	1,085.6	133.1	106.5	1,205.2	41.7	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		87.1	133.1	39.6	1,085.6	133.1	106.5	1,205.2	41.7	
Fairway - North-Bound	Diesel Engines	71.8	102.3	32.6	888.4	102.3	81.8	898.1	34.4	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		71.8	102.3	32.6	888.4	102.3	81.8	898.1	34.4	
Fairway - South-Bound	Diesel Engines	36.2	51.6	16.5	448.3	51.6	41.3	453.2	17.3	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		36.2	51.6	16.5	448.3	51.6	41.3	453.2	17.3	
Precautionary Zone - North-Bound	Diesel Engines	23.3	27.8	10.6	282.8	27.8	22.2	223.0	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.8	1.1	0.9	20.8	0.1	
Total Precautionary Zone - North-Bound		23.5	27.8	10.7	285.5	28.9	23.1	243.8	11.3	
Precautionary Zone - South-Bound	Diesel Engines	26.4	31.5	12.0	320.5	31.5	25.2	252.7	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.1	1.3	1.0	23.6	0.2	
Total Precautionary Zone - South-Bound		26.7	31.5	12.1	323.6	32.8	26.2	276.3	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	6.0	7.2	2.7	73.1	7.2	5.7	57.6	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.4	0.3	7.3	0.1	
Total Outer Harbor Zone1		6.1	7.2	2.8	74.1	7.6	6.1	65.0	3.0	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	7.5	9.0	3.4	91.4	9.0	7.2	72.1	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.2	0.5	0.4	9.2	0.1	
Total Outer Harbor Zone2		7.6	9.0	3.5	92.6	9.5	7.6	81.2	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.7	10.4	4.0	106.3	10.4	8.4	83.8	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.4	0.6	0.5	10.7	0.1	
Total Inner Harbor Zone		8.9	10.4	4.0	107.8	11.0	8.8	94.5	4.3	
Hotelling	Diesel Engines	121.1	207.7	55.0	1,530.1	207.7	166.2	1,963.3	57.9	12
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8	
Total Hotelling		126.4	207.7	57.7	1,583.2	229.3	183.4	2,363.5	60.7	
Outer Harbor Berths per Vessel - Peak Day (lb/day)		510	756	232	6,326	781	625	7,253	244	
Inner Harbor Berths per Vessel - Peak Day (lb/day)		531	780	241	6,579	807	645	7,474	254	
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2015 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2022 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2037 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2015 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2015 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2022 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2022 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2037 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-	
2037 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-	

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	0	0
2015	0	0
2022	0	0
2037	0	0

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions
 Year: 2011, 2015, 2022, 2037

Total Peak Day (lb/day) for all Vessels

	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
2011 Transit & Maneuvering Peak Day (lb/day)	1,305	2,356	593	16,599	2,378	1,903	23,150	625
2011 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2015 Transit & Maneuvering Peak Day (lb/day)	1,063	1,499	483	13,129	1,513	1,210	13,384	509
2015 Hotelling Peak Day (lb/day)	350	574	160	4,385	638	511	6,622	168
2022 Transit & Maneuvering Peak Day (lb/day)	1,063	1,499	483	13,129	1,513	1,210	13,384	509
2022 Hotelling Peak Day (lb/day)	350	574	160	4,385	638	511	6,622	168
2037 Transit & Maneuvering Peak Day (lb/day)	1,063	1,499	483	13,129	1,513	1,210	13,384	509
2037 Hotelling Peak Day (lb/day)	350	574	160	4,385	638	511	6,622	168

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2011

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	11.5	20.8	5.2	145.9	20.8	16.6	199.8	5.5
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>11.5</i>	<i>20.8</i>	<i>5.2</i>	<i>145.9</i>	<i>20.8</i>	<i>16.6</i>	<i>199.8</i>	<i>5.5</i>
Sea / Fairway - South-Bound	Diesel Engines	14.5	26.2	6.6	184.4	26.2	21.0	252.5	6.9
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>14.5</i>	<i>26.2</i>	<i>6.6</i>	<i>184.4</i>	<i>26.2</i>	<i>21.0</i>	<i>252.5</i>	<i>6.9</i>
Fairway - North-Bound	Diesel Engines	7.8	14.2	3.6	99.9	14.2	11.4	136.7	3.8
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>7.8</i>	<i>14.2</i>	<i>3.6</i>	<i>99.9</i>	<i>14.2</i>	<i>11.4</i>	<i>136.7</i>	<i>3.8</i>
Fairway - South-Bound	Diesel Engines	4.0	7.2	1.8	50.4	7.2	5.7	69.0	1.9
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>4.0</i>	<i>7.2</i>	<i>1.8</i>	<i>50.4</i>	<i>7.2</i>	<i>5.7</i>	<i>69.0</i>	<i>1.9</i>
Precautionary Zone - North-Bound	Diesel Engines	2.6	4.7	1.2	32.8	4.7	3.7	44.9	1.2
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.2	0.1	3.8	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>4.7</i>	<i>1.2</i>	<i>33.1</i>	<i>4.8</i>	<i>3.9</i>	<i>48.8</i>	<i>1.2</i>
Precautionary Zone - South-Bound	Diesel Engines	2.9	5.3	1.3	37.2	5.3	4.2	50.9	1.4
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.3	0.2	5.4	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>5.3</i>	<i>1.3</i>	<i>37.6</i>	<i>5.5</i>	<i>4.4</i>	<i>56.3</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	1.2	0.3	8.7	1.2	1.0	11.9	0.3
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.1	0.1	1.7	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>8.8</i>	<i>1.3</i>	<i>1.1</i>	<i>13.6</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.5	0.4	10.9	1.5	1.2	14.9	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.5</i>	<i>0.4</i>	<i>11.0</i>	<i>1.6</i>	<i>1.3</i>	<i>17.0</i>	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.8	0.5	12.7	1.8	1.4	17.3	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.4	0.0
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.5</i>	<i>12.9</i>	<i>1.9</i>	<i>1.5</i>	<i>19.8</i>	<i>0.5</i>
Hoteling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.8
<i>Total Hoteling</i>		<i>211.0</i>	<i>372.4</i>	<i>96.2</i>	<i>2,673.9</i>	<i>406.6</i>	<i>325.3</i>	<i>4,312.2</i>	<i>101.3</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2011

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4
Sea / Fairway - North-Bound	Boiler								
<i>Total in Sea / Fairway - North-Bound</i>		<i>13.3</i>	<i>24.1</i>	<i>6.0</i>	<i>169.1</i>	<i>24.1</i>	<i>19.2</i>	<i>231.6</i>	<i>6.4</i>
Sea / Fairway - South-Bound	Diesel Engines	16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0
Sea / Fairway - South-Bound	Boiler								
<i>Total in Sea / Fairway - South-Bound</i>		<i>16.8</i>	<i>30.4</i>	<i>7.6</i>	<i>213.7</i>	<i>30.4</i>	<i>24.3</i>	<i>292.6</i>	<i>8.0</i>
Fairway - North-Bound	Diesel Engines	9.0	16.3	4.1	114.3	16.3	13.0	156.4	4.3
Fairway - North-Bound	Boiler								
<i>Total in Fairway - North-Bound</i>		<i>9.0</i>	<i>16.3</i>	<i>4.1</i>	<i>114.3</i>	<i>16.3</i>	<i>13.0</i>	<i>156.4</i>	<i>4.3</i>
Fairway - South-Bound	Diesel Engines	4.5	8.2	2.1	57.7	8.2	6.6	78.9	2.2
Fairway - South-Bound	Boiler								
<i>Total in Fairway - South-Bound</i>		<i>4.5</i>	<i>8.2</i>	<i>2.1</i>	<i>57.7</i>	<i>8.2</i>	<i>6.6</i>	<i>78.9</i>	<i>2.2</i>
Precautionary Zone - North-Bound	Diesel Engines	2.9	5.3	1.3	37.0	5.3	4.2	50.7	1.4
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.2	4.7	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.94</i>	<i>5.26</i>	<i>1.34</i>	<i>37.4</i>	<i>5.5</i>	<i>4.4</i>	<i>55.4</i>	<i>1.4</i>
Precautionary Zone - South-Bound	Diesel Engines	2.8	5.1	1.3	35.8	5.1	4.1	49.1	1.3
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.3	0.2	5.4	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>2.9</i>	<i>5.1</i>	<i>1.3</i>	<i>36.2</i>	<i>5.3</i>	<i>4.3</i>	<i>54.4</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	1.4	0.3	9.6	1.4	1.1	13.1	0.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.1	0.1	0.1	1.7	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>1.4</i>	<i>0.3</i>	<i>9.7</i>	<i>1.4</i>	<i>1.2</i>	<i>14.8</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.7	0.4	12.0	1.7	1.4	16.4	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.7</i>	<i>0.4</i>	<i>12.1</i>	<i>1.8</i>	<i>1.4</i>	<i>18.5</i>	<i>0.5</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	2.0	0.5	13.9	2.0	1.6	19.1	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	2.4	0.0
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>2.0</i>	<i>0.5</i>	<i>14.1</i>	<i>2.1</i>	<i>1.7</i>	<i>21.5</i>	<i>0.5</i>
Hoteling	Diesel Engines	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	107.0
Hoteling	Boiler	5.3	-	2.6	56.6	34.2	27.3	727.5	2.8
<i>Total Hoteling</i>		<i>228.8</i>	<i>404.6</i>	<i>104.2</i>	<i>2,900.0</i>	<i>438.8</i>	<i>351.0</i>	<i>4,621.8</i>	<i>109.8</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2015+

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	7.5	11.4	3.4	93.2	11.4	9.1	102.9	3.6
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>7.5</i>	<i>11.4</i>	<i>3.4</i>	<i>93.2</i>	<i>11.4</i>	<i>9.1</i>	<i>102.9</i>	<i>3.6</i>
Sea / Fairway - South-Bound	Diesel Engines	9.5	14.4	4.3	117.8	14.4	11.5	130.1	4.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>9.5</i>	<i>14.4</i>	<i>4.3</i>	<i>117.8</i>	<i>14.4</i>	<i>11.5</i>	<i>130.1</i>	<i>4.5</i>
Fairway - North-Bound	Diesel Engines	7.8	11.1	3.6	97.0	11.1	8.9	97.6	3.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>7.8</i>	<i>11.1</i>	<i>3.6</i>	<i>97.0</i>	<i>11.1</i>	<i>8.9</i>	<i>97.6</i>	<i>3.8</i>
Fairway - South-Bound	Diesel Engines	4.0	5.6	1.8	49.0	5.6	4.5	49.2	1.9
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>4.0</i>	<i>5.6</i>	<i>1.8</i>	<i>49.0</i>	<i>5.6</i>	<i>4.5</i>	<i>49.2</i>	<i>1.9</i>
Precautionary Zone - North-Bound	Diesel Engines	2.6	3.1	1.2	31.3	3.1	2.5	24.7	1.2
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.1	0.1	2.6	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>3.1</i>	<i>1.2</i>	<i>31.7</i>	<i>3.2</i>	<i>2.6</i>	<i>27.3</i>	<i>1.2</i>
Precautionary Zone - South-Bound	Diesel Engines	2.9	3.5	1.3	35.5	3.5	2.8	28.0	1.4
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.1	3.0	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>3.5</i>	<i>1.3</i>	<i>35.9</i>	<i>3.6</i>	<i>2.9</i>	<i>31.0</i>	<i>1.4</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	0.8	0.3	8.3	0.8	0.7	6.6	0.3
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.0	0.0	0.9	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>0.8</i>	<i>0.3</i>	<i>8.4</i>	<i>0.8</i>	<i>0.7</i>	<i>7.5</i>	<i>0.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.0	0.4	10.4	1.0	0.8	8.2	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.0	1.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.0</i>	<i>0.4</i>	<i>10.6</i>	<i>1.1</i>	<i>0.9</i>	<i>9.3</i>	<i>0.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.2	0.5	12.1	1.2	1.0	9.5	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	1.3	0.0
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.2</i>	<i>0.5</i>	<i>12.3</i>	<i>1.3</i>	<i>1.0</i>	<i>10.9</i>	<i>0.5</i>
Hoteling	Diesel Engines	111.4	191.2	50.7	1,408.5	191.2	152.9	1,807.3	53.3
Hoteling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hoteling</i>		<i>116.7</i>	<i>191.2</i>	<i>53.3</i>	<i>1,461.5</i>	<i>212.7</i>	<i>170.2</i>	<i>2,207.4</i>	<i>56.1</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except for hoteling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

VOC/HC = 1.053
1 lb = 453.59

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2015+

8-Hour (lb/8-hr) for Single Unmitigated/Mitigated Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	8.6	13.2	3.9	107.4	13.2	10.5	119.2	4.1
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>8.6</i>	<i>13.2</i>	<i>3.9</i>	<i>107.4</i>	<i>13.2</i>	<i>10.5</i>	<i>119.2</i>	<i>4.1</i>
Sea / Fairway - South-Bound	Diesel Engines	10.9	16.6	4.9	135.7	16.6	13.3	150.7	5.2
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>10.9</i>	<i>16.6</i>	<i>4.9</i>	<i>135.7</i>	<i>16.6</i>	<i>13.3</i>	<i>150.7</i>	<i>5.2</i>
Fairway - North-Bound	Diesel Engines	9.0	12.8	4.1	111.0	12.8	10.2	112.3	4.3
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>9.0</i>	<i>12.8</i>	<i>4.1</i>	<i>111.0</i>	<i>12.8</i>	<i>10.2</i>	<i>112.3</i>	<i>4.3</i>
Fairway - South-Bound	Diesel Engines	4.5	6.5	2.1	56.0	6.5	5.2	56.6	2.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>4.5</i>	<i>6.5</i>	<i>2.1</i>	<i>56.0</i>	<i>6.5</i>	<i>5.2</i>	<i>56.6</i>	<i>2.2</i>
Precautionary Zone - North-Bound	Diesel Engines	2.9	3.5	1.3	35.3	3.5	2.8	27.9	1.4
Precautionary Zone - North-Bound	Boiler	0.0	-	0.0	0.3	0.1	0.1	2.6	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>2.94</i>	<i>3.47</i>	<i>1.34</i>	<i>35.7</i>	<i>3.6</i>	<i>2.9</i>	<i>30.5</i>	<i>1.4</i>
Precautionary Zone - South-Bound	Diesel Engines	3.3	3.9	1.5	40.1	3.9	3.1	31.6	1.6
Precautionary Zone - South-Bound	Boiler	0.0	-	0.0	0.4	0.2	0.1	3.0	0.0
<i>Total Precautionary Zone - South-Bound</i>		<i>3.3</i>	<i>3.9</i>	<i>1.5</i>	<i>40.5</i>	<i>4.1</i>	<i>3.3</i>	<i>34.5</i>	<i>1.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.8	0.9	0.3	9.1	0.9	0.7	7.2	0.4
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.0	-	0.0	0.1	0.0	0.0	0.9	0.0
<i>Total Outer Harbor Zone1</i>		<i>0.8</i>	<i>0.9</i>	<i>0.3</i>	<i>9.3</i>	<i>0.9</i>	<i>0.8</i>	<i>8.1</i>	<i>0.4</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.1	0.4	11.4	1.1	0.9	9.0	0.4
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.0	-	0.0	0.2	0.1	0.0	1.1	0.0
<i>Total Outer Harbor Zone2</i>		<i>1.0</i>	<i>1.1</i>	<i>0.4</i>	<i>11.6</i>	<i>1.2</i>	<i>0.9</i>	<i>10.2</i>	<i>0.5</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.1	1.3	0.5	13.3	1.3	1.0	10.5	0.5
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.0	-	0.0	0.2	0.1	0.1	1.3	0.0
<i>Total Inner Harbor Zone</i>		<i>1.1</i>	<i>1.3</i>	<i>0.5</i>	<i>13.5</i>	<i>1.4</i>	<i>1.1</i>	<i>11.8</i>	<i>0.5</i>
Hotelling	Diesel Engines	121.1	207.7	55.0	1,530.1	207.7	166.2	1,963.3	57.9
Hotelling	Boiler	5.3	-	2.6	53.1	21.6	17.3	400.1	2.8
<i>Total Hotelling</i>		<i>126.4</i>	<i>207.7</i>	<i>57.7</i>	<i>1,583.2</i>	<i>229.3</i>	<i>183.4</i>	<i>2,363.5</i>	<i>60.7</i>

Emissions = Engine Power * Load Factor * Emission Factor * Time / 8 hours (except for hotelling)

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
 1 lb = 453.59

San Pedro Waterfront

Alternative 5 Mitigated Criteria Pollutant Emissions

Year: 2011

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	179.7	198.0	81.7	2,134.3	198.0	158.4	1,356.6	86.0
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>179.7</i>	<i>198.0</i>	<i>81.7</i>	<i>2,134.3</i>	<i>198.0</i>	<i>158.4</i>	<i>1,356.6</i>	<i>86.0</i>
Sea / Fairway - South-Bound	Diesel Engines	227.1	250.2	103.2	2,697.2	250.2	200.1	1,714.4	108.7
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>227.1</i>	<i>250.2</i>	<i>103.2</i>	<i>2,697.2</i>	<i>250.2</i>	<i>200.1</i>	<i>1,714.4</i>	<i>108.7</i>
Fairway - North-Bound	Diesel Engines	119.9	132.1	54.5	1,424.5	132.1	105.7	905.4	57.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>119.9</i>	<i>132.1</i>	<i>54.5</i>	<i>1,424.5</i>	<i>132.1</i>	<i>105.7</i>	<i>905.4</i>	<i>57.4</i>
Fairway - South-Bound	Diesel Engines	60.5	66.7	27.5	718.8	66.7	53.3	456.9	29.0
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>60.5</i>	<i>66.7</i>	<i>27.5</i>	<i>718.8</i>	<i>66.7</i>	<i>53.3</i>	<i>456.9</i>	<i>29.0</i>
Precautionary Zone - North-Bound	Diesel Engines	41.3	45.5	18.8	490.1	45.5	36.4	311.5	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.6	1.8	1.4	32.8	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>41.8</i>	<i>45.5</i>	<i>19.0</i>	<i>495.7</i>	<i>47.2</i>	<i>37.8</i>	<i>344.3</i>	<i>20.0</i>
Precautionary Zone - South-Bound	Diesel Engines	46.8	51.5	21.3	555.4	51.5	41.2	353.0	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.4	2.0	1.6	37.2	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>47</i>	<i>52</i>	<i>22</i>	<i>562</i>	<i>54</i>	<i>43</i>	<i>390</i>	<i>23</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.0	12.1	5.0	130.1	12.1	9.7	82.7	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.2	-	0.1	2.0	0.6	0.5	11.6	0.1
<i>Total Outer Harbor Zone1</i>		<i>11.2</i>	<i>12.1</i>	<i>5.1</i>	<i>132.1</i>	<i>12.7</i>	<i>10.2</i>	<i>94.3</i>	<i>5.3</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	13.7	15.1	6.2	162.6	15.1	12.1	103.4	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.5	0.8	0.6	14.4	0.1
<i>Total Outer Harbor Zone2</i>		<i>13.9</i>	<i>15.1</i>	<i>6.3</i>	<i>165.1</i>	<i>15.9</i>	<i>12.7</i>	<i>117.8</i>	<i>6.7</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	15.9	17.6	7.2	189.2	17.6	14.0	120.3	7.6
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.3	-	0.1	2.9	0.9	0.7	16.8	0.1
<i>Total Inner Harbor Zone</i>		<i>16.2</i>	<i>17.6</i>	<i>7.4</i>	<i>192.1</i>	<i>18.5</i>	<i>14.8</i>	<i>137.1</i>	<i>7.8</i>
Hoteling	Diesel Engines	149.2	164.3	67.8	1,771.8	164.3	131.5	1,126.2	71.4
Hoteling	Boiler	5.3	-	2.6	53.9	17.1	13.7	315.3	2.8
<i>Total Hoteling</i>		<i>154.4</i>	<i>164.3</i>	<i>70.4</i>	<i>1,825.7</i>	<i>181.4</i>	<i>145.2</i>	<i>1,441.4</i>	<i>74.2</i>

Alt 5 Mitigated Criteria Pollutant Emissions

Year: 2011

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	534	581	243	6,331	602	482	4,375	256
North-Bound Single Vessel Average Day (ton/day)	0.27	0.29	0.12	3.18	0.30	0.24	2.20	0.13
South-Bound Single Vessel Average Day (ton/day)	0.27	0.29	0.12	3.15	0.30	0.24	2.18	0.13
Temporal Allocation								
2011 Total Annual Emissions (ton/yr)	71	78	32	847	81	64	586	34

$Emissions (lb/yr) = Average Engine Power * Load Factor_{(VSR corrected)} * Fuel Corrected Emission Factor * Time_{(VSR corrected)} * 2_{(1-Way)} Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2_{(1-Way)} Trips * Vessels per Year$

$Hoteling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{453.59 \text{ grams}}$

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 30% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NO_x = 53%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 30% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance in 2011 assumed to be 30%

San Pedro Waterfront

Alternative 5 Mitigated Criteria Pollutant Emissions

Year: 2015

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	100.1	57.9	45.5	1,110.9	57.9	46.3	174.4	47.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		100.1	57.9	45.5	1,110.9	57.9	46.3	174.4	47.9
Sea / Fairway - South-Bound	Diesel Engines	126.5	73.1	57.5	1,403.9	73.1	58.5	220.4	60.6
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		126.5	73.1	57.5	1,403.9	73.1	58.5	220.4	60.6
Fairway - North-Bound	Diesel Engines	119.9	69.3	54.5	1,330.6	69.3	55.5	208.9	57.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		119.9	69.3	54.5	1,330.6	69.3	55.5	208.9	57.4
Fairway - South-Bound	Diesel Engines	60.5	35.0	27.5	671.4	35.0	28.0	105.4	29.0
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		60.5	35.0	27.5	671.4	35.0	28.0	105.4	29.0
Precautionary Zone - North-Bound	Diesel Engines	41.3	23.9	18.8	457.8	23.9	19.1	71.9	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		41.8	23.9	19.0	463.7	24.8	19.8	79.5	20.0
Precautionary Zone - South-Bound	Diesel Engines	46.8	27.0	21.3	518.8	27.0	21.6	81.5	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		47	27	22	525	28	22	90	23
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.0	6.3	5.0	121.5	6.3	5.1	19.1	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		11.2	6.3	5.1	123.4	6.6	5.4	21.8	5.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	13.7	7.9	6.2	151.9	7.9	6.3	23.9	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		13.9	7.9	6.3	154.2	8.3	6.7	27.2	6.7
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	15.9	9.2	7.2	176.8	9.2	7.4	27.8	7.6
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		16.2	9.2	7.4	179.5	9.7	7.8	31.6	7.8
Hotelling	Diesel Engines	54.9	31.7	24.9	608.8	31.7	25.4	95.6	26.3
Hotelling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
Total Hotelling		60.2	31.7	27.6	659.3	40.7	32.6	168.3	29.0

Alt 5 Mitigated Criteria Pollutant Emissions

Year: 2015

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	350	198	159	3,869	209	168	688	168
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	2.01	0.11	0.09	0.36	0.09
South-Bound Single Vessel Average Day (ton/day)	0.17	0.10	0.08	1.86	0.10	0.08	0.33	0.08
Temporal Allocation								
2015 Total Annual Emissions (ton/yr)	46	26	21	512	28	22	92	22

$Emissions (lb/yr) = Average Engine Power * Load Factor^{(VSR corrected)} * Fuel Corrected Emission Factor * Time^{(VSR corrected)} * 2^{(1-way)} Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2^{(1-way)} Trips * Vessels per Year$

$Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = 59%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions: 4% annual fleet turnover rate was assumed.
- Annual emissions assume 100% compliance with VSRP to 40 nm.
- Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Alternative 5 Mitigated Criteria Pollutant Emissions
Year: 2022

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	100.1	57.9	45.5	1,102.4	57.9	46.3	174.4	47.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		100.1	57.9	45.5	1,102.4	57.9	46.3	174.4	47.9
Sea / Fairway - South-Bound	Diesel Engines	126.5	73.1	57.5	1,393.1	73.1	58.5	220.4	60.6
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		126.5	73.1	57.5	1,393.1	73.1	58.5	220.4	60.6
Fairway - North-Bound	Diesel Engines	119.9	69.3	54.5	1,320.4	69.3	55.5	208.9	57.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		119.9	69.3	54.5	1,320.4	69.3	55.5	208.9	57.4
Fairway - South-Bound	Diesel Engines	60.5	35.0	27.5	666.3	35.0	28.0	105.4	29.0
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		60.5	35.0	27.5	666.3	35.0	28.0	105.4	29.0
Precautionary Zone - North-Bound	Diesel Engines	41.3	23.9	18.8	454.3	23.9	19.1	71.9	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		41.8	23.9	19.0	459.5	24.6	19.8	79.5	20.0
Precautionary Zone - South-Bound	Diesel Engines	46.8	27.0	21.3	514.9	27.0	21.6	81.5	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		47	27	22	521	28	22	90	23
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	11.0	6.3	5.0	120.6	6.3	5.1	19.1	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		11.2	6.3	5.1	122.5	6.6	5.4	21.8	5.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	13.7	7.9	6.2	150.8	7.9	6.3	23.9	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		13.9	7.9	6.3	153.1	8.3	6.7	27.2	6.7
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Diesel Engines	15.9	9.2	7.2	175.4	9.2	7.4	27.8	7.6
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		16.2	9.2	7.4	178.1	9.7	7.8	31.6	7.8
Hoteling	Diesel Engines	54.9	31.7	24.9	604.1	31.7	25.4	95.6	26.3
Hoteling	Boiler	5.3	-	2.6	50.6	9.0	7.2	12.8	2.8
Total Hoteling		60.2	31.7	27.6	654.6	40.7	32.6	108.4	29.1

Alt 5 Mitigated Criteria Pollutant Emissions
Year: 2022

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	350	198	159	3,840	209	168	688	168
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	2.00	0.11	0.09	0.36	0.09
South-Bound Single Vessel Average Day (ton/day)	0.17	0.10	0.08	1.84	0.10	0.08	0.33	0.08
Temporal Allocation								
2022 Total Annual Emissions (ton/yr)	46	26	21	508	28	22	92	22

Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-way) Trips * Vessels per Year

Hoteling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NOx = **69%**
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 100% compliance with VSRP to 40 nm.
- Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Alternative 5 Mitigated Criteria Pollutant Emissions

Year: 2037

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	100.1	57.9	45.5	1,095.2	57.9	46.3	174.4	47.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		100.1	57.9	45.5	1,095.2	57.9	46.3	174.4	47.9
Sea / Fairway - South-Bound	Diesel Engines	126.5	73.1	57.5	1,384.1	73.1	58.5	220.4	60.6
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		126.5	73.1	57.5	1,384.1	73.1	58.5	220.4	60.6
Fairway - North-Bound	Diesel Engines	119.9	69.3	54.5	1,311.9	69.3	55.5	208.9	57.4
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		119.9	69.3	54.5	1,311.9	69.3	55.5	208.9	57.4
Fairway - South-Bound	Diesel Engines	60.5	35.0	27.5	661.9	35.0	28.0	105.4	29.0
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		60.5	35.0	27.5	661.9	35.0	28.0	105.4	29.0
Precautionary Zone - North-Bound	Diesel Engines	41.3	23.9	18.8	451.3	23.9	19.1	71.9	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.3	0.9	0.7	7.6	0.3
Total Precautionary Zone - North-Bound		41.8	23.9	19.0	456.6	24.8	19.8	79.5	20.0
Precautionary Zone - South-Bound	Diesel Engines	46.8	27.0	21.3	511.5	27.0	21.6	81.5	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.0	1.1	0.8	8.6	0.3
Total Precautionary Zone - South-Bound		47	27	22	517	28	22	90	23
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹	Diesel Engines	11.0	6.3	5.0	119.8	6.3	5.1	19.1	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹	Boiler	0.2	-	0.1	1.9	0.3	0.3	2.7	0.1
Total Outer Harbor Zone1		11.2	6.3	5.1	121.7	6.6	5.4	21.8	5.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²	Diesel Engines	13.7	7.9	6.2	149.8	7.9	6.3	23.9	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ²	Boiler	0.2	-	0.1	2.3	0.4	0.3	3.3	0.1
Total Outer Harbor Zone2		13.9	7.9	6.3	152.1	8.3	6.7	27.2	6.7
Inner Harbor Zone (maneuvering through main channel: inner harbor) ³	Diesel Engines	15.9	9.2	7.2	174.3	9.2	7.4	27.8	7.6
Inner Harbor Zone (maneuvering through main channel: inner harbor) ³	Boiler	0.3	-	0.1	2.7	0.5	0.4	3.9	0.1
Total Inner Harbor Zone		16.2	9.2	7.4	177.0	9.7	7.8	31.6	7.8
Hoteling	Diesel Engines	54.9	31.7	24.9	600.2	31.7	25.4	95.6	26.3
Hoteling	Boiler	5.3	-	2.6	50.6	9.0	7.2	72.8	2.8
Total Hoteling		60.2	31.7	27.6	650.7	40.7	32.6	168.3	29.0

Alt 5 Mitigated Criteria Pollutant Emissions

Year: 2037

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	350	198	159	3,815	209	168	688	168
North-Bound Single Vessel Average Day (ton/day)	0.18	0.10	0.08	1.98	0.11	0.09	0.36	0.09
South-Bound Single Vessel Average Day (ton/day)	0.17	0.10	0.08	1.83	0.10	0.08	0.33	0.08
Temporal Allocation								
2037 Total Annual Emissions (ton/yr)	46	26	21	505	28	22	92	22

Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels) * Time * 2 (1-Way) Trips * Vessels per Year

Hoteling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 78%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,404	1,547	638	16,681	1,547	1,238	10,603	672
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,404</i>	<i>1,547</i>	<i>638</i>	<i>16,681</i>	<i>1,547</i>	<i>1,238</i>	<i>10,603</i>	<i>672</i>
Sea / Fairway - South-Bound	Diesel Engines	59,303	65,341	26,956	704,457	65,341	52,273	447,766	28,384
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>59,303</i>	<i>65,341</i>	<i>26,956</i>	<i>704,457</i>	<i>65,341</i>	<i>52,273</i>	<i>447,766</i>	<i>28,384</i>
Fairway - North-Bound	Diesel Engines	937	1,033	426	11,134	1,033	826	7,077	449
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>937</i>	<i>1,033</i>	<i>426</i>	<i>11,134</i>	<i>1,033</i>	<i>826</i>	<i>7,077</i>	<i>449</i>
Fairway - South-Bound	Diesel Engines	15,804	17,413	7,184	187,733	17,413	13,930	119,327	7,564
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>15,804</i>	<i>17,413</i>	<i>7,184</i>	<i>187,733</i>	<i>17,413</i>	<i>13,930</i>	<i>119,327</i>	<i>7,564</i>
Precautionary Zone - North-Bound	Diesel Engines	322	355	147	3,830	355	284	2,435	154
Precautionary Zone - North-Bound	Boiler	4	-	2	44	14	11	257	2
<i>Total Precautionary Zone - North-Bound</i>		<i>327</i>	<i>355</i>	<i>149</i>	<i>3,874</i>	<i>369</i>	<i>295</i>	<i>2,692</i>	<i>156</i>
Precautionary Zone - South-Bound	Diesel Engines	12,212	13,455	5,551	145,066	13,455	10,764	92,207	5,845
Precautionary Zone - South-Bound	Boiler	163	-	82	1,662	527	422	9,721	86
<i>Total Precautionary Zone - South-Bound</i>		<i>12,375</i>	<i>13,455</i>	<i>5,633</i>	<i>146,728</i>	<i>13,982</i>	<i>11,186</i>	<i>101,928</i>	<i>5,931</i>
Outer Harbor Zone1 (vessels bound to outer harbor)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor)	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor)	Diesel Engines	3,683	4,058	1,674	43,747	4,058	3,246	27,807	1,763
Outer Harbor Zone2 (vessels bound to inner harbor)	Boiler	65	-	33	664	211	169	3,887	34
<i>Total Outer Harbor Zone2</i>		<i>3,748</i>	<i>4,058</i>	<i>1,707</i>	<i>44,412</i>	<i>4,269</i>	<i>3,415</i>	<i>31,694</i>	<i>1,797</i>
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	4,285	4,722	1,948	50,906	4,722	3,777	32,357	2,051
Inner Harbor Zone (maneuvering through main channel)	Boiler	76	-	38	773	245	196	4,523	40
<i>Total Inner Harbor Zone</i>		<i>4,361</i>	<i>4,722</i>	<i>1,986</i>	<i>51,679</i>	<i>4,967</i>	<i>3,974</i>	<i>36,880</i>	<i>2,091</i>
Hotelling	Diesel Engines	40,122	44,207	18,237	476,609	44,207	35,366	302,942	19,204
Hotelling	Boiler	1,423	-	712	14,496	4,600	3,680	84,805	749
<i>Total Hotelling</i>		<i>41,545</i>	<i>44,207</i>	<i>18,949</i>	<i>491,106</i>	<i>48,807</i>	<i>39,046</i>	<i>387,747</i>	<i>19,953</i>
Total (lb/yr)		139,805	152,131	63,626	1,657,804	157,729	126,183	1,145,712	66,999
boilers only						5,598			912
Average Day (lb/day) - Transit		269	296	122	3,196	298	239	2,077	129
Average Day (lb/day) - Hotelling		114	121	52	1,345	134	107	1,062	55

*Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year*

*NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year*

*Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year*

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

1. Maximum of 1 ship per day per berth.

2. All berths occupied.

3. Annual emissions are based on 30% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm.

4. Maximum of 2 one-way trips per vessel.

5. IMO compliance rate for NOx = 53%

6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed

7. Annual emissions assume 30% compliance with VSRP to 40 nm.

8. Inner Harbor AMP compliance in 2011 assumed to be 30%

Total Vessels in 2011: 269

Percent of North-Bound Vessels: 2.9%

Percent of South-Bound Vessels: 97.1%

Inner Harbor Berths: 3

Outer Harbor Berths: 0

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	800	463	364	8,876	463	370	1,394	383
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		800	463	364	8,876	463	370	1,394	383
Sea / Fairway - South-Bound	Diesel Engines	33,781	19,532	15,355	374,848	19,532	15,625	58,861	16,169
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		33,781	19,532	15,355	374,848	19,532	15,625	58,861	16,169
Fairway - North-Bound	Diesel Engines	958	554	436	10,632	554	443	1,670	459
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		958	554	436	10,632	554	443	1,670	459
Fairway - South-Bound	Diesel Engines	16,156	9,341	7,344	179,275	9,341	7,473	28,151	7,733
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		16,156	9,341	7,344	179,275	9,341	7,473	28,151	7,733
Precautionary Zone - North-Bound	Diesel Engines	330	191	150	3,658	191	152	574	158
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
Total Precautionary Zone - North-Bound		334	191	152	3,700	198	158	635	160
Precautionary Zone - South-Bound	Diesel Engines	12,484	7,218	5,675	138,531	7,218	5,775	21,753	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
Total Precautionary Zone - South-Bound		12,651	7,218	5,758	140,125	7,501	6,001	24,046	6,063
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	-	-	-	-	-	-	-	-
Total Outer Harbor Zone1		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	3,765	2,177	1,711	41,777	2,177	1,741	6,560	1,802
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	67	-	33	637	113	90	917	35
Total Outer Harbor Zone2		3,832	2,177	1,745	42,414	2,290	1,832	7,477	1,837
Inner Harbor Zone (maneuvering through main channel: int)	Diesel Engines	4,381	2,533	1,991	48,613	2,533	2,026	7,634	2,097
Inner Harbor Zone (maneuvering through main channel: int)	Boiler	78	-	39	741	132	105	1,067	41
Total Inner Harbor Zone		4,459	2,533	2,030	49,354	2,665	2,132	8,701	2,138
Hotelling	Diesel Engines	15,087	8,723	6,858	167,407	8,723	6,978	26,287	7,221
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
Total Hotelling		16,542	8,723	7,585	181,310	11,191	8,953	46,294	7,987
Total (lb/yr)		89,513	50,731	40,768	990,535	53,734	42,987	177,229	42,929
boilers only						3,003			932
Average Day (lb/day) - Transit		200	115	91	2,217	117	93	359	96
Average Day (lb/day) - Hotelling		45	24	21	497	31	25	127	22

$Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-way) Trips * Vessels per Year$

$Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year$

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NO_x = 59%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

Total Vessels in 2015:	275	
Percent of North-Bound Vessels:	2.9%	Inner Harbor Berths: 3
Percent of South-Bound Vessels:	97.1%	Outer Harbor Berths: 0

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions

Year: 2022

Note: for 2022, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	800	463	364	8,808	463	370	1,394	383
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		800	463	364	8,808	463	370	1,394	383
Sea / Fairway - South-Bound	Diesel Engines	33,781	19,532	15,355	371,979	19,532	15,625	58,861	16,169
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		33,781	19,532	15,355	371,979	19,532	15,625	58,861	16,169
Fairway - North-Bound	Diesel Engines	958	554	436	10,551	554	443	1,670	459
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		958	554	436	10,551	554	443	1,670	459
Fairway - South-Bound	Diesel Engines	16,156	9,341	7,344	177,903	9,341	7,473	28,151	7,733
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		16,156	9,341	7,344	177,903	9,341	7,473	28,151	7,733
Precautionary Zone - North-Bound	Diesel Engines	330	191	150	3,630	191	152	574	158
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
Total Precautionary Zone - North-Bound		334	191	152	3,672	198	158	635	160
Precautionary Zone - South-Bound	Diesel Engines	12,484	7,218	5,675	137,470	7,218	5,775	21,753	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
Total Precautionary Zone - South-Bound		12,651	7,218	5,758	139,064	7,501	6,001	24,046	6,063
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	-	-	-	-	-	-	-	-
Total Outer Harbor Zone1		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,765	2,177	1,711	41,457	2,177	1,741	6,560	1,802
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	67	-	33	637	113	90	917	35
Total Outer Harbor Zone2		3,832	2,177	1,745	42,094	2,290	1,832	7,477	1,837
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Diesel Engines	4,381	2,533	1,991	48,241	2,533	2,026	7,634	2,097
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Boiler	78	-	39	741	132	105	1,067	41
Total Inner Harbor Zone		4,459	2,533	2,030	48,982	2,665	2,132	8,701	2,138
Hotelling	Diesel Engines	15,087	8,723	6,858	166,125	8,723	6,978	26,287	7,221
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
Total Hotelling		16,542	8,723	7,585	180,028	11,191	8,953	46,294	7,987
Total (lb/yr)		89,513	50,731	40,768	983,081	53,734	42,987	177,229	42,929
boilers only						3,003			932
Average Day (lb/day) - Transit		200	115	91	2,200	117	93	359	96
Average Day (lb/day) - Hotelling		45	24	21	493	31	25	127	22

Emissions (lb/yr) = Average Engine Power * Load Factor_(PSR corrected) * Fuel Corrected Emission Factor * Time_(PSR corrected) * 2_(1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2_(1-Way) Trips * Vessels per Year

Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- | | | | |
|---|---------------------------------|-------|------------------------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2022: | 275 | |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: 3 |
| 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals. | Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: 0 |
| 4. Maximum of 2 one-way trips per vessel. | | | |
| 5. IMO compliance rate for NOx = | 69% | | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | |
| 7. Annual emissions assume 100% compliance with VSRP to 40 nm. | | | |
| 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%. | | | |

San Pedro Waterfront

Mitigated Alternative 5 Criteria Pollutant Emissions
Year: 2037

Note: for 2037, only NOx changes per fleet turnover; all other emissions daily emissions are equivalent to 2015.

Year (lb/yr)									
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	800	463	364	8,751	463	370	1,394	383
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>800</i>	<i>463</i>	<i>364</i>	<i>8,751</i>	<i>463</i>	<i>370</i>	<i>1,394</i>	<i>383</i>
Sea / Fairway - South-Bound	Diesel Engines	33,781	19,532	15,355	369,562	19,532	15,625	58,861	16,169
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>33,781</i>	<i>19,532</i>	<i>15,355</i>	<i>369,562</i>	<i>19,532</i>	<i>15,625</i>	<i>58,861</i>	<i>16,169</i>
Fairway - North-Bound	Diesel Engines	958	554	436	10,482	554	443	1,670	459
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>958</i>	<i>554</i>	<i>436</i>	<i>10,482</i>	<i>554</i>	<i>443</i>	<i>1,670</i>	<i>459</i>
Fairway - South-Bound	Diesel Engines	16,156	9,341	7,344	176,747	9,341	7,473	28,151	7,733
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>16,156</i>	<i>9,341</i>	<i>7,344</i>	<i>176,747</i>	<i>9,341</i>	<i>7,473</i>	<i>28,151</i>	<i>7,733</i>
Precautionary Zone - North-Bound	Diesel Engines	330	191	150	3,606	191	152	574	158
Precautionary Zone - North-Bound	Boiler	4	-	2	42	7	6	61	2
<i>Total Precautionary Zone - North-Bound</i>		<i>334</i>	<i>191</i>	<i>152</i>	<i>3,648</i>	<i>198</i>	<i>158</i>	<i>635</i>	<i>160</i>
Precautionary Zone - South-Bound	Diesel Engines	12,484	7,218	5,675	136,577	7,218	5,775	21,753	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,594	283	226	2,293	88
<i>Total Precautionary Zone - South-Bound</i>		<i>12,651</i>	<i>7,218</i>	<i>5,758</i>	<i>138,171</i>	<i>7,501</i>	<i>6,001</i>	<i>24,046</i>	<i>6,063</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,765	2,177	1,711	41,187	2,177	1,741	6,560	1,802
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	67	-	33	637	113	90	917	35
<i>Total Outer Harbor Zone2</i>		<i>3,832</i>	<i>2,177</i>	<i>1,745</i>	<i>41,825</i>	<i>2,290</i>	<i>1,832</i>	<i>7,477</i>	<i>1,837</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor) ⁽³⁾	Diesel Engines	4,381	2,533	1,991	47,927	2,533	2,026	7,634	2,097
Inner Harbor Zone (maneuvering through main channel: inner harbor) ⁽³⁾	Boiler	78	-	39	741	132	105	1,067	41
<i>Total Inner Harbor Zone</i>		<i>4,459</i>	<i>2,533</i>	<i>2,030</i>	<i>48,669</i>	<i>2,665</i>	<i>2,132</i>	<i>8,701</i>	<i>2,138</i>
Hotelling	Diesel Engines	15,087	8,723	6,858	165,046	8,723	6,978	26,287	7,221
Hotelling	Boiler	1,455	-	728	13,903	2,468	1,974	20,007	766
<i>Total Hotelling</i>		<i>16,542</i>	<i>8,723</i>	<i>7,585</i>	<i>178,949</i>	<i>11,191</i>	<i>8,953</i>	<i>46,294</i>	<i>7,987</i>
Total (lb/yr)		89,513	50,731	40,768	976,803	53,734	42,987	177,229	42,929
boilers only						3,003			932
Average Day (lb/day) - Transit		200	115	91	2,186	117	93	359	96
Average Day (lb/day) - Hotelling		45	24	21	490	31	25	127	22

*Emissions (lb/yr) = Average Engine Power * Load Factor (VSR corrected) * Fuel Corrected Emission Factor * Time (VSR corrected) * 2 (1-Way) Trips * Vessels per Year*
*NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year*
*Hotelling Emissions (lb/yr) = Emissions (lb/yr) for 1-way trip * AMP reduction * Vessels per Year*

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on 90% compliance with 0.2% sulfur fuel in engines and boilers out to 40 nm for vessels calling at inner harbor and outer harbor terminals.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 78%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 100% compliance with VSRP to 40 nm.
- 8. Inner Harbor AMP compliance assumed to be 80%; Outer Harbor AMP compliance assumed to be 90%.

Total Vessels in 2037: 275
 Percent of North-Bound Vessels: 2.9%
 Percent of South-Bound Vessels: 97.1%

Inner Harbor Berths: 3
 Outer Harbor Berths: 0

San Pedro Waterfront

Mitigated Alternative 5 Toxic Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>3.69839</i>	<i>0.99956</i>	<i>7.49673</i>	<i>0.49978</i>	<i>0.04248</i>	<i>0.07997</i>	<i>1.29943</i>	<i>0.74967</i>	<i>0.56463</i>	<i>0.00083</i>
Sea / Fairway - South-Bound	Diesel Engines	4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>4.36897</i>	<i>1.18080</i>	<i>8.85602</i>	<i>0.59040</i>	<i>0.05018</i>	<i>0.09446</i>	<i>1.53504</i>	<i>0.88560</i>	<i>0.66700</i>	<i>0.00098</i>
Fairway - North-Bound	Diesel Engines	2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.31908	0.00047
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.09002</i>	<i>0.56487</i>	<i>4.23653</i>	<i>0.28244</i>	<i>0.02401</i>	<i>0.04519</i>	<i>0.73433</i>	<i>0.42365</i>	<i>0.31908</i>	<i>0.00047</i>
Fairway - South-Bound	Diesel Engines	1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.22603	0.00033
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.48053</i>	<i>0.40014</i>	<i>3.00108</i>	<i>0.20007</i>	<i>0.01701</i>	<i>0.03201</i>	<i>0.52019</i>	<i>0.30011</i>	<i>0.22603</i>	<i>0.00033</i>
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.12697	0.00019
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	0.00605	0.00001
<i>Total Precautionary Zone - North-Bound</i>		<i>0.83167</i>	<i>0.22808</i>	<i>1.68596</i>	<i>0.11407</i>	<i>0.00966</i>	<i>0.02042</i>	<i>0.29916</i>	<i>0.17188</i>	<i>0.13302</i>	<i>0.00020</i>
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.14390	0.00021
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	0.00686	0.00001
<i>Total Precautionary Zone - South-Bound</i>		<i>0.94255</i>	<i>0.25849</i>	<i>1.91076</i>	<i>0.12928</i>	<i>0.01095</i>	<i>0.02314</i>	<i>0.33905</i>	<i>0.19480</i>	<i>0.15075</i>	<i>0.00022</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.03371	0.00005
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	0.00213	0.00000
<i>Total Outer Harbor Zone1</i>		<i>0.22079</i>	<i>0.06084</i>	<i>0.44760</i>	<i>0.03043</i>	<i>0.00257</i>	<i>0.00563</i>	<i>0.08002</i>	<i>0.04592</i>	<i>0.03584</i>	<i>0.00005</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.04213	0.00006
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	0.00266	0.00000
<i>Total Outer Harbor Zone2</i>		<i>0.27599</i>	<i>0.07604</i>	<i>0.55950</i>	<i>0.03804</i>	<i>0.00322</i>	<i>0.00704</i>	<i>0.10003</i>	<i>0.05740</i>	<i>0.04480</i>	<i>0.00007</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.04903	0.00007
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	0.00310	0.00000
<i>Total Inner Harbor Zone</i>		<i>0.32115</i>	<i>0.08849</i>	<i>0.65105</i>	<i>0.04426</i>	<i>0.00374</i>	<i>0.00819</i>	<i>0.11640</i>	<i>0.06679</i>	<i>0.05213</i>	<i>0.00008</i>
Hoteling	Diesel Engines	0.69121	0.18681	1.40109	0.09341	0.00794	0.01494	0.24286	0.14011	0.10553	0.00016
Hoteling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	0.00968	0.00001
<i>Total Hoteling</i>		<i>0.69121</i>	<i>0.19210</i>	<i>1.40134</i>	<i>0.09610</i>	<i>0.00811</i>	<i>0.01884</i>	<i>0.25398</i>	<i>0.14539</i>	<i>0.11521</i>	<i>0.00017</i>
First Peak Hour Scenario (per vessel)		1.760	0.484	3.569	0.242	0.020	0.044	0.635	0.365	0.284	0.000
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.											
Second Peak Hour Scenario (per vessel)		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.115	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.											
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:							3.0		2011 year		

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00299	0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00299	0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
0.00353	0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00353	0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
0.00169	0.00375	0.00235	0.00394	0.00375	0.00282	0.00178	1.63294	0.00272	0.00338	-	0.00006	0.01192	0.04111
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00169	0.00375	0.00235	0.00394	0.00375	0.00282	0.00178	1.63294	0.00272	0.00338	-	0.00006	0.01192	0.04111
0.00120	0.00266	0.00166	0.00279	0.00266	0.00199	0.00126	1.15674	0.00193	0.00239	-	0.00004	0.00844	0.02912
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00120	0.00266	0.00166	0.00279	0.00266	0.00199	0.00126	1.15674	0.00193	0.00239	-	0.00004	0.00844	0.02912
0.00067	0.00149	0.00093	0.00157	0.00149	0.00112	0.00071	0.64978	0.00108	0.00134	-	0.00002	0.00474	0.01636
0.00003	0.00007	0.00004	0.00007	0.00007	0.00005	0.00003	0.03096	0.00005	0.00006	-	0.00000	0.00023	0.00078
-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.00070	0.00156	0.00098	0.00164	0.00156	0.00117	0.00074	0.68074	0.00113	0.00141	-	0.00002	0.00497	0.01714
0.00076	0.00169	0.00106	0.00178	0.00169	0.00127	0.00080	0.73642	0.00123	0.00152	-	0.00003	0.00538	0.01854
0.00004	0.00008	0.00005	0.00008	0.00008	0.00006	0.00004	0.03509	0.00006	0.00007	-	0.00000	0.00026	0.00088
0.00080	0.00177	0.00111	0.00186	0.00177	0.00133	0.00084	0.77151	0.00129	0.00160	-	0.00003	0.00563	0.01942
0.00018	0.00040	0.00025	0.00042	0.00040	0.00030	0.00019	0.17250	0.00029	0.00036	-	0.00001	0.00126	0.00434
0.00001	0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01090	0.00002	0.00002	-	0.00000	0.00008	0.00027
0.00019	0.00042	0.00026	0.00044	0.00042	0.00032	0.00020	0.18340	0.00031	0.00038	-	0.00001	0.00134	0.00462
0.00022	0.00050	0.00031	0.00052	0.00050	0.00037	0.00024	0.21563	0.00036	0.00045	-	0.00001	0.00157	0.00543
0.00001	0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01362	0.00002	0.00003	-	0.00000	0.00010	0.00034
0.00024	0.00053	0.00033	0.00055	0.00053	0.00040	0.00025	0.22925	0.00038	0.00047	-	0.00001	0.00167	0.00577
0.00026	0.00058	0.00036	0.00061	0.00058	0.00043	0.00027	0.25091	0.00042	0.00052	-	0.00001	0.00183	0.00632
0.00002	0.00004	0.00002	0.00004	0.00004	0.00003	0.00002	0.01585	0.00003	0.00003	-	0.00000	0.00012	0.00040
0.00028	0.00061	0.00038	0.00064	0.00061	0.00046	0.00029	0.26677	0.00044	0.00055	-	0.00001	0.00195	0.00672
0.00056	0.00124	0.00078	0.00130	0.00124	0.00093	0.00059	0.54004	0.00090	0.00112	-	0.00002	0.00394	0.01359
0.00005	0.00011	0.00007	0.00012	0.00011	0.00009	0.00005	0.04954	0.00008	0.00010	-	0.00000	0.00036	0.00125
0.00061	0.00136	0.00085	0.00142	0.00136	0.00102	0.00064	0.58958	0.00098	0.00122	-	0.00002	0.00430	0.01484
0.002	0.003	0.002	0.004	0.003	0.003	0.002	1.451	0.002	0.003	-	0.000	0.011	0.037
0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.590	0.001	0.001	-	0.000	0.004	0.015

San Pedro Waterfront

Mitigated Alternative 5 Toxic Pollutant Emissions

Year: 2011

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>4.28639</i>	<i>1.15848</i>	<i>8.68863</i>	<i>0.57924</i>	<i>0.04924</i>	<i>0.09268</i>	<i>1.50603</i>	<i>0.86886</i>	<i>0.65440</i>	<i>0.00096</i>
Sea / Fairway - South-Bound	Diesel Engines	5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>5.06359</i>	<i>1.36854</i>	<i>10.26404</i>	<i>0.68427</i>	<i>0.05816</i>	<i>0.10948</i>	<i>1.77910</i>	<i>1.02640</i>	<i>0.77305</i>	<i>0.00114</i>
Fairway - North-Bound	Diesel Engines	2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.36506	0.00054
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.39121</i>	<i>0.64627</i>	<i>4.84704</i>	<i>0.32314</i>	<i>0.02747</i>	<i>0.05170</i>	<i>0.84015</i>	<i>0.48470</i>	<i>0.36506</i>	<i>0.00054</i>
Fairway - South-Bound	Diesel Engines	1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.25810	0.00038
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.69058</i>	<i>0.45691</i>	<i>3.42684</i>	<i>0.22846</i>	<i>0.01942</i>	<i>0.03655</i>	<i>0.59399</i>	<i>0.34268</i>	<i>0.25810</i>	<i>0.00038</i>
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.14320	0.00021
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00605	0.00001
<i>Total Precautionary Zone - North-Bound</i>		<i>0.95019</i>	<i>0.25681</i>	<i>1.92607</i>	<i>0.12840</i>	<i>0.01091</i>	<i>0.02054</i>	<i>0.33385</i>	<i>0.19261</i>	<i>0.14925</i>	<i>0.00022</i>
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.16229	0.00024
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00686	0.00001
<i>Total Precautionary Zone - South-Bound</i>		<i>1.07689</i>	<i>0.29105</i>	<i>2.18288</i>	<i>0.14553</i>	<i>0.01237</i>	<i>0.02328</i>	<i>0.37837</i>	<i>0.21829</i>	<i>0.16915</i>	<i>0.00025</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.03702	0.00005
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00213	0.00000
<i>Total Outer Harbor Zone1</i>		<i>0.24681</i>	<i>0.06671</i>	<i>0.50029</i>	<i>0.03335</i>	<i>0.00283</i>	<i>0.00534</i>	<i>0.08672</i>	<i>0.05003</i>	<i>0.03915</i>	<i>0.00006</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.04628	0.00007
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00266	0.00000
<i>Total Outer Harbor Zone2</i>		<i>0.30851</i>	<i>0.08338</i>	<i>0.62536</i>	<i>0.04169</i>	<i>0.00354</i>	<i>0.00667</i>	<i>0.10840</i>	<i>0.06254</i>	<i>0.04894</i>	<i>0.00007</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.05385	0.00008
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00310	0.00000
<i>Total Inner Harbor Zone</i>		<i>0.35899</i>	<i>0.09703</i>	<i>0.72769</i>	<i>0.04851</i>	<i>0.00412</i>	<i>0.00776</i>	<i>0.12613</i>	<i>0.07277</i>	<i>0.05695</i>	<i>0.00008</i>
Hoteling	Diesel Engines	0.75090	0.20295	1.52210	0.10147	0.00863	0.01624	0.26383	0.15221	0.11464	0.00017
Hoteling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00968	0.00001
<i>Total Hoteling</i>		<i>0.77046</i>	<i>0.20823</i>	<i>1.56174</i>	<i>0.10412</i>	<i>0.00885</i>	<i>0.01666</i>	<i>0.27070</i>	<i>0.15617</i>	<i>0.12432</i>	<i>0.00018</i>

First Peak Hour Scenario (per vessel)	1.991	0.538	4.036	0.269	0.023	0.043	0.700	0.404	0.314	0.000
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)	0.770	0.208	1.562	0.104	0.009	0.017	0.271	0.156	0.124	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.										

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0 2011 year

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00346	0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00346	0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00409	0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00409	0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00193	0.00429	0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311	0.00387	-	0.00006	0.01364	0.04703
0.00193	0.00429	0.00268	0.00451	0.00429	0.00322	0.00204	1.86826	0.00311	0.00387	-	0.00006	0.01364	0.04703
0.00137	0.00304	0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220	0.00273	-	0.00005	0.00964	0.03325
0.00137	0.00304	0.00190	0.00319	0.00304	0.00228	0.00144	1.32085	0.00220	0.00273	-	0.00005	0.00964	0.03325
0.00076	0.00168	0.00105	0.00177	0.00168	0.00126	0.00080	0.73284	0.00122	0.00152	-	0.00003	0.00535	0.01845
0.00003	0.00007	0.00004	0.00007	0.00007	0.00005	0.00003	0.03096	0.00005	0.00006	-	0.00000	0.00023	0.00078
0.00079	0.00176	0.00110	0.00184	0.00176	0.00132	0.00083	0.76380	0.00127	0.00158	-	0.00003	0.00557	0.01923
0.00086	0.00191	0.00119	0.00200	0.00191	0.00143	0.00091	0.83055	0.00138	0.00172	-	0.00003	0.00606	0.02091
0.00004	0.00008	0.00005	0.00008	0.00008	0.00006	0.00004	0.03509	0.00006	0.00007	-	0.00000	0.00026	0.00088
0.00090	0.00199	0.00124	0.00209	0.00199	0.00149	0.00095	0.86564	0.00144	0.00179	-	0.00003	0.00632	0.02179
0.00020	0.00044	0.00027	0.00046	0.00044	0.00033	0.00021	0.18947	0.00032	0.00039	-	0.00001	0.00138	0.00477
0.00001	0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01090	0.00002	0.00002	-	0.00000	0.00008	0.00027
0.00021	0.00046	0.00029	0.00048	0.00046	0.00035	0.00022	0.20037	0.00033	0.00041	-	0.00001	0.00146	0.00504
0.00025	0.00054	0.00034	0.00057	0.00054	0.00041	0.00026	0.23684	0.00039	0.00049	-	0.00001	0.00173	0.00596
0.00001	0.00003	0.00002	0.00003	0.00003	0.00002	0.00001	0.01362	0.00002	0.00003	-	0.00000	0.00010	0.00034
0.00026	0.00058	0.00036	0.00060	0.00058	0.00043	0.00027	0.25046	0.00042	0.00052	-	0.00001	0.00183	0.00630
0.00029	0.00063	0.00040	0.00067	0.00063	0.00048	0.00030	0.27559	0.00046	0.00057	-	0.00001	0.00201	0.00694
0.00002	0.00004	0.00002	0.00004	0.00004	0.00003	0.00002	0.01585	0.00003	0.00003	-	0.00000	0.00012	0.00040
0.00030	0.00067	0.00042	0.00070	0.00067	0.00050	0.00032	0.29145	0.00049	0.00060	-	0.00001	0.00213	0.00734
0.00061	0.00135	0.00084	0.00142	0.00135	0.00101	0.00064	0.58668	0.00098	0.00121	-	0.00002	0.00428	0.01477
0.00005	0.00011	0.00007	0.00012	0.00011	0.00009	0.00005	0.04954	0.00008	0.00010	-	0.00000	0.00036	0.00125
0.00066	0.00146	0.00091	0.00154	0.00146	0.00110	0.00069	0.63622	0.00106	0.00132	-	0.00002	0.00464	0.01602
0.002	0.004	0.002	0.004	0.004	0.003	0.002	1.608	0.003	0.003	-	0.000	0.012	0.040
0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.636	0.001	0.001	-	0.000	0.005	0.016

San Pedro Waterfront

Mitigated Alternative 5 Toxic Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2.51453	0.67960	5.09701	0.33980	0.02888	0.05437	0.88348	0.50970	0.31475	0.00046
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2.51453</i>	<i>0.67960</i>	<i>5.09701</i>	<i>0.33980</i>	<i>0.02888</i>	<i>0.05437</i>	<i>0.88348</i>	<i>0.50970</i>	<i>0.31475</i>	<i>0.00046</i>
Sea / Fairway - South-Bound	Diesel Engines	2.84982	0.77022	5.77666	0.38511	0.03273	0.06162	1.00129	0.57767	0.36594	0.00054
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>2.84982</i>	<i>0.77022</i>	<i>5.77666</i>	<i>0.38511</i>	<i>0.03273</i>	<i>0.06162</i>	<i>1.00129</i>	<i>0.57767</i>	<i>0.36594</i>	<i>0.00054</i>
Fairway - North-Bound	Diesel Engines	2.09002	0.56487	4.23653	0.28244	0.02401	0.04519	0.73433	0.42365	0.24995	0.00037
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.09002</i>	<i>0.56487</i>	<i>4.23653</i>	<i>0.28244</i>	<i>0.02401</i>	<i>0.04519</i>	<i>0.73433</i>	<i>0.42365</i>	<i>0.24995</i>	<i>0.00037</i>
Fairway - South-Bound	Diesel Engines	1.48053	0.40014	3.00108	0.20007	0.01701	0.03201	0.52019	0.30011	0.16266	0.00024
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.48053</i>	<i>0.40014</i>	<i>3.00108</i>	<i>0.20007</i>	<i>0.01701</i>	<i>0.03201</i>	<i>0.52019</i>	<i>0.30011</i>	<i>0.16266</i>	<i>0.00024</i>
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.08376	0.00012
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00382	0.00001
<i>Total Precautionary Zone - North-Bound</i>		<i>0.84389</i>	<i>0.22808</i>	<i>1.71058</i>	<i>0.11404</i>	<i>0.00969</i>	<i>0.01825</i>	<i>0.29650</i>	<i>0.17106</i>	<i>0.08758</i>	<i>0.00013</i>
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.09493	0.00014
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00433	0.00001
<i>Total Precautionary Zone - South-Bound</i>		<i>0.95641</i>	<i>0.25849</i>	<i>1.93866</i>	<i>0.12924</i>	<i>0.01099</i>	<i>0.02068</i>	<i>0.33603</i>	<i>0.19387</i>	<i>0.09926</i>	<i>0.00015</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.02224	0.00003
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00134	0.00000
<i>Total Outer Harbor Zone1</i>		<i>0.22509</i>	<i>0.06084</i>	<i>0.45626</i>	<i>0.03042</i>	<i>0.00259</i>	<i>0.00487</i>	<i>0.07909</i>	<i>0.04563</i>	<i>0.02358</i>	<i>0.00003</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.02780	0.00004
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00168	0.00000
<i>Total Outer Harbor Zone2</i>		<i>0.28136</i>	<i>0.07604</i>	<i>0.57033</i>	<i>0.03802</i>	<i>0.00323</i>	<i>0.00608</i>	<i>0.09886</i>	<i>0.05703</i>	<i>0.02948</i>	<i>0.00004</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.03234	0.00005
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00196	0.00000
<i>Total Inner Harbor Zone</i>		<i>0.32740</i>	<i>0.08849</i>	<i>0.66366</i>	<i>0.04424</i>	<i>0.00376</i>	<i>0.00708</i>	<i>0.11503</i>	<i>0.06637</i>	<i>0.03430</i>	<i>0.00005</i>
Hoteling	Diesel Engines	0.37440	0.10119	0.75893	0.05060	0.00430	0.00810	0.13155	0.07589	0.05417	0.00008
Hoteling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00611	0.00001
<i>Total Hoteling</i>		<i>0.39396</i>	<i>0.10648</i>	<i>0.79856</i>	<i>0.05324</i>	<i>0.00453</i>	<i>0.00852</i>	<i>0.13842</i>	<i>0.07986</i>	<i>0.06028</i>	<i>0.00009</i>
First Peak Hour Scenario (per vessel)		1.790	0.484	3.629	0.242	0.021	0.039	0.629	0.363	0.187	0.000
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.											
Second Peak Hour Scenario (per vessel)		0.394	0.106	0.799	0.053	0.005	0.009	0.138	0.080	0.060	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.											
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:							3.0	2015+ years			

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00167	0.00370	0.00231	0.00389	0.00370	0.00278	0.00176	1.61080	0.00268	0.00333	-	0.00006	0.01176	0.04055
0.00167	0.00370	0.00231	0.00389	0.00370	0.00278	0.00176	1.61080	0.00268	0.00333	-	0.00006	0.01176	0.04055
0.00194	0.00431	0.00269	0.00452	0.00431	0.00323	0.00204	1.87276	0.00312	0.00387	-	0.00006	0.01367	0.04714
0.00194	0.00431	0.00269	0.00452	0.00431	0.00323	0.00204	1.87276	0.00312	0.00387	-	0.00006	0.01367	0.04714
0.00132	0.00294	0.00184	0.00309	0.00294	0.00221	0.00140	1.27913	0.00213	0.00265	-	0.00004	0.00934	0.03220
0.00132	0.00294	0.00184	0.00309	0.00294	0.00221	0.00140	1.27913	0.00213	0.00265	-	0.00004	0.00934	0.03220
0.00086	0.00191	0.00120	0.00201	0.00191	0.00144	0.00091	0.83242	0.00139	0.00172	-	0.00003	0.00608	0.02095
0.00086	0.00191	0.00120	0.00201	0.00191	0.00144	0.00091	0.83242	0.00139	0.00172	-	0.00003	0.00608	0.02095
0.00044	0.00099	0.00062	0.00103	0.00099	0.00074	0.00047	0.42865	0.00071	0.00089	-	0.00001	0.00313	0.01079
0.00002	0.00004	0.00003	0.00005	0.00004	0.00003	0.00002	0.01955	0.00003	0.00004	-	0.00000	0.00014	0.00049
0.00046	0.00103	0.00064	0.00108	0.00103	0.00077	0.00049	0.44820	0.00075	0.00093	-	0.00002	0.00327	0.01128
0.00050	0.00112	0.00070	0.00117	0.00112	0.00084	0.00053	0.48581	0.00081	0.00101	-	0.00002	0.00355	0.01223
0.00002	0.00005	0.00003	0.00005	0.00005	0.00004	0.00002	0.02215	0.00004	0.00005	-	0.00000	0.00016	0.00056
0.00053	0.00117	0.00073	0.00123	0.00117	0.00088	0.00055	0.50796	0.00085	0.00105	-	0.00002	0.00371	0.01279
0.00012	0.00026	0.00016	0.00027	0.00026	0.00020	0.00012	0.11380	0.00019	0.00024	-	0.00000	0.00083	0.00286
0.00001	0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00688	0.00001	0.00001	-	0.00000	0.00005	0.00017
0.00012	0.00029	0.00017	0.00029	0.00028	0.00021	0.00013	0.12063	0.00020	0.00025	-	0.00000	0.00088	0.00304
0.00015	0.00033	0.00020	0.00034	0.00033	0.00025	0.00016	0.14225	0.00024	0.00029	-	0.00000	0.00104	0.00358
0.00001	0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00860	0.00001	0.00002	-	0.00000	0.00006	0.00022
0.00016	0.00035	0.00022	0.00036	0.00035	0.00026	0.00016	0.15085	0.00025	0.00031	-	0.00001	0.00110	0.00380
0.00017	0.00038	0.00024	0.00040	0.00038	0.00029	0.00018	0.16552	0.00028	0.00034	-	0.00001	0.00121	0.00417
0.00001	0.00002	0.00001	0.00002	0.00002	0.00002	0.00001	0.01001	0.00002	0.00002	-	0.00000	0.00007	0.00025
0.00018	0.00040	0.00025	0.00042	0.00040	0.00030	0.00019	0.17553	0.00029	0.00036	-	0.00001	0.00128	0.00442
0.00029	0.00064	0.00040	0.00067	0.00064	0.00048	0.00030	0.27721	0.00046	0.00057	-	0.00001	0.00202	0.00698
0.00003	0.00007	0.00004	0.00008	0.00007	0.00005	0.00003	0.03128	0.00005	0.00006	-	0.00000	0.00023	0.00079
0.00032	0.00071	0.00044	0.00074	0.00071	0.00053	0.00034	0.30848	0.00051	0.00064	-	0.00001	0.00225	0.00772
0.001	0.002	0.001	0.002	0.002	0.002	0.001	0.955	0.002	0.002	-	0.000	0.007	0.024
0.000	0.001	0.000	0.001	0.001	0.001	0.000	0.308	0.001	0.001	-	0.000	0.002	0.008

San Pedro Waterfront

Mitigated Alternative 5 Toxic Pollutant Emissions

Year: 2015+

Peak Hourly (lb/hr) for Single Unmitigated/Mitigated Combined Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	2.89357	0.78205	5.86535	0.39102	0.03324	0.06256	1.01666	0.58654	0.36379	0.00053
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>2.89357</i>	<i>0.78205</i>	<i>5.86535</i>	<i>0.39102</i>	<i>0.03324</i>	<i>0.06256</i>	<i>1.01666</i>	<i>0.58654</i>	<i>0.36379</i>	<i>0.00053</i>
Sea / Fairway - South-Bound	Diesel Engines	3.28217	0.88707	6.65306	0.44354	0.03770	0.07097	1.15320	0.66531	0.42311	0.00062
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>3.28217</i>	<i>0.88707</i>	<i>6.65306</i>	<i>0.44354</i>	<i>0.03770</i>	<i>0.07097</i>	<i>1.15320</i>	<i>0.66531</i>	<i>0.42311</i>	<i>0.00062</i>
Fairway - North-Bound	Diesel Engines	2.39121	0.64627	4.84704	0.32314	0.02747	0.05170	0.84015	0.48470	0.28709	0.00042
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.39121</i>	<i>0.64627</i>	<i>4.84704</i>	<i>0.32314</i>	<i>0.02747</i>	<i>0.05170</i>	<i>0.84015</i>	<i>0.48470</i>	<i>0.28709</i>	<i>0.00042</i>
Fairway - South-Bound	Diesel Engines	1.69058	0.45691	3.42684	0.22846	0.01942	0.03655	0.59399	0.34268	0.18662	0.00027
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.69058</i>	<i>0.45691</i>	<i>3.42684</i>	<i>0.22846</i>	<i>0.01942</i>	<i>0.03655</i>	<i>0.59399</i>	<i>0.34268</i>	<i>0.18662</i>	<i>0.00027</i>
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.09447	0.00014
Precautionary Zone - North-Bound	Boiler	0.01222	0.00330	0.02477	0.00165	0.00014	0.00026	0.00429	0.00248	0.00382	0.00001
<i>Total Precautionary Zone - North-Bound</i>		<i>0.95019</i>	<i>0.25681</i>	<i>1.92607</i>	<i>0.12840</i>	<i>0.01091</i>	<i>0.02054</i>	<i>0.33385</i>	<i>0.19261</i>	<i>0.09829</i>	<i>0.00014</i>
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.10706	0.00016
Precautionary Zone - South-Bound	Boiler	0.01385	0.00374	0.02808	0.00187	0.00016	0.00030	0.00487	0.00281	0.00433	0.00001
<i>Total Precautionary Zone - South-Bound</i>		<i>1.07689</i>	<i>0.29105</i>	<i>2.18288</i>	<i>0.14553</i>	<i>0.01237</i>	<i>0.02328</i>	<i>0.37837</i>	<i>0.21829</i>	<i>0.11139</i>	<i>0.00016</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.02442	0.00004
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.00430	0.00116	0.00872	0.00058	0.00005	0.00009	0.00151	0.00087	0.00134	0.00000
<i>Total Outer Harbor Zone1</i>		<i>0.24681</i>	<i>0.06671</i>	<i>0.50029</i>	<i>0.03335</i>	<i>0.00283</i>	<i>0.00533</i>	<i>0.08672</i>	<i>0.05003</i>	<i>0.02577</i>	<i>0.00004</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.03053	0.00004
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.00538	0.00145	0.01090	0.00073	0.00006	0.00012	0.00189	0.00109	0.00168	0.00000
<i>Total Outer Harbor Zone2</i>		<i>0.30851</i>	<i>0.08338</i>	<i>0.62536</i>	<i>0.04169</i>	<i>0.00354</i>	<i>0.00667</i>	<i>0.10840</i>	<i>0.06254</i>	<i>0.03221</i>	<i>0.00005</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.03553	0.00005
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.00626	0.00169	0.01268	0.00085	0.00007	0.00014	0.00220	0.00127	0.00196	0.00000
<i>Total Inner Harbor Zone</i>		<i>0.35899</i>	<i>0.09703</i>	<i>0.72769</i>	<i>0.04851</i>	<i>0.00412</i>	<i>0.00776</i>	<i>0.12613</i>	<i>0.07277</i>	<i>0.03748</i>	<i>0.00006</i>
Hoteling	Diesel Engines	0.40674	0.10993	0.82447	0.05496	0.00467	0.00879	0.14291	0.08245	0.05885	0.00009
Hoteling	Boiler	0.01955	0.00529	0.03964	0.00264	0.00022	0.00042	0.00687	0.00396	0.00611	0.00001
<i>Total Hoteling</i>		<i>0.42629</i>	<i>0.11521</i>	<i>0.86411</i>	<i>0.05761</i>	<i>0.00490</i>	<i>0.00922</i>	<i>0.14978</i>	<i>0.08641</i>	<i>0.06496</i>	<i>0.00010</i>
First Peak Hour Scenario (per vessel)		1.991	0.538	4.036	0.269	0.023	0.043	0.700	0.404	0.207	0.000
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.											
Second Peak Hour Scenario (per vessel)		0.426	0.115	0.864	0.058	0.005	0.009	0.150	0.086	0.065	0.000
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.											

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0.0 2015+ years

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00193	0.00428	0.00267	0.00449	0.00428	0.00321	0.00203	1.86172	0.00310	0.00385	-	0.00006	0.01359	0.04686
0.00193	0.00428	0.00267	0.00449	0.00428	0.00321	0.00203	1.86172	0.00310	0.00385	-	0.00006	0.01359	0.04686
0.00224	0.00498	0.00311	0.00523	0.00498	0.00373	0.00236	2.16534	0.00361	0.00448	-	0.00007	0.01580	0.05451
0.00224	0.00498	0.00311	0.00523	0.00498	0.00373	0.00236	2.16534	0.00361	0.00448	-	0.00007	0.01580	0.05451
0.00152	0.00338	0.00211	0.00355	0.00338	0.00253	0.00160	1.46922	0.00245	0.00304	-	0.00005	0.01072	0.03698
0.00152	0.00338	0.00211	0.00355	0.00338	0.00253	0.00160	1.46922	0.00245	0.00304	-	0.00005	0.01072	0.03698
0.00099	0.00220	0.00137	0.00231	0.00220	0.00165	0.00104	0.95507	0.00159	0.00198	-	0.00003	0.00697	0.02404
0.00099	0.00220	0.00137	0.00231	0.00220	0.00165	0.00104	0.95507	0.00159	0.00198	-	0.00003	0.00697	0.02404
0.00050	0.00111	0.00069	0.00117	0.00111	0.00083	0.00053	0.48345	0.00081	0.00100	-	0.00002	0.00353	0.01217
0.00002	0.00004	0.00003	0.00005	0.00004	0.00003	0.00002	0.01955	0.00003	0.00004	-	0.00000	0.00014	0.00049
0.00052	0.00116	0.00072	0.00121	0.00116	0.00087	0.00055	0.50299	0.00084	0.00104	-	0.00002	0.00367	0.01266
0.00057	0.00126	0.00079	0.00132	0.00126	0.00094	0.00060	0.54790	0.00091	0.00113	-	0.00002	0.00400	0.01379
0.00002	0.00005	0.00003	0.00005	0.00005	0.00004	0.00002	0.02215	0.00004	0.00005	-	0.00000	0.00016	0.00056
0.00059	0.00131	0.00082	0.00138	0.00131	0.00098	0.00062	0.57006	0.00095	0.00118	-	0.00002	0.00416	0.01435
0.00013	0.00029	0.00018	0.00030	0.00029	0.00022	0.00014	0.12499	0.00021	0.00026	-	0.00000	0.00091	0.00315
0.00001	0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00688	0.00001	0.00001	-	0.00000	0.00005	0.00017
0.00014	0.00030	0.00019	0.00032	0.00030	0.00023	0.00014	0.13187	0.00022	0.00027	-	0.00000	0.00099	0.00332
0.00016	0.00036	0.00022	0.00038	0.00036	0.00027	0.00017	0.15624	0.00026	0.00032	-	0.00001	0.00114	0.00393
0.00001	0.00002	0.00001	0.00002	0.00002	0.00001	0.00001	0.00860	0.00001	0.00002	-	0.00000	0.00006	0.00022
0.00017	0.00038	0.00024	0.00040	0.00038	0.00028	0.00018	0.16484	0.00027	0.00034	-	0.00001	0.00120	0.00415
0.00019	0.00042	0.00026	0.00044	0.00042	0.00031	0.00020	0.18181	0.00030	0.00038	-	0.00001	0.00133	0.00458
0.00001	0.00002	0.00001	0.00002	0.00002	0.00002	0.00001	0.01001	0.00002	0.00002	-	0.00000	0.00007	0.00025
0.00020	0.00044	0.00028	0.00046	0.00044	0.00033	0.00021	0.19181	0.00032	0.00040	-	0.00001	0.00140	0.00483
0.00031	0.00069	0.00043	0.00073	0.00069	0.00052	0.00033	0.30115	0.00050	0.00062	-	0.00001	0.00220	0.00758
0.00003	0.00007	0.00004	0.00008	0.00007	0.00005	0.00003	0.03128	0.00005	0.00006	-	0.00000	0.00023	0.00079
0.00034	0.00076	0.00048	0.00080	0.00076	0.00057	0.00036	0.32424	0.00055	0.00069	-	0.00001	0.00243	0.00827
0.001	0.002	0.002	0.003	0.002	0.002	0.001	1.059	0.002	0.002	-	0.000	0.008	0.027
0.000	0.001	0.000	0.001	0.001	0.001	0.000	0.332	0.001	0.001	-	0.000	0.002	0.008

San Pedro Waterfront

Mitigated Alternative 5 Toxic Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	1,547										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,547</i>										
Sea / Fairway - South-Bound	Diesel Engines	65,341										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>65,341</i>										
Fairway - North-Bound	Diesel Engines	1,033										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,033</i>										
Fairway - South-Bound	Diesel Engines	17,413										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>17,413</i>										
Precautionary Zone - North-Bound	Diesel Engines	355										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>355</i>		<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>		<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	13,455										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.4	4.1	2.0	-	2.8
<i>Total Precautionary Zone - South-Bound</i>		<i>13,455</i>		<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>4.1</i>	<i>2.0</i>		<i>2.8</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	4,058										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.6	0.8	-	1.1
<i>Total Outer Harbor Zone2</i>		<i>4,058</i>		<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.8</i>		<i>1.1</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	4,722										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	1.9	0.9	-	1.3
<i>Total Inner Harbor Zone</i>		<i>4,722</i>		<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>1.9</i>	<i>0.9</i>		<i>1.3</i>
Hoteling	Diesel Engines	44,207										
Hoteling	Boiler		-	17.1	0.8	8.7	0.6	12.6	35.9	17.1	-	24.8
<i>Total Hoteling</i>		<i>44,207</i>		<i>17.1</i>	<i>0.8</i>	<i>8.7</i>	<i>0.6</i>	<i>12.6</i>	<i>35.9</i>	<i>17.1</i>		<i>24.8</i>
		152,131	-	21	1	11	1	15	44	21	-	30

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	3.5	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	3.5	-	-	-	0.0	-	0.1
-	0.3	-	2.9	-	-	0.3	131.8	-	-	-	0.1	-	2.9
-	0.3	-	2.9	-	-	0.3	131.8	-	-	-	0.1	-	2.9
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.2	-	-	0.1	52.7	-	-	-	0.1	-	1.2
-	0.1	-	1.2	-	-	0.1	52.7	-	-	-	0.1	-	1.2
-	0.1	-	1.3	-	-	0.1	61.3	-	-	-	0.1	-	1.3
-	0.1	-	1.3	-	-	0.1	61.3	-	-	-	0.1	-	1.3
-	2.3	-	25.3	-	-	2.3	1,150.0	-	-	-	1.2	-	25.3
-	2.3	-	25.3	-	-	2.3	1,150.0	-	-	-	1.2	-	25.3
-	3	-	31	-	-	3	1,399	-	-	-	2	-	31

San Pedro Waterfront

Mitigated Alternative 5 Toxic Pollutant Emissions

Year: 2015

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	463										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>463</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	19,532										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>19,532</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	554										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>554</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	9,341										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>9,341</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	191										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>191</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>
Precautionary Zone - South-Bound	Diesel Engines	7,218										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5
<i>Total Precautionary Zone - South-Bound</i>		<i>7,218</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>1.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,177										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	0.6
<i>Total Outer Harbor Zone2</i>		<i>2,177</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>0.6</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	2,533										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	0.7
<i>Total Inner Harbor Zone</i>		<i>2,533</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>0.7</i>
Hoteling	Diesel Engines	8,723										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3
<i>Total Hoteling</i>		<i>8,723</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>13.3</i>
		50,731	-	21	1	11	1	16	45	21	-	16

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	0.6	-	-	0.1	28.3	-	-	-	0.0	-	0.6
-	0.1	-	0.6	-	-	0.1	28.3	-	-	-	0.0	-	0.6
-	0.1	-	0.7	-	-	0.1	32.9	-	-	-	0.0	-	0.7
-	0.1	-	0.7	-	-	0.1	32.9	-	-	-	0.0	-	0.7
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	2	-	17	-	-	2	751	-	-	-	1	-	17

San Pedro Waterfront

Mitigated Alternative 5 Toxic Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	463										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>463</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	19,532										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>19,532</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	554										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>554</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	9,341										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>9,341</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	191										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>191</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>
Precautionary Zone - South-Bound	Diesel Engines	7,218										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5
<i>Total Precautionary Zone - South-Bound</i>		<i>7,218</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>1.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,177										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	0.6
<i>Total Outer Harbor Zone2</i>		<i>2,177</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>0.6</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	2,533										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	0.7
<i>Total Inner Harbor Zone</i>		<i>2,533</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>0.7</i>
Hoteling	Diesel Engines	8,723										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3
<i>Total Hoteling</i>		<i>8,723</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>13.3</i>
		50,731	-	21	1	11	1	16	45	21	-	16

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	0.6	-	-	0.1	28.3	-	-	-	0.0	-	0.6
-	0.1	-	0.6	-	-	0.1	28.3	-	-	-	0.0	-	0.6
-	0.1	-	0.7	-	-	0.1	32.9	-	-	-	0.0	-	0.7
-	0.1	-	0.7	-	-	0.1	32.9	-	-	-	0.0	-	0.7
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	2	-	17	-	-	2	751	-	-	-	1	-	17

San Pedro Waterfront

Mitigated Alternative 5 Toxic Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	463										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>463</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	19,532										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>19,532</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	554										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>554</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	9,341										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>9,341</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	191										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
<i>Total Precautionary Zone - North-Bound</i>		<i>191</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.0</i>
Precautionary Zone - South-Bound	Diesel Engines	7,218										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.5
<i>Total Precautionary Zone - South-Bound</i>		<i>7,218</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>1.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,177										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	0.6
<i>Total Outer Harbor Zone2</i>		<i>2,177</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>0.6</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	2,533										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	0.7
<i>Total Inner Harbor Zone</i>		<i>2,533</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>0.7</i>
Hoteling	Diesel Engines	8,723										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	13.3
<i>Total Hoteling</i>		<i>8,723</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>13.3</i>
		50,731	-	21	1	11	1	16	45	21	-	16

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	1.9	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	70.7	-	-	-	0.1	-	1.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	0.6	-	-	0.1	28.3	-	-	-	0.0	-	0.6
-	0.1	-	0.6	-	-	0.1	28.3	-	-	-	0.0	-	0.6
-	0.1	-	0.7	-	-	0.1	32.9	-	-	-	0.0	-	0.7
-	0.1	-	0.7	-	-	0.1	32.9	-	-	-	0.0	-	0.7
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	1.2	-	13.6	-	-	1.2	616.9	-	-	-	0.7	-	13.6
-	2	-	17	-	-	2	751	-	-	-	1	-	17

San Pedro Waterfront

70-Year Average Calculations		Mitigated Alternative 5														
		70-year average	Project Start Year	Evaluation Year			Evaluation Year			Evaluation Year			Evaluation Year			
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
DPM																
Sea / Fairway - North-Bound	Diesel Engines	538	2,024	2,024	1,547	1,547	463	463	463	463	463	463	463	463	463	463
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	22,725	85,494	85,494	65,341	65,341	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	595	1,501	1,501	1,033	1,033	554	554	554	554	554	554	554	554	554	554
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	10,028	25,308	25,308	17,413	17,413	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	203	449	449	355	355	191	191	191	191	191	191	191	191	191	191
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - North-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - South-Bound	Diesel Engines	7,676	16,993	16,993	13,455	13,455	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - South-Bound</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berth: Diesel Engines		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berth: Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berth: Diesel Engines		2,313	5,053	5,053	4,058	4,058	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177
Outer Harbor Zone2 (vessels bound to inner harbor berth: Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone2</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inner Harbor Zone (maneuvering through main channel: Diesel Engines		2,691	5,880	5,880	4,722	4,722	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533
Inner Harbor Zone (maneuvering through main channel: Boiler		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Inner Harbor Zone</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoteling	Diesel Engines	11,645	75,504	75,504	44,207	44,207	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723
Hoteling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Hoteling</i>		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

San Pedro Waterfront

2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	Evaluation Year		2038	2039	2040	2041
													2036	2037				
463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723

San Pedro Waterfront

2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062
463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723

San Pedro Waterfront

2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	End of 70 years	
														2077	2078
463	463	463	463	463	463	463	463	463	463	463	463	463	463	463	463
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532	19,532
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
554	554	554	554	554	554	554	554	554	554	554	554	554	554	554	554
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341	9,341
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218	7,218
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533	2,533
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723	8,723

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	70-year average	Project Start Year	Evaluation Year		Evaluation Year		Evaluation Year		Evaluation Year		Evaluation Year		Evaluation Year		Evaluation Year	
		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
PM from OGV boilers																
Sea / Fairway - North-Bound Diesel Engines																
Sea / Fairway - North-Bound Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>																
Sea / Fairway - South-Bound Diesel Engines																
Sea / Fairway - South-Bound Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>																
Fairway - North-Bound Diesel Engines																
Fairway - North-Bound Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>																
Fairway - South-Bound Diesel Engines																
Fairway - South-Bound Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>																
Precautionary Zone - North-Bound Diesel Engines																
Precautionary Zone - North-Bound Boiler	8	17	17	14	14	7	7	7	7	7	7	7	7	7	7	7
<i>Total Precautionary Zone - North-Bound</i>																
Precautionary Zone - South-Bound Diesel Engines																
Precautionary Zone - South-Bound Boiler	300	626	626	527	527	283	283	283	283	283	283	283	283	283	283	283
<i>Total Precautionary Zone - South-Bound</i>																
Outer Harbor Zone1 (vessels bound to outer harbor berth: Diesel Engines																
Outer Harbor Zone1 (vessels bound to outer harbor berth: Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>																
Outer Harbor Zone2 (vessels bound to inner harbor berth: Diesel Engines																
Outer Harbor Zone2 (vessels bound to inner harbor berth: Boiler	120	250	250	211	211	113	113	113	113	113	113	113	113	113	113	113
<i>Total Outer Harbor Zone2</i>																
Inner Harbor Zone (maneuvering through main channel: Diesel Engines																
Inner Harbor Zone (maneuvering through main channel: Boiler	139	291	291	245	245	132	132	132	132	132	132	132	132	132	132	132
<i>Total Inner Harbor Zone</i>																
Hoteling Diesel Engines																
Hoteling Boiler	2,614	5,460	5,460	4,600	4,600	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468
<i>Total Hoteling</i>																

San Pedro Waterfront

													Evaluation Year						
2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	
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113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	

San Pedro Waterfront

2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
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113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468

San Pedro Waterfront

2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
283	283	283	283	283	283	283	283	283	283	283	283	283	283	283	283
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
113	113	113	113	113	113	113	113	113	113	113	113	113	113	113	113
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468	2,468

San Pedro Waterfront

70-Year Average Calculations		Mitigated Alternative 5														
		70-year average	Project Start Year	Evaluation Year			Evaluation Year			Evaluation Year			Evaluation Year			
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
VOC from OGV boilers																
Sea / Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>																
Sea / Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>																
Fairway - North-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>																
Fairway - South-Bound	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>																
Precautionary Zone - North-Bound	Diesel Engines	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - North-Bound</i>																
Precautionary Zone - South-Bound	Diesel Engines	88	82	82	86	86	88	88	88	88	88	88	88	88	88	88
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - South-Bound</i>																
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berth)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>																
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Diesel Engines	35	33	33	34	34	35	35	35	35	35	35	35	35	35	35
Outer Harbor Zone2 (vessels bound to inner harbor berth)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone2</i>																
Inner Harbor Zone (maneuvering through main channel)	Diesel Engines	41	38	38	40	40	41	41	41	41	41	41	41	41	41	41
Inner Harbor Zone (maneuvering through main channel)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Inner Harbor Zone</i>																
Hoteling	Diesel Engines	764	719	719	749	749	766	766	766	766	766	766	766	766	766	766
Hoteling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Hoteling</i>																

San Pedro Waterfront

													Evaluation Year						
2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
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88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	
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35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
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766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	

San Pedro Waterfront

2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
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35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
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35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

Mitigated Alternative 5 Toxic Pollutant Emissions
70-Year Average

Year (lb/yr)	Spatial Allocation	Power Type	DPM	VOC							PM		
				Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
	Sea / Fairway - North-Bound	Diesel Engines	538										
	Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - North-Bound</i>		<i>538</i>										
	Sea / Fairway - South-Bound	Diesel Engines	22,725										
	Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - South-Bound</i>		<i>22,725</i>										
	Fairway - North-Bound	Diesel Engines	595										
	Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - North-Bound</i>		<i>595</i>										
	Fairway - South-Bound	Diesel Engines	10,028										
	Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - South-Bound</i>		<i>10,028</i>										
	Precautionary Zone - North-Bound	Diesel Engines	203										
	Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.0
	<i>Total Precautionary Zone - North-Bound</i>		<i>203</i>		<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>		<i>0.0</i>
	Precautionary Zone - South-Bound	Diesel Engines	7,676										
	Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	1.6
	<i>Total Precautionary Zone - South-Bound</i>		<i>7,676</i>		<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>		<i>1.6</i>
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total Outer Harbor Zone1</i>		<i>-</i>										
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	2,313										
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	0.6
	<i>Total Outer Harbor Zone2</i>		<i>2,313</i>		<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>		<i>0.6</i>
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	2,691										
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	0.8
	<i>Total Inner Harbor Zone</i>		<i>2,691</i>		<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>		<i>0.8</i>
	Hoteling	Diesel Engines	11,645										
	Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.6	17.4	-	14.1
	<i>Total Hoteling</i>		<i>11,645</i>		<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.6</i>	<i>17.4</i>		<i>14.1</i>

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.0	-	-	0.0	2.0	-	-	-	0.0	-	0.0
-	0.0	-	0.0	-	-	0.0	2.0	-	-	-	0.0	-	0.0
-	0.1	-	1.6	-	-	0.1	74.9	-	-	-	0.1	-	1.6
-	0.1	-	1.6	-	-	0.1	74.9	-	-	-	0.1	-	1.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	0.7	-	-	0.1	30.0	-	-	-	0.0	-	0.7
-	0.1	-	0.7	-	-	0.1	30.0	-	-	-	0.0	-	0.7
-	0.1	-	0.8	-	-	0.1	34.9	-	-	-	0.0	-	0.8
-	0.1	-	0.8	-	-	0.1	34.9	-	-	-	0.0	-	0.8
-	1.3	-	14.4	-	-	1.3	653.5	-	-	-	0.7	-	14.4
-	1.3	-	14.4	-	-	1.3	653.5	-	-	-	0.7	-	14.4

San Pedro Waterfront

Unmitigated Alternative 6 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>91.7</i>	<i>166.1</i>	<i>41.7</i>	<i>1,167.5</i>	<i>166.1</i>	<i>132.9</i>	<i>1,598.3</i>	<i>43.9</i>	0.85
Sea / Fairway - South-Bound	Diesel Engines	108.4	196.2	49.3	1,379.2	196.2	156.9	1,888.2	51.9	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>108.4</i>	<i>196.2</i>	<i>49.3</i>	<i>1,379.2</i>	<i>196.2</i>	<i>156.9</i>	<i>1,888.2</i>	<i>51.9</i>	1.07
Fairway - North-Bound	Diesel Engines	70.7	127.9	32.1	899.5	127.9	102.4	1,231.4	33.8	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>70.7</i>	<i>127.9</i>	<i>32.1</i>	<i>899.5</i>	<i>127.9</i>	<i>102.4</i>	<i>1,231.4</i>	<i>33.8</i>	1.21
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>43.2</i>	<i>78.2</i>	<i>19.6</i>	<i>549.7</i>	<i>78.2</i>	<i>62.6</i>	<i>752.5</i>	<i>20.7</i>	0.61
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9	
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
<i>Total Precautionary Zone - North-Bound</i>		<i>20.9</i>	<i>37.3</i>	<i>9.5</i>	<i>265.4</i>	<i>39.1</i>	<i>31.3</i>	<i>397.3</i>	<i>10.0</i>	0.63
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2	
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
<i>Total Precautionary Zone - South-Bound</i>		<i>23.7</i>	<i>42.3</i>	<i>10.8</i>	<i>300.8</i>	<i>44.3</i>	<i>35.5</i>	<i>450.3</i>	<i>11.4</i>	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
<i>Total Outer Harbor Zone1</i>		<i>5.6</i>	<i>9.9</i>	<i>2.5</i>	<i>70.7</i>	<i>10.5</i>	<i>8.4</i>	<i>108.6</i>	<i>2.7</i>	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.3	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
<i>Total Outer Harbor Zone2</i>		<i>7.0</i>	<i>12.4</i>	<i>3.2</i>	<i>88.4</i>	<i>13.2</i>	<i>10.5</i>	<i>135.9</i>	<i>3.3</i>	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.8	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
<i>Total Inner Harbor Zone</i>		<i>8.1</i>	<i>14.4</i>	<i>3.7</i>	<i>102.9</i>	<i>15.3</i>	<i>12.3</i>	<i>158.2</i>	<i>3.9</i>	0.32
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	12
First Peak Hour Scenario (per vessel)		44	79	20	563	83	67	853	21	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:

3 All years

San Pedro Waterfront

Unmitigated Alternative 6 Criteria Pollutant Emissions

Year: 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (
Sea / Fairway - North-Bound	Diesel Engine	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9	
Sea / Fairway - South-Bound	Diesel Engine	125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		125.6	227.4	57.1	1,598.4	227.4	181.9	2,188.4	60.1	
Fairway - North-Bound	Diesel Engine	81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		81.4	147.4	37.0	1,035.9	147.4	117.9	1,418.2	39.0	
Fairway - South-Bound	Diesel Engine	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8	
Precautionary Zone - North-Bound	Diesel Engine	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1	0.63
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1	
Total Precautionary Zone - North-Bound		23.5	42.1	10.7	299.0	43.9	35.1	443.3	11.3	
Precautionary Zone - South-Bound	Diesel Engine	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6	0.71
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2	
Total Precautionary Zone - South-Bound		26.7	47.7	12.2	338.9	49.7	39.8	502.4	12.8	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engine	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05	
Total Outer Harbor Zone1		6.1	10.9	2.7	77.6	11.5	9.2	118.1	2.9	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engine	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.6	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06	
Total Outer Harbor Zone2		7.6	13.6	3.5	97.0	14.4	11.5	147.7	3.7	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engine	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.2	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07	
Total Inner Harbor Zone		8.9	15.8	4.0	112.8	16.7	13.4	171.8	4.3	
Hotelling	Diesel Engine	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hotelling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hotelling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Peak Hour Scenario (per vessel)		49	88	22	626	92	74	940	24	
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Peak Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 - (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
1 lb = 453.59

Assumptions

1. Peak hourly emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak hourly emissions.
3. Peak hourly emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak hourly emissions assume no VSRP.

For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:

0 All years

San Pedro Waterfront

Unmitigated Alternative 6 Criteria Pollutant Emissions
Year: 2011, 2015, 2022, 2037

Peak Day (lb/day) for Single Type 2 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		91.7	166.1	41.7	1,167.5	166.1	132.9	1,598.3	43.9
Sea / Fairway - South-Bound	Diesel Engines	115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		115.9	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Fairway - North-Bound	Diesel Engines	85.6	155.0	38.9	1,089.4	155.0	124.0	1,491.4	41.0
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		85.6	155.0	38.9	1,089.4	155.0	124.0	1,491.4	41.0
Fairway - South-Bound	Diesel Engines	43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		43.2	78.2	19.6	549.7	78.2	62.6	752.5	20.7
Precautionary Zone - North-Bound	Diesel Engines	20.6	37.3	9.4	262.5	37.3	29.9	359.4	9.9
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
Total Precautionary Zone - North-Bound		20.9	37.3	9.5	265.4	39.1	31.3	397.3	10.0
Precautionary Zone - South-Bound	Diesel Engines	23.4	42.3	10.6	297.5	42.3	33.9	407.3	11.2
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
Total Precautionary Zone - South-Bound		24	42	11	301	44	35	450	11
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	5.5	9.9	2.5	69.7	9.9	7.9	95.4	2.6
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
Total Outer Harbor Zone1		5.6	9.9	2.5	70.7	10.5	8.4	108.7	2.65
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	6.8	12.4	3.1	87.1	12.4	9.9	119.3	3.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
Total Outer Harbor Zone2		7.0	12.4	3.2	88.4	13.2	10.5	136.0	3.34
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	8.0	14.4	3.6	101.4	14.4	11.5	138.8	3.81
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
Total Inner Harbor Zone		8.1	14.4	3.7	102.9	15.3	12.2	158.2	3.88
Hotelling	Diesel Engines	205.7	372.4	93.5	2,618.4	372.4	298.0	3,584.7	98.47
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.79
Total Hotelling		211.0	372.4	96.2	2,674.0	406.6	325.3	4,312.2	101.3
Outer Harbor Berths per Vessel - Peak Day (lb/day)		672	1,207	306	8,547	1,246	997	12,453	322
Inner Harbor Berths per Vessel - Peak Day (lb/day)		692	1,240	315	8,788	1,282	1,026	12,824	331
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		2,075	3,721	944	26,363	3,846	3,077	38,471	994
2011 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304
2015 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2015 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304
2022 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2022 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304
2037 Vessel Type 2 Transit & Maneuvering Peak Day (lb/day)		1,442	2,604	655	18,341	2,626	2,101	25,534	690
2037 Vessel Type 2 Hotelling Peak Day (lb/day)		633	1,117	288	8,022	1,220	976	12,937	304

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 2 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	3	0
2015	3	0
2022	3	0
2037	3	0

San Pedro Waterfront

Unmitigated Alternative 6 Criteria Pollutant Emissions
Year: 2015, 2022, 2037

Peak Day (lb/day) for Single Type 3 Vessel, One-Way Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engine	106.3	192.5	48.3	1,353.1	192.5	154.0	1,852.5	50.9
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>106.3</i>	<i>192.5</i>	<i>48.3</i>	<i>1,353.1</i>	<i>192.5</i>	<i>154.0</i>	<i>1,852.5</i>	<i>50.9</i>
Sea / Fairway - South-Bound	Diesel Engine	134.4	209.9	52.7	1,475.4	209.9	167.9	2,019.9	55.5
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>134.4</i>	<i>209.9</i>	<i>52.7</i>	<i>1,475.4</i>	<i>209.9</i>	<i>167.9</i>	<i>2,019.9</i>	<i>55.5</i>
Fairway - North-Bound	Diesel Engine	98.6	178.5	44.8	1,254.6	178.5	142.8	1,717.7	47.2
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>98.6</i>	<i>178.5</i>	<i>44.8</i>	<i>1,254.6</i>	<i>178.5</i>	<i>142.8</i>	<i>1,717.7</i>	<i>47.2</i>
Fairway - South-Bound	Diesel Engine	49.7	90.1	22.6	633.1	90.1	72.0	866.7	23.8
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>49.7</i>	<i>90.1</i>	<i>22.6</i>	<i>633.1</i>	<i>90.1</i>	<i>72.0</i>	<i>866.7</i>	<i>23.8</i>
Precautionary Zone - North-Bound	Diesel Engine	23.3	42.1	10.6	296.1	42.1	33.7	405.4	11.1
Precautionary Zone - North-Bound	Boiler	0.3	-	0.1	2.9	1.8	1.4	37.9	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>23.5</i>	<i>42.1</i>	<i>10.7</i>	<i>299.0</i>	<i>43.9</i>	<i>35.1</i>	<i>443.3</i>	<i>11.3</i>
Precautionary Zone - South-Bound	Diesel Engine	26.4	47.7	12.0	335.6	47.7	38.2	459.4	12.6
Precautionary Zone - South-Bound	Boiler	0.3	-	0.2	3.3	2.0	1.6	42.9	0.2
<i>Total Precautionary Zone - South-Bound</i>		<i>27</i>	<i>48</i>	<i>12</i>	<i>339</i>	<i>50</i>	<i>40</i>	<i>502</i>	<i>13</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engine	6.0	10.9	2.7	76.6	10.9	8.7	104.8	2.9
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	0.1	-	0.0	1.0	0.6	0.5	13.3	0.05
<i>Total Outer Harbor Zone1</i>		<i>6.1</i>	<i>10.9</i>	<i>2.7</i>	<i>77.6</i>	<i>11.5</i>	<i>9.2</i>	<i>118.1</i>	<i>2.95</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engine	7.5	13.6	3.4	95.7	13.6	10.9	131.0	3.60
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.1	-	0.1	1.3	0.8	0.6	16.7	0.06
<i>Total Outer Harbor Zone2</i>		<i>7.6</i>	<i>13.6</i>	<i>3.5</i>	<i>97.0</i>	<i>14.4</i>	<i>11.5</i>	<i>147.7</i>	<i>3.7</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engine	8.7	15.8	4.0	111.4	15.8	12.7	152.4	4.19
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.1	-	0.1	1.5	0.9	0.7	19.4	0.07
<i>Total Inner Harbor Zone</i>		<i>8.9</i>	<i>15.8</i>	<i>4.0</i>	<i>112.8</i>	<i>16.7</i>	<i>13.4</i>	<i>171.8</i>	<i>4.3</i>
Hotelling	Diesel Engine	223.5	404.6	101.6	2,844.5	404.6	323.7	3,894.2	106.97
Hotelling	Boiler	5.3	-	2.6	55.6	34.2	27.3	727.5	2.79
<i>Total Hotelling</i>		<i>228.8</i>	<i>404.6</i>	<i>104.2</i>	<i>2,900.0</i>	<i>438.8</i>	<i>351.0</i>	<i>4,621.8</i>	<i>109.8</i>
Outer Harbor Berths per Vessel - Peak Day (lb/day)		760	1,299	329	9,193	1,338	1,070	13,338	347
Inner Harbor Berths per Vessel - Peak Day (lb/day)		781	1,336	339	9,457	1,377	1,102	13,741	357
2011 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Outer Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Total Inner Harbor Berths Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2011 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2015 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2022 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Vessel Type 3 Transit & Maneuvering Peak Day (lb/day)		-	-	-	-	-	-	-	-
2037 Vessel Type 3 Hotelling Peak Day (lb/day)		-	-	-	-	-	-	-	-

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Peak day emissions are based on residual fuel with 4.5% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. Only non-IMO compliant ships were considered in calculating peak day emissions.
- 6. Peak day emissions assume no VSRP.

For air dispersion modeling, multiply peak day single-vessel emissions by number of Type 3 vessels:

Year	Activity - Vessels bound to Inner Harbor	Activity - Vessels bound to Outer Harbor
2011	0	0
2015	0	0
2022	0	0
2037	0	0

San Pedro Waterfront

Unmitigated Alternative 6 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Total Peak Day (lb/day) for all Vessels

	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
2011 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2011 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2015 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2015 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2022 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2022 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304
2037 Transit & Maneuvering Peak Day (lb/day)	1,442	2,604	655	18,341	2,626	2,101	25,534	690
2037 Hotelling Peak Day (lb/day)	633	1,117	288	8,022	1,220	976	12,937	304

San Pedro Waterfront

Unmitigated Alternative 6 Criteria Pollutant Emissions

Year: 2011, 2015, 2022, 2037

8-Hour (lb/8-hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (hr)
Sea / Fairway - North-Bound	Diesel Engines	11.5	20.8	5.2	145.9	20.8	16.6	199.8	5.5	
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - North-Bound</i>		<i>11.5</i>	<i>20.8</i>	<i>5.2</i>	<i>145.9</i>	<i>20.8</i>	<i>16.6</i>	<i>199.8</i>	<i>5.5</i>	0.85
Sea / Fairway - South-Bound	Diesel Engines	14.5	26.2	6.6	184.4	26.2	21.0	252.5	6.9	
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Sea / Fairway - South-Bound</i>		<i>14.5</i>	<i>26.2</i>	<i>6.6</i>	<i>184.4</i>	<i>26.2</i>	<i>21.0</i>	<i>252.5</i>	<i>6.9</i>	1.07
Fairway - North-Bound	Diesel Engines	10.7	19.4	4.9	136.2	19.4	15.5	186.4	5.1	
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - North-Bound</i>		<i>10.7</i>	<i>19.4</i>	<i>4.9</i>	<i>136.2</i>	<i>19.4</i>	<i>15.5</i>	<i>186.4</i>	<i>5.1</i>	1.21
Fairway - South-Bound	Diesel Engines	5.4	9.8	2.5	68.7	9.8	7.8	94.1	2.6	
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
<i>Total in Fairway - South-Bound</i>		<i>5.4</i>	<i>9.8</i>	<i>2.5</i>	<i>68.7</i>	<i>9.8</i>	<i>7.8</i>	<i>94.1</i>	<i>2.6</i>	0.61
Precautionary Zone - North-Bound	Diesel Engines	2.6	4.7	1.2	32.8	4.7	3.7	44.9	1.2	
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.0	
<i>Total Precautionary Zone - North-Bound</i>		<i>2.6</i>	<i>4.7</i>	<i>1.2</i>	<i>33.2</i>	<i>4.9</i>	<i>3.9</i>	<i>49.7</i>	<i>1.2</i>	0.63
Precautionary Zone - South-Bound	Diesel Engines	2.9	5.3	1.3	37.2	5.3	4.2	50.9	1.4	
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.4	0.3	0.2	5.4	0.0	
<i>Total Precautionary Zone - South-Bound</i>		<i>3.0</i>	<i>5.3</i>	<i>1.3</i>	<i>37.6</i>	<i>5.5</i>	<i>4.4</i>	<i>56.3</i>	<i>1.4</i>	0.71
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	0.7	1.2	0.3	8.7	1.2	1.0	11.9	0.3	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.01	-	0.006	0.1	0.08	0.06	1.7	0.01	
<i>Total Outer Harbor Zone1</i>		<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>8.8</i>	<i>1.3</i>	<i>1.1</i>	<i>13.6</i>	<i>0.3</i>	0.22
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.9	1.5	0.4	10.9	1.5	1.2	14.9	0.4	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
<i>Total Outer Harbor Zone2</i>		<i>0.9</i>	<i>1.5</i>	<i>0.4</i>	<i>11.0</i>	<i>1.6</i>	<i>1.3</i>	<i>17.0</i>	<i>0.4</i>	0.28
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	1.0	1.8	0.5	12.7	1.8	1.4	17.3	0.5	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
<i>Total Inner Harbor Zone</i>		<i>1.0</i>	<i>1.8</i>	<i>0.5</i>	<i>12.9</i>	<i>1.9</i>	<i>1.5</i>	<i>19.8</i>	<i>0.5</i>	0.32
Hoteling	Diesel Engines	17.1	31.0	7.8	218.2	31.0	24.8	298.7	8.2	
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
<i>Total Hoteling</i>		<i>17.6</i>	<i>31.0</i>	<i>8.0</i>	<i>222.8</i>	<i>33.9</i>	<i>27.1</i>	<i>359.3</i>	<i>8.4</i>	12
First Max 8-Hour Scenario (per vessel)		50	91	23	639	91	73	889	24	
First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Max 8-Hour Scenario (per vessel)		18	31	8	223	34	27	359	8	
Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.										

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

$$\begin{aligned} \text{VOC/HC} &= 1.053 \\ 1 \text{ lb} &= 453.59 \end{aligned}$$

Assumptions

1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.
3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak 8-hour emissions assume no VSRP.

For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 2 vessels:

3 All years

San Pedro Waterfront

Unmitigated Alternative 6 Criteria Pollutant Emissions

Year: 2015, 2022, 2037

8-Hour (lb/8-hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Transit Time (
Sea / Fairway - North-Bound	Diesel Engine	13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4	0.85
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - North-Bound		13.3	24.1	6.0	169.1	24.1	19.2	231.6	6.4	
Sea / Fairway - South-Bound	Diesel Engine	16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0	1.07
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Sea / Fairway - South-Bound		16.8	30.4	7.6	213.7	30.4	24.3	292.6	8.0	
Fairway - North-Bound	Diesel Engine	12.3	22.3	5.6	156.8	22.3	17.8	214.7	5.9	1.21
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - North-Bound		12.3	22.3	5.6	156.8	22.3	17.8	214.7	5.9	
Fairway - South-Bound	Diesel Engine	6.2	11.3	2.8	79.1	11.3	9.0	108.3	3.0	0.61
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	
Total in Fairway - South-Bound		6.2	11.3	2.8	79.1	11.3	9.0	108.3	3.0	
Precautionary Zone - North-Bound	Diesel Engine	2.9	5.3	1.3	37.0	5.3	4.2	50.7	1.4	0.63
Precautionary Zone - North-Bound	Boiler	0.03	-	0.02	0.4	0.2	0.2	4.7	0.0	
Total Precautionary Zone - North-Bound		2.9	5.3	1.3	37.4	5.5	4.4	55.4	1.4	
Precautionary Zone - South-Bound	Diesel Engine	3.3	6.0	1.5	41.9	6.0	4.8	57.4	1.6	0.71
Precautionary Zone - South-Bound	Boiler	0.04	-	0.02	0.4	0.3	0.2	5.4	0.0	
Total Precautionary Zone - South-Bound		3.3	6.0	1.5	42.4	6.2	5.0	62.8	1.6	
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engine	0.8	1.4	0.3	9.6	1.4	1.1	13.1	0.4	0.22
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler	0.01	-	0.006	0.13	0.08	0.06	1.7	0.01	
Total Outer Harbor Zone1		0.8	1.4	0.3	9.7	1.4	1.2	14.8	0.4	
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engine	0.9	1.7	0.4	12.0	1.7	1.4	16.4	0.4	0.28
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.1	0.01	
Total Outer Harbor Zone2		1.0	1.7	0.4	12.1	1.8	1.4	18.5	0.5	
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engine	1.1	2.0	0.5	13.9	2.0	1.6	19.1	0.5	0.32
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	0.02	-	0.01	0.2	0.1	0.1	2.4	0.01	
Total Inner Harbor Zone		1.1	2.0	0.5	14.1	2.1	1.7	21.5	0.5	
Hoteling	Diesel Engine	18.6	33.7	8.5	237.0	33.7	27.0	324.5	8.9	12
Hoteling	Boiler	0.4	-	0.2	4.6	2.8	2.3	60.6	0.23	
Total Hoteling		19.1	33.7	8.7	241.7	36.6	29.3	385.1	9.1	
First Max 8-Hour Scenario (per vessel)		58	104	26	734	105	84	1,020	28	
First Max 8-Hour Scenario - Combined highlighted emissions add up to 6 hour (approximate as 8 hours). Although emissions in other zones are higher, those zones are further removed from receptors.										
Second Max 8-Hour Scenario (per vessel)		19	34	9	242	37	29	385	9	

Second Max 8-Hour Scenario - Emissions at berth may produce an 8-hour maximum due to receptor proximity.

Emissions = Engine Power * Load Factor * Emission Factor * Time

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
 - (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- VOC/HC = 1.053
1 lb = 453.59

Assumptions

1. Peak 8-hour emissions are based on residual fuel with 4.5% sulfur content.
2. Only non-IMO compliant ships were considered in calculating peak 8-hour emissions.
3. Peak 8-hour emissions assume that a vessel is either in route to, from or at each active berth.
4. Peak 8-hour emissions assume no VSRP.

For air dispersion modeling, multiply peak 8-hour emissions by maximum number of Type 3 vessels:

0 All years

San Pedro Waterfront

Alternative 6 Unmitigated Criteria Pollutant Emissions

Year: 2011

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	183.5	250.2	83.4	2,246.7	250.2	200.1	1,918.0	87.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		183.5	250.2	83.4	2,246.7	250.2	200.1	1,918.0	87.8
Sea / Fairway - South-Bound	Diesel Engines	231.8	316.2	105.4	2,839.3	316.2	252.9	2,423.9	111.0
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		231.8	316.2	105.4	2,839.3	316.2	252.9	2,423.9	111.0
Fairway - North-Bound	Diesel Engines	137.5	187.5	62.5	1,683.5	187.5	150.0	1,437.2	65.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		137.5	187.5	62.5	1,683.5	187.5	150.0	1,437.2	65.8
Fairway - South-Bound	Diesel Engines	69.4	94.6	31.5	849.5	94.6	75.7	725.2	33.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		69.4	94.6	31.5	849.5	94.6	75.7	725.2	33.2
Precautionary Zone - North-Bound	Diesel Engines	41.3	56.3	18.8	505.2	56.3	45.0	431.3	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		41.8	56.3	19.0	511.0	58.5	46.8	476.8	20.0
Precautionary Zone - South-Bound	Diesel Engines	46.8	63.8	21.3	572.6	63.8	51.0	488.8	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		47	64	22	579	66	53	540	23
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	11.0	14.9	5.0	134.1	14.9	11.9	114.5	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		11.2	14.9	5.1	136.1	15.7	12.5	130.5	5.3
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	13.7	18.7	6.2	167.7	18.7	14.9	143.1	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		13.9	18.7	6.3	170.2	19.6	15.7	163.1	6.7
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines	15.9	21.7	7.2	195.1	21.7	17.4	166.5	7.6
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		16.2	21.7	7.4	198.1	22.9	18.3	189.8	7.8
Hoteling	Diesel Engines	205.7	280.5	93.5	2,519.4	280.5	224.4	2,150.8	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hoteling		211.0	280.5	96.2	2,575.0	301.7	241.4	2,587.3	101.3

Alternative 6 Unmitigated Criteria Pollutant Emissions

Year: 2011

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	608	820	277	7,434	846	677	6,831	291
North-Bound Single Vessel Average Day (ton/day)	0.31	0.41	0.14	3.74	0.43	0.34	3.45	0.15
South-Bound Single Vessel Average Day (ton/day)	0.30	0.41	0.14	3.67	0.42	0.33	3.38	0.14
Temporal Allocation								
2011 Total Annual Emissions (ton/yr)	81	109	37	989	113	90	910	39

$Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year$

$NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * \% IMO vessels) + (non-IMO NOx Emission Factor * \% non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year$

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$VOC/HC = 1.053$ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 $1 lb = 453.59$ grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = 53%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 6 Unmitigated Criteria Pollutant Emissions
Year: 2015

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engine	183.5	250.2	83.4	2,237.1	250.2	200.1	1,918.0	87.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>183.5</i>	<i>250.2</i>	<i>83.4</i>	<i>2,237.1</i>	<i>250.2</i>	<i>200.1</i>	<i>1,918.0</i>	<i>87.8</i>
Sea / Fairway - South-Bound	Diesel Engine	231.8	316.2	105.4	2,827.1	316.2	252.9	2,423.9	111.0
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>231.8</i>	<i>316.2</i>	<i>105.4</i>	<i>2,827.1</i>	<i>316.2</i>	<i>252.9</i>	<i>2,423.9</i>	<i>111.0</i>
Fairway - North-Bound	Diesel Engine	137.5	187.5	62.5	1,676.3	187.5	150.0	1,437.2	65.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>137.5</i>	<i>187.5</i>	<i>62.5</i>	<i>1,676.3</i>	<i>187.5</i>	<i>150.0</i>	<i>1,437.2</i>	<i>65.8</i>
Fairway - South-Bound	Diesel Engine	69.4	94.6	31.5	845.8	94.6	75.7	725.2	33.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>69.4</i>	<i>94.6</i>	<i>31.5</i>	<i>845.8</i>	<i>94.6</i>	<i>75.7</i>	<i>725.2</i>	<i>33.2</i>
Precautionary Zone - North-Bound	Diesel Engine	41.3	56.3	18.8	503.1	56.3	45.0	431.3	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>41.8</i>	<i>56.3</i>	<i>19.0</i>	<i>508.8</i>	<i>58.5</i>	<i>46.8</i>	<i>476.8</i>	<i>20.0</i>
Precautionary Zone - South-Bound	Diesel Engine	46.8	63.8	21.3	570.1	63.8	51.0	488.8	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>47</i>	<i>64</i>	<i>22</i>	<i>577</i>	<i>66</i>	<i>53</i>	<i>540</i>	<i>23</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹	Diesel Engine	11.0	14.9	5.0	133.6	14.9	11.9	114.5	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
<i>Total Outer Harbor Zone1</i>		<i>11</i>	<i>15</i>	<i>5</i>	<i>136</i>	<i>16</i>	<i>13</i>	<i>131</i>	<i>5</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁴	Diesel Engine	13.7	18.7	6.2	166.9	18.7	14.9	143.1	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁴	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
<i>Total Outer Harbor Zone2</i>		<i>13.9</i>	<i>18.7</i>	<i>6.3</i>	<i>169.5</i>	<i>19.6</i>	<i>15.7</i>	<i>163.1</i>	<i>6.7</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor) ²	Diesel Engine	15.9	21.7	7.2	194.3	21.7	17.4	166.5	7.6
Inner Harbor Zone (maneuvering through main channel: inner harbor) ²	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
<i>Total Inner Harbor Zone</i>		<i>16.2</i>	<i>21.7</i>	<i>7.4</i>	<i>197.2</i>	<i>22.9</i>	<i>18.3</i>	<i>189.8</i>	<i>7.8</i>
Hoteling	Diesel Engine	205.7	280.5	93.5	2,508.6	280.5	224.4	2,150.8	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
<i>Total Hoteling</i>		<i>211.0</i>	<i>280.5</i>	<i>96.2</i>	<i>2,564.2</i>	<i>301.7</i>	<i>241.4</i>	<i>2,587.3</i>	<i>101.3</i>

Alternative 6 Unmitigated Criteria Pollutant Emissions
Year: 2015

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	608	820	277	7,402	846	677	6,831	291
North-Bound Single Vessel Average Day (ton/day)	0.31	0.41	0.14	3.74	0.43	0.34	3.45	0.15
South-Bound Single Vessel Average Day (ton/day)	0.30	0.41	0.14	3.66	0.42	0.33	3.38	0.14
Temporal Allocation								
2015 Total Annual Emissions (ton/yr)	83	112	38	1,007	115	92	930	40

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NO_x Emissions (lb/yr) = Average Engine Power * Load Factor * (IMO NO_x Emission Factor * % IMO vessels) + (non-IMO NO_x Emission Factor * % non-IMO vessels) * Time * 2 (1-Way) Trips * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.

1 lb = 453.59 grams

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = 59%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 6 Unmitigated Criteria Pollutant Emissions

Year: 2022

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	183.5	250.2	83.4	2,220.0	250.2	200.1	1,918.0	87.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>183.5</i>	<i>250.2</i>	<i>83.4</i>	<i>2,220.0</i>	<i>250.2</i>	<i>200.1</i>	<i>1,918.0</i>	<i>87.8</i>
Sea / Fairway - South-Bound	Diesel Engines	231.8	316.2	105.4	2,805.5	316.2	252.9	2,423.9	111.0
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>231.8</i>	<i>316.2</i>	<i>105.4</i>	<i>2,805.5</i>	<i>316.2</i>	<i>252.9</i>	<i>2,423.9</i>	<i>111.0</i>
Fairway - North-Bound	Diesel Engines	137.5	187.5	62.5	1,663.4	187.5	150.0	1,437.2	65.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>137.5</i>	<i>187.5</i>	<i>62.5</i>	<i>1,663.4</i>	<i>187.5</i>	<i>150.0</i>	<i>1,437.2</i>	<i>65.8</i>
Fairway - South-Bound	Diesel Engines	69.4	94.6	31.5	839.3	94.6	75.7	725.2	33.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>69.4</i>	<i>94.6</i>	<i>31.5</i>	<i>839.3</i>	<i>94.6</i>	<i>75.7</i>	<i>725.2</i>	<i>33.2</i>
Precautionary Zone - North-Bound	Diesel Engines	41.3	56.3	18.8	499.2	56.3	45.0	431.3	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
<i>Total Precautionary Zone - North-Bound</i>		<i>41.8</i>	<i>56.3</i>	<i>19.0</i>	<i>505.0</i>	<i>58.5</i>	<i>46.8</i>	<i>476.8</i>	<i>20.0</i>
Precautionary Zone - South-Bound	Diesel Engines	46.8	63.8	21.3	565.8	63.8	51.0	488.8	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
<i>Total Precautionary Zone - South-Bound</i>		<i>47</i>	<i>64</i>	<i>22</i>	<i>572</i>	<i>66</i>	<i>53</i>	<i>540</i>	<i>23</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	11.0	14.9	5.0	132.5	14.9	11.9	114.5	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
<i>Total Outer Harbor Zone1</i>		<i>11</i>	<i>15</i>	<i>5</i>	<i>135</i>	<i>16</i>	<i>13</i>	<i>131</i>	<i>5</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	13.7	18.7	6.2	165.7	18.7	14.9	143.1	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
<i>Total Outer Harbor Zone2</i>		<i>13.9</i>	<i>18.7</i>	<i>6.3</i>	<i>168.2</i>	<i>19.6</i>	<i>15.7</i>	<i>163.1</i>	<i>6.7</i>
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	15.9	21.7	7.2	192.8	21.7	17.4	166.5	7.6
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
<i>Total Inner Harbor Zone</i>		<i>16.2</i>	<i>21.7</i>	<i>7.4</i>	<i>195.7</i>	<i>22.9</i>	<i>18.3</i>	<i>189.8</i>	<i>7.8</i>
Hoteling	Diesel Engines	205.7	280.5	93.5	2,489.4	280.5	224.4	2,150.8	98.5
Hoteling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
<i>Total Hoteling</i>		<i>211.0</i>	<i>280.5</i>	<i>96.2</i>	<i>2,544.9</i>	<i>301.7</i>	<i>241.4</i>	<i>2,587.3</i>	<i>101.3</i>

Alternative 6 Unmitigated Criteria Pollutant Emissions

Year: 2022

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)				7,346	846	677	6,831	291
North-Bound Single Vessel Average Day (ton/day)	0.31	0.41	0.14	3.72	0.43	0.34	3.45	0.15
South-Bound Single Vessel Average Day (ton/day)	0.30	0.41	0.14	3.63	0.42	0.33	3.38	0.14
Temporal Allocation								
<i>2022 Total Annual Emissions (ton/yr)</i>	<i>83</i>	<i>112</i>	<i>38</i>	<i>999</i>	<i>115</i>	<i>92</i>	<i>930</i>	<i>40</i>

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NOx = 69%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Alternative 6 Unmitigated Criteria Pollutant Emissions
Year: 2037

Average Day (lb/day) for Single Average Vessel, Round Trip

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	183.5	250.2	83.4	2,205.5	250.2	200.1	1,918.0	87.8
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		183.5	250.2	83.4	2,205.5	250.2	200.1	1,918.0	87.8
Sea / Fairway - South-Bound	Diesel Engines	231.8	316.2	105.4	2,787.2	316.2	252.9	2,423.9	111.0
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		231.8	316.2	105.4	2,787.2	316.2	252.9	2,423.9	111.0
Fairway - North-Bound	Diesel Engines	137.5	187.5	62.5	1,652.6	187.5	150.0	1,437.2	65.8
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		137.5	187.5	62.5	1,652.6	187.5	150.0	1,437.2	65.8
Fairway - South-Bound	Diesel Engines	69.4	94.6	31.5	833.9	94.6	75.7	725.2	33.2
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		69.4	94.6	31.5	833.9	94.6	75.7	725.2	33.2
Precautionary Zone - North-Bound	Diesel Engines	41.3	56.3	18.8	496.0	56.3	45.0	431.3	19.7
Precautionary Zone - North-Bound	Boiler	0.6	-	0.3	5.8	2.2	1.8	45.5	0.3
Total Precautionary Zone - North-Bound		41.8	56.3	19.0	501.8	58.5	46.8	476.8	20.0
Precautionary Zone - South-Bound	Diesel Engines	46.8	63.8	21.3	562.1	63.8	51.0	488.8	22.4
Precautionary Zone - South-Bound	Boiler	0.6	-	0.3	6.6	2.5	2.0	51.5	0.3
Total Precautionary Zone - South-Bound		47	64	22	569	66	53	540	23
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁸	Diesel Engines	11.0	14.9	5.0	131.7	14.9	11.9	114.5	5.2
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁹	Boiler	0.2	-	0.1	2.0	0.8	0.6	16.0	0.1
Total Outer Harbor Zone1		11.2	14.9	5.1	133.7	15.7	12.5	130.5	5.3
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁸	Diesel Engines	13.7	18.7	6.2	164.6	18.7	14.9	143.1	6.6
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁹	Boiler	0.2	-	0.1	2.5	1.0	0.8	20.0	0.1
Total Outer Harbor Zone2		13.9	18.7	6.3	167.1	19.6	15.7	163.1	6.7
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Diesel Engines	15.9	21.7	7.2	191.5	21.7	17.4	166.5	7.6
Inner Harbor Zone (maneuvering through main channel: inner harbor)	Boiler	0.3	-	0.1	3.0	1.1	0.9	23.3	0.1
Total Inner Harbor Zone		16.2	21.7	7.4	194.5	22.9	18.3	189.8	7.8
Hotelling	Diesel Engines	205.7	280.5	93.5	2,473.2	280.5	224.4	2,150.8	98.5
Hotelling	Boiler	5.3	-	2.6	55.6	21.2	16.9	436.5	2.8
Total Hotelling		211.0	280.5	96.2	2,528.8	301.7	241.4	2,587.3	101.3

Alternative 6 Unmitigated Criteria Pollutant Emissions
Year: 2037

Average Annual (lb/yr)

Spatial Allocation	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Outer Harbor Berths per Vessel - Average Day (lb/day)								
Inner Harbor Berths per Vessel - Average Day (lb/day)	608	820	277	7,299	846	677	6,831	291
North-Bound Single Vessel Average Day (ton/day)	0.31	0.41	0.14	3.69	0.43	0.34	3.45	0.15
South-Bound Single Vessel Average Day (ton/day)	0.30	0.41	0.14	3.61	0.42	0.33	3.36	0.14
Temporal Allocation								
2037 Total Annual Emissions (ton/yr)	83	112	38	993	115	92	930	40

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NO_x Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NO_x Emission Factor * % IMO vessels) + (non-IMO NO_x Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{453.59 \text{ grams}} \times 1 \text{ lb} =$$

Assumptions

- Maximum of 1 ship per day per berth.
- All berths occupied.
- Annual emissions are based on residual fuel with 2.7% sulfur content.
- Maximum of 2 one-way trips per vessel.
- IMO compliance rate for NO_x = 78%
- A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO_x emissions; 4% annual fleet turnover rate was assumed.
- Annual emissions assume 80% compliance with VSRP to 20 nm.

San Pedro Waterfront

Unmitigated Alternative 6 Criteria Pollutant Emissions

Year: 2011

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,434	1,955	652	17,561	1,955	1,564	14,991	686
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		1,434	1,955	652	17,561	1,955	1,564	14,991	686
Sea / Fairway - South-Bound	Diesel Engines	60,555	82,575	27,525	741,578	82,575	66,060	633,074	28,984
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		60,555	82,575	27,525	741,578	82,575	66,060	633,074	28,984
Fairway - North-Bound	Diesel Engines	1,074	1,465	488	13,158	1,465	1,172	11,233	514
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,074	1,465	488	13,158	1,465	1,172	11,233	514
Fairway - South-Bound	Diesel Engines	18,117	24,705	8,235	221,869	24,705	19,764	189,406	8,672
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		18,117	24,705	8,235	221,869	24,705	19,764	189,406	8,672
Precautionary Zone - North-Bound	Diesel Engines	322	440	147	3,949	440	352	3,371	154
Precautionary Zone - North-Bound	Boiler	4	-	2	45	17	14	355	2
Total Precautionary Zone - North-Bound		322	440	149	3,994	457	366	3,726	157
Precautionary Zone - South-Bound	Diesel Engines	12,212	16,653	5,551	149,553	16,653	13,322	127,671	5,845
Precautionary Zone - South-Bound	Boiler	163	-	82	1,713	653	522	13,460	86
Total Precautionary Zone - South-Bound		12,375	16,653	5,632	151,266	17,305	13,844	141,131	5,931
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths)	Boiler	-	-	-	-	-	-	-	-
Total Outer Harbor Zone1		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Diesel Engines	3,683	5,022	1,674	45,100	5,022	4,018	38,502	1,763
Outer Harbor Zone2 (vessels bound to inner harbor berths)	Boiler	65	-	33	685	261	209	5,382	34
Total Outer Harbor Zone2		3,748	5,022	1,707	45,785	5,283	4,226	43,883	1,797
Inner Harbor Zone (maneuvering through main channel: inn	Diesel Engines	4,285	5,844	1,948	52,481	5,844	4,675	44,802	2,051
Inner Harbor Zone (maneuvering through main channel: inn	Boiler	76	-	38	797	304	243	6,263	40
Total Inner Harbor Zone		4,361	5,844	1,986	53,278	6,147	4,918	51,064	2,091
Hotelling	Diesel Engines	55,341	75,465	25,155	677,724	75,465	60,372	578,563	26,488
Hotelling	Boiler	1,423	-	712	14,945	5,693	4,555	117,423	749
Total Hotelling		56,764	75,465	25,867	692,669	81,158	64,926	695,986	27,237
Total (lb/yr)		158,756	214,124	72,240	1,941,158	221,051	176,841	1,784,496	76,069
boilers only						6,928			912
Average Day (lb/day) - Transit		279	380	127	3,421	383	307	2,982	134
Average Day (lb/day) - Hotelling		156	207	71	1,898	222	178	1,907	75

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- | | | | |
|--|---------------------------------|-------|------------------------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2011: | 269 | |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: 3 |
| 3. Annual emissions are based on residual fuel with 2.7% sulfur content. | Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: 0 |
| 4. Maximum of 2 one-way trips per vessel. | | | |
| 5. IMO compliance rate for NOx = 53% | | | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | |
| 7. Annual emissions assume 80% compliance with VSRP to 20 nm. | | | |

San Pedro Waterfront

Unmitigated Alternative 6 Criteria Pollutant Emissions

Year: 2015

Year (lb/yr)									
Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engine	1,466	1,999	666	17,875.1	1,999	1,599	15,326	702
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,466</i>	<i>1,999</i>	<i>666</i>	<i>17,875.1</i>	<i>1,999</i>	<i>1,599</i>	<i>15,326</i>	<i>702</i>
Sea / Fairway - South-Bound	Diesel Engine	61,906	84,417	28,139	754,862.4	84,417	67,533	647,195	29,630
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>61,906</i>	<i>84,417</i>	<i>28,139</i>	<i>754,862.4</i>	<i>84,417</i>	<i>67,533</i>	<i>647,195</i>	<i>29,630</i>
Fairway - North-Bound	Diesel Engine	1,098	1,498	499	13,393.9	1,498	1,198	11,484	526
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,098</i>	<i>1,498</i>	<i>499</i>	<i>13,393.9</i>	<i>1,498</i>	<i>1,198</i>	<i>11,484</i>	<i>526</i>
Fairway - South-Bound	Diesel Engine	18,521	25,256	8,419	225,843.6	25,256	20,205	193,631	8,865
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>18,521</i>	<i>25,256</i>	<i>8,419</i>	<i>225,843.6</i>	<i>25,256</i>	<i>20,205</i>	<i>193,631</i>	<i>8,865</i>
Precautionary Zone - North-Bound	Diesel Engine	330	450	150	4,019.6	450	360	3,446	158
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
<i>Total Precautionary Zone - North-Bound</i>		<i>334</i>	<i>450</i>	<i>152</i>	<i>4,065.9</i>	<i>467</i>	<i>374</i>	<i>3,810</i>	<i>160</i>
Precautionary Zone - South-Bound	Diesel Engine	12,484	17,024	5,675	152,231.8	17,024	13,619	130,519	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
<i>Total Precautionary Zone - South-Bound</i>		<i>12,651</i>	<i>17,024</i>	<i>5,758</i>	<i>153,983</i>	<i>17,691</i>	<i>14,153</i>	<i>144,279</i>	<i>6,063</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engine	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engine	3,765	5,134	1,711	45,908.3	5,134	4,107	39,360	1,802
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	67	-	33	700.2	267	213	5,502	35
<i>Total Outer Harbor Zone2</i>		<i>3,832</i>	<i>5,134</i>	<i>1,745</i>	<i>46,608.6</i>	<i>5,401</i>	<i>4,321</i>	<i>44,862</i>	<i>1,837</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor berths) ⁽³⁾	Diesel Engine	4,381	5,974	1,991	53,420.6	5,974	4,779	45,801	2,097
Inner Harbor Zone (maneuvering through main channel: inner harbor berths) ⁽³⁾	Boiler	78	-	39	814.8	310	248	6,402	41
<i>Total Inner Harbor Zone</i>		<i>4,459</i>	<i>5,974</i>	<i>2,030</i>	<i>54,235.4</i>	<i>6,284</i>	<i>5,028</i>	<i>52,203</i>	<i>2,138</i>
Hotelling	Diesel Engine	56,575	77,148	25,716	689,864.3	77,148	61,718	591,468	27,079
Hotelling	Boiler	1,455	-	728	15,278.0	5,820	4,656	120,042	766
<i>Total Hotelling</i>		<i>58,030</i>	<i>77,148</i>	<i>26,444</i>	<i>705,142.3</i>	<i>82,968</i>	<i>66,375</i>	<i>711,509</i>	<i>27,845</i>
Total (lb/yr)		162,297	218,899	73,852	1,976,010	225,982	180,785	1,824,298	77,766
	boilers only					7,082			932
Average Day (lb/day) - Transit		286	388	130	3,482	392	313	3,049	137
Average Day (lb/day) - Hotelling		159	211	72	1,932	227	182	1,949	76

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NO_x Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NO_x Emission Factor * % IMO vessels) + (non-IMO NO_x Emission Factor * non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- | | | | |
|--|---------------------------------|-------|------------------------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2015: | 275 | |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: 3 |
| 3. Annual emissions are based on residual fuel with 2.7% sulfur content. | Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: 0 |
| 4. Maximum of 2 one-way trips per vessel. | | | |
| 5. IMO compliance rate for NO _x = | | 59% | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NO _x emissions; 4% annual fleet turnover rate was assumed. | | | |
| 7. Annual emissions assume 80% compliance with VSRP to 20 nm. | | | |

San Pedro Waterfront

Unmitigated Alternative 6 Criteria Pollutant Emissions

Year: 2022

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,466	1,999	666	17,738.2	1,999	1,599	15,326	702
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,466</i>	<i>1,999</i>	<i>666</i>	<i>17,738.2</i>	<i>1,999</i>	<i>1,599</i>	<i>15,326</i>	<i>702</i>
Sea / Fairway - South-Bound	Diesel Engines	61,906	84,417	28,139	749,083.4	84,417	67,533	647,195	29,630
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>61,906</i>	<i>84,417</i>	<i>28,139</i>	<i>749,083.4</i>	<i>84,417</i>	<i>67,533</i>	<i>647,195</i>	<i>29,630</i>
Fairway - North-Bound	Diesel Engines	1,098	1,498	499	13,291.4	1,498	1,198	11,484	526
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,098</i>	<i>1,498</i>	<i>499</i>	<i>13,291.4</i>	<i>1,498</i>	<i>1,198</i>	<i>11,484</i>	<i>526</i>
Fairway - South-Bound	Diesel Engines	18,521	25,256	8,419	224,114.6	25,256	20,205	193,631	8,865
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>18,521</i>	<i>25,256</i>	<i>8,419</i>	<i>224,114.6</i>	<i>25,256</i>	<i>20,205</i>	<i>193,631</i>	<i>8,865</i>
Precautionary Zone - North-Bound	Diesel Engines	330	450	150	3,988.8	450	360	3,446	158
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
<i>Total Precautionary Zone - North-Bound</i>		<i>334</i>	<i>450</i>	<i>152</i>	<i>4,035.1</i>	<i>467</i>	<i>374</i>	<i>3,810</i>	<i>160</i>
Precautionary Zone - South-Bound	Diesel Engines	12,484	17,024	5,675	151,066.4	17,024	13,619	130,519	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
<i>Total Precautionary Zone - South-Bound</i>		<i>12,651</i>	<i>17,024</i>	<i>5,758</i>	<i>152,818</i>	<i>17,691</i>	<i>14,153</i>	<i>144,279</i>	<i>6,063</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽¹⁾	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽²⁾	Boiler	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	3,765	5,134	1,711	45,556.9	5,134	4,107	39,360	1,802
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	67	-	33	700.2	267	213	5,502	35
<i>Total Outer Harbor Zone2</i>		<i>3,832</i>	<i>5,134</i>	<i>1,745</i>	<i>46,257.1</i>	<i>5,401</i>	<i>4,321</i>	<i>44,862</i>	<i>1,837</i>
Inner Harbor Zone (maneuvering through main channel: inner)	Diesel Engines	4,381	5,974	1,991	53,011.6	5,974	4,779	45,801	2,097
Inner Harbor Zone (maneuvering through main channel: inner)	Boiler	78	-	39	814.8	310	248	6,402	41
<i>Total Inner Harbor Zone</i>		<i>4,459</i>	<i>5,974</i>	<i>2,030</i>	<i>53,826.5</i>	<i>6,284</i>	<i>5,028</i>	<i>52,203</i>	<i>2,138</i>
Hoteling	Diesel Engines	56,575	77,148	25,716	684,583	77,148	61,718	591,468	27,079
Hoteling	Boiler	1,455	-	728	15,278	5,820	4,656	120,042	766
<i>Total Hoteling</i>		<i>58,030</i>	<i>77,148</i>	<i>26,444</i>	<i>699,860.9</i>	<i>82,968</i>	<i>66,375</i>	<i>711,509</i>	<i>27,845</i>
Total (lb/yr)		162,297	218,899	73,852	1,961,025	225,982	180,785	1,824,298	77,766
boilers only						7,082			932
Average Day (lb/day) - Transit		286	388	130	3,455	392	313	3,049	137
Average Day (lb/day) - Hotelling		159	211	72	1,917	227	182	1,949	76

*Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year*

*NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year*

(1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.

(2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.

(3) Annual average emissions = Maximum annual emissions for the Baseline.

$$\text{VOC/HC} = \frac{1.053 \text{ Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.}}{1 \text{ lb} = 453.59 \text{ grams}}$$

Assumptions

- | | | | |
|--|---------------------------------|-------|------------------------|
| 1. Maximum of 1 ship per day per berth. | Total Vessels in 2022: | 275 | |
| 2. All berths occupied. | Percent of North-Bound Vessels: | 2.9% | Inner Harbor Berths: 3 |
| 3. Annual emissions are based on residual fuel with 2.7% sulfur content. | Percent of South-Bound Vessels: | 97.1% | Outer Harbor Berths: 0 |
| 4. Maximum of 2 one-way trips per vessel. | | | |
| 5. IMO compliance rate for NOx = | | 69% | |
| 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed. | | | |
| 7. Annual emissions assume 80% compliance with VSRP to 20 nm. | | | |

San Pedro Waterfront

Unmitigated Alternative 6 Criteria Pollutant Emissions

Year: 2037

Year (lb/yr)

Spatial Allocation	Power Type	CO	DPM	HC	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sea / Fairway - North-Bound	Diesel Engines	1,466	1,999	666	17,623.0	1,999	1,599	15,326	702
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		1,466	1,999	666	17,623.0	1,999	1,599	15,326	702
Sea / Fairway - South-Bound	Diesel Engines	61,906	84,417	28,139	744,215.6	84,417	67,533	647,195	29,630
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		61,906	84,417	28,139	744,215.6	84,417	67,533	647,195	29,630
Fairway - North-Bound	Diesel Engines	1,098	1,498	499	13,205.0	1,498	1,198	11,484	526
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		1,098	1,498	499	13,205.0	1,498	1,198	11,484	526
Fairway - South-Bound	Diesel Engines	18,521	25,256	8,419	222,658.2	25,256	20,205	193,631	8,865
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		18,521	25,256	8,419	222,658.2	25,256	20,205	193,631	8,865
Precautionary Zone - North-Bound	Diesel Engines	330	450	150	3,962.9	450	360	3,446	158
Precautionary Zone - North-Bound	Boiler	4	-	2	46.2	18	14	363	2
Total Precautionary Zone - North-Bound		334	450	152	4,009.2	467	374	3,810	160
Precautionary Zone - South-Bound	Diesel Engines	12,484	17,024	5,675	150,084.7	17,024	13,619	130,519	5,975
Precautionary Zone - South-Bound	Boiler	167	-	83	1,751.3	667	534	13,760	88
Total Precautionary Zone - South-Bound		12,651	17,024	5,758	151,836	17,691	14,153	144,279	6,063
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁹	Diesel Engines	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁹	Boiler	-	-	-	-	-	-	-	-
Total Outer Harbor Zone1		-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁹	Diesel Engines	3,765	5,134	1,711	45,260.8	5,134	4,107	39,360	1,802
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁹	Boiler	67	-	33	700.2	267	213	5,502	35
Total Outer Harbor Zone2		3,832	5,134	1,745	45,961.1	5,401	4,321	44,862	1,837
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines	4,381	5,974	1,991	52,667.2	5,974	4,779	45,801	2,097
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	78	-	39	814.8	310	248	6,402	41
Total Inner Harbor Zone		4,459	5,974	2,030	53,482.0	6,284	5,028	52,203	2,138
Hotelling	Diesel Engines	56,575	77,148	25,716	680,134.3	77,148	61,718	591,468	27,079
Hotelling	Boiler	1,455	-	728	15,278.0	5,820	4,656	120,042	766
Total Hotelling		58,030	77,148	26,444	695,412.3	82,968	66,375	711,509	27,845
Total (lb/yr)		162,297	218,899	73,852	1,948,402	225,982	180,785	1,824,298	77,766
boilers only						7,082			932
Average Day (lb/day) - Transit		286	388	130	3,433	392	313	3,049	137
Average Day (lb/day) - Hotelling		159	211	72	1,905	227	182	1,949	76

Emissions (lb/yr) = Average Engine Power * Load Factor * Emission Factor * Time * 2 (1-Way) Trips * Vessels per Year

NOx Emissions (lb/yr) = Average Engine Power * Load Factor * ((IMO NOx Emission Factor * % IMO vessels) + (non-IMO NOx Emission Factor * % non-IMO vessels)) * Time * 2 (1-Way) Trips * Vessels per Year

- (1) Outer Harbor Zone1 is defined here for ease of calculation as the zone between Pilot and the outer harbor berths.
- (2) Outer Harbor Zone2 is defined here for ease of calculation as the zone between Pilot and beginning of inner harbor.
- (3) Annual average emissions = Maximum annual emissions for the Baseline.

VOC/HC = 1.053 Conversion Factors for Hydrocarbon Emission Components, EPA December 2006.
 1 lb = 453.59 grams

Assumptions

- 1. Maximum of 1 ship per day per berth.
- 2. All berths occupied.
- 3. Annual emissions are based on residual fuel with 2.7% sulfur content.
- 4. Maximum of 2 one-way trips per vessel.
- 5. IMO compliance rate for NOx = 78%
- 6. A year-based ratio of IMO compliant and non-compliant ships were considered in calculating annual NOx emissions; 4% annual fleet turnover rate was assumed.
- 7. Annual emissions assume 80% compliance with VSRP to 20 nm.

Total Vessels in 2037:	275	
Percent of North-Bound Vessels:	2.9%	Inner Harbor Berths: 3
Percent of South-Bound Vessels:	97.1%	Outer Harbor Berths: 0

Unmitigated Alternative 6 Toxic Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 2 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	3.69839	0.99956	7.49673	0.49978	0.04248	0.07997	1.29943	0.74967	0.56463	0.00083	0.00299
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>3.69839</i>	<i>0.99956</i>	<i>7.49673</i>	<i>0.49978</i>	<i>0.04248</i>	<i>0.07997</i>	<i>1.29943</i>	<i>0.74967</i>	<i>0.56463</i>	<i>0.00083</i>	<i>0.00299</i>
Sea / Fairway - South-Bound	Diesel Engines	4.36897	1.18080	8.85602	0.59040	0.05018	0.09446	1.53504	0.88560	0.66700	0.00098	0.00353
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>4.36897</i>	<i>1.18080</i>	<i>8.85602</i>	<i>0.59040</i>	<i>0.05018</i>	<i>0.09446</i>	<i>1.53504</i>	<i>0.88560</i>	<i>0.66700</i>	<i>0.00098</i>	<i>0.00353</i>
Fairway - North-Bound	Diesel Engines	2.84938	0.77010	5.77577	0.38505	0.03273	0.06161	1.00113	0.57758	0.43501	0.00064	0.00230
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>2.84938</i>	<i>0.77010</i>	<i>5.77577</i>	<i>0.38505</i>	<i>0.03273</i>	<i>0.06161</i>	<i>1.00113</i>	<i>0.57758</i>	<i>0.43501</i>	<i>0.00064</i>	<i>0.00230</i>
Fairway - South-Bound	Diesel Engines	1.74129	0.47062	3.52964	0.23531	0.02000	0.03765	0.61180	0.35296	0.26584	0.00039	0.00141
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>1.74129</i>	<i>0.47062</i>	<i>3.52964</i>	<i>0.23531</i>	<i>0.02000</i>	<i>0.03765</i>	<i>0.61180</i>	<i>0.35296</i>	<i>0.26584</i>	<i>0.00039</i>	<i>0.00141</i>
Precautionary Zone - North-Bound	Diesel Engines	0.83167	0.22477	1.68581	0.11239	0.00955	0.01798	0.29221	0.16858	0.12697	0.00019	0.00067
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	-	0.00961	-
<i>Total Precautionary Zone - North-Bound</i>		<i>0.83167</i>	<i>0.22808</i>	<i>1.68596</i>	<i>0.11407</i>	<i>0.00966</i>	<i>0.02042</i>	<i>0.29916</i>	<i>0.17188</i>	<i>0.12697</i>	<i>0.00980</i>	<i>0.00067</i>
Precautionary Zone - South-Bound	Diesel Engines	0.94255	0.25474	1.91058	0.12737	0.01083	0.02038	0.33117	0.19106	0.14390	0.00021	0.00076
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	-	0.01089	-
<i>Total Precautionary Zone - South-Bound</i>		<i>0.94255</i>	<i>0.25849</i>	<i>1.91076</i>	<i>0.12928</i>	<i>0.01095</i>	<i>0.02314</i>	<i>0.33905</i>	<i>0.19480</i>	<i>0.14390</i>	<i>0.01110</i>	<i>0.00076</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Diesel Engines	0.22079	0.05967	0.44754	0.02984	0.00254	0.00477	0.07757	0.04475	0.03371	0.00005	0.00018
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁹⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	-	0.00338	-
<i>Total Outer Harbor Zone1</i>		<i>0.22079</i>	<i>0.06084</i>	<i>0.44760</i>	<i>0.03043</i>	<i>0.00257</i>	<i>0.00563</i>	<i>0.08002</i>	<i>0.04592</i>	<i>0.03371</i>	<i>0.00343</i>	<i>0.00018</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽⁹⁾	Diesel Engines	0.27599	0.07459	0.55943	0.03730	0.00317	0.00597	0.09697	0.05594	0.04213	0.00006	0.00022
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽⁹⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	-	0.00423	-
<i>Total Outer Harbor Zone2</i>		<i>0.27599</i>	<i>0.07604</i>	<i>0.55950</i>	<i>0.03804</i>	<i>0.00322</i>	<i>0.00704</i>	<i>0.10003</i>	<i>0.05740</i>	<i>0.04213</i>	<i>0.00429</i>	<i>0.00022</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	0.32115	0.08680	0.65097	0.04340	0.00369	0.00694	0.11284	0.06510	0.04903	0.00007	0.00026
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	-	0.00492	-
<i>Total Inner Harbor Zone</i>		<i>0.32115</i>	<i>0.08849</i>	<i>0.65105</i>	<i>0.04426</i>	<i>0.00374</i>	<i>0.00819</i>	<i>0.11640</i>	<i>0.06679</i>	<i>0.04903</i>	<i>0.00499</i>	<i>0.00026</i>
Holeling	Diesel Engines	0.69121	0.18681	1.40109	0.09341	0.00794	0.01494	0.24286	0.14011	0.10553	0.00016	0.00056
Holeling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	-	0.01537	-
<i>Total Holeling</i>		<i>0.69121</i>	<i>0.19210</i>	<i>1.40134</i>	<i>0.09611</i>	<i>0.00811</i>	<i>0.01884</i>	<i>0.25398</i>	<i>0.14539</i>	<i>0.10553</i>	<i>0.01553</i>	<i>0.00056</i>
First Peak Hour Scenario (per vessel)		1.760	0.484	3.569	0.242	0.020	0.044	0.635	0.365	0.269	0.024	0.001
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors												
Second Peak Hour Scenario (per vessel)		0.691	0.192	1.401	0.096	0.008	0.019	0.254	0.145	0.106	0.016	0.001
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity												
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 2 vessels:							3	Year 2011 only				
							0	All other years				

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00664	0.00415	0.00697	0.00664	0.00498	0.00316	2.88956	0.00482	0.00598	-	0.00010	0.02109	0.07274
0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00785	0.00490	0.00824	0.00785	0.00589	0.00373	3.41349	0.00569	0.00706	-	0.00012	0.02491	0.08593
0.00512	0.00320	0.00537	0.00512	0.00384	0.00243	2.22623	0.00371	0.00461	-	0.00008	0.01625	0.05604
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00512	0.00320	0.00537	0.00512	0.00384	0.00243	2.22623	0.00371	0.00461	-	0.00008	0.01625	0.05604
0.00313	0.00195	0.00328	0.00313	0.00235	0.00149	1.36047	0.00227	0.00281	-	0.00005	0.00993	0.03425
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00313	0.00195	0.00328	0.00313	0.00235	0.00149	1.36047	0.00227	0.00281	-	0.00005	0.00993	0.03425
0.00149	0.00093	0.00157	0.00149	0.00112	0.00071	0.64978	0.00108	0.00134	-	0.00002	0.00474	0.01636
0.00089	-	0.00979	-	-	0.00089	0.44485	-	-	-	0.00048	-	0.00979
0.00238	0.00093	0.01136	0.00149	0.00112	0.00160	1.09463	0.00108	0.00134	-	0.00050	0.00474	0.02614
0.00169	0.00106	0.00178	0.00169	0.00127	0.00080	0.73642	0.00123	0.00152	-	0.00003	0.00538	0.01854
0.00101	-	0.01109	-	-	0.00101	0.50417	-	-	-	0.00054	-	0.01109
0.00270	0.00106	0.01287	0.00169	0.00127	0.00181	1.24059	0.00123	0.00152	-	0.00057	0.00538	0.02963
0.00040	0.00025	0.00042	0.00040	0.00030	0.00019	0.17250	0.00029	0.00036	-	0.00001	0.00126	0.00434
0.00031	-	0.00344	-	-	0.00031	0.15659	-	-	-	0.00017	-	0.00344
0.00071	0.00025	0.00386	0.00040	0.00030	0.00050	0.32909	0.00029	0.00036	-	0.00018	0.00126	0.00779
0.00050	0.00031	0.00052	0.00050	0.00037	0.00024	0.21563	0.00036	0.00045	-	0.00001	0.00157	0.00543
0.00039	-	0.00431	-	-	0.00039	0.19573	-	-	-	0.00021	-	0.00431
0.00089	0.00031	0.00483	0.00050	0.00037	0.00063	0.41136	0.00036	0.00045	-	0.00022	0.00157	0.00973
0.00058	0.00036	0.00061	0.00058	0.00043	0.00027	0.25091	0.00042	0.00052	-	0.00001	0.00183	0.00632
0.00046	-	0.00501	-	-	0.00046	0.22776	-	-	-	0.00025	-	0.00501
0.00103	0.00036	0.00562	0.00058	0.00043	0.00073	0.47868	0.00042	0.00052	-	0.00025	0.00183	0.01133
0.00124	0.00078	0.00130	0.00124	0.00093	0.00059	0.54004	0.00090	0.00112	-	0.00002	0.00394	0.01352
0.00142	-	0.01566	-	-	0.00142	0.71176	-	-	-	0.00077	-	0.01566
0.00266	0.00078	0.01696	0.00124	0.00093	0.00207	1.25186	0.00090	0.00112	-	0.00075	0.00394	0.02920
0.005	0.002	0.027	0.003	0.002	0.004	2.460	0.002	0.003	-	0.001	0.010	0.058
0.003	0.001	0.017	0.001	0.001	0.002	1.252	0.001	0.001	-	0.001	0.004	0.029

San Pedro Waterfront

Unmitigated Alternative 6 Toxic Pollutant Emissions

Year: 2011, 2015, 2022, 2037

Peak Hourly (lb/hr) for Single Type 3 Vessel

Spatial Allocation	Power Type	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic	Bromine
Sea / Fairway - North-Bound	Diesel Engines	4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - North-Bound		4.28639	1.15848	8.68863	0.57924	0.04924	0.09268	1.50603	0.86886	0.65440	0.00096	0.00346
Sea / Fairway - South-Bound	Diesel Engines	5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Sea / Fairway - South-Bound		5.06359	1.36854	10.26404	0.68427	0.05816	0.10948	1.77910	1.02640	0.77305	0.00114	0.00409
Fairway - North-Bound	Diesel Engines	3.28166	0.88693	6.65201	0.44347	0.03769	0.07095	1.15302	0.66520	0.50101	0.00074	0.00265
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - North-Bound		3.28166	0.88693	6.65201	0.44347	0.03769	0.07095	1.15302	0.66520	0.50101	0.00074	0.00265
Fairway - South-Bound	Diesel Engines	2.00546	0.54202	4.06512	0.27101	0.02304	0.04336	0.70462	0.40651	0.30617	0.00045	0.00162
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-
Total in Fairway - South-Bound		2.00546	0.54202	4.06512	0.27101	0.02304	0.04336	0.70462	0.40651	0.30617	0.00045	0.00162
Precautionary Zone - North-Bound	Diesel Engines	0.93797	0.25351	1.90130	0.12675	0.01077	0.02028	0.32956	0.19013	0.14320	0.00021	0.00076
Precautionary Zone - North-Bound	Boiler	-	0.00330	0.00015	0.00169	0.00011	0.00243	0.00695	0.00330	-	0.00961	-
Total Precautionary Zone - North-Bound		0.93797	0.25681	1.90145	0.12844	0.01088	0.02271	0.33651	0.19343	0.14320	0.00982	0.00076
Precautionary Zone - South-Bound	Diesel Engines	1.06304	0.28731	2.15480	0.14365	0.01221	0.02298	0.37350	0.21548	0.16229	0.00024	0.00086
Precautionary Zone - South-Bound	Boiler	-	0.00374	0.00017	0.00191	0.00012	0.00276	0.00788	0.00374	-	0.01089	-
Total Precautionary Zone - South-Bound		1.06304	0.29105	2.15498	0.14556	0.01233	0.02574	0.38138	0.21922	0.16229	0.01113	0.00086
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Diesel Engines	0.24251	0.06554	0.49157	0.03277	0.00279	0.00524	0.08520	0.04916	0.03702	0.00005	0.00020
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽³⁾	Boiler	-	0.00116	0.00005	0.00059	0.00004	0.00086	0.00245	0.00116	-	0.00338	-
Total Outer Harbor Zone1		0.24251	0.06670	0.49162	0.03336	0.00282	0.00610	0.08765	0.05032	0.03702	0.00344	0.00020
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	0.30313	0.08193	0.61446	0.04096	0.00348	0.00655	0.10651	0.06145	0.04628	0.00007	0.00025
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler	-	0.00145	0.00007	0.00074	0.00005	0.00107	0.00306	0.00145	-	0.00423	-
Total Outer Harbor Zone2		0.30313	0.08338	0.61453	0.04171	0.00353	0.00762	0.10957	0.06290	0.04628	0.00430	0.00025
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Diesel Engines	0.35274	0.09533	0.71501	0.04767	0.00405	0.00763	0.12393	0.07150	0.05385	0.00008	0.00029
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths)	Boiler	-	0.00169	0.00008	0.00086	0.00006	0.00125	0.00356	0.00169	-	0.00492	-
Total Inner Harbor Zone		0.35274	0.09703	0.71509	0.04853	0.00411	0.00887	0.12749	0.07319	0.05385	0.00500	0.00029
Holeling	Diesel Engines	0.75090	0.20295	1.52210	0.10147	0.00863	0.01624	0.26383	0.15221	0.11464	0.00017	0.00061
Holeling	Boiler	-	0.00528	0.00024	0.00270	0.00017	0.00389	0.01112	0.00528	-	0.01537	-
Total Holeling		0.75090	0.20823	1.52235	0.10417	0.00880	0.02013	0.27496	0.15749	0.11464	0.01554	0.00061
First Peak Hour Scenario (per vessel)		1.961	0.538	3.976	0.269	0.023	0.048	0.706	0.406	0.299	0.024	0.002
First Peak Hour Scenario - Combined highlighted emissions add up to a peak hour. Although emissions in other zones are higher, those zones are further removed from receptors												
Second Peak Hour Scenario (per vessel)		0.751	0.208	1.522	0.104	0.009	0.020	0.275	0.157	0.115	0.016	0.001
Second Peak Hour Scenario - Emissions at berth may produce a peak hour due to receptor proximity												
For air dispersion modeling, multiply peak hour emissions by maximum number of Type 3 vessels:							0	Year 2011 only				
							0	All other years				

San Pedro Waterfront

Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00770	0.00481	0.00808	0.00770	0.00577	0.00366	3.34897	0.00558	0.00693	-	0.00012	0.02444	0.08430
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00909	0.00568	0.00955	0.00909	0.00682	0.00432	3.95620	0.00659	0.00819	-	0.00014	0.02888	0.09959
0.00589	0.00368	0.00619	0.00589	0.00442	0.00280	2.56397	0.00427	0.00530	-	0.00009	0.01871	0.06454
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00589	0.00368	0.00619	0.00589	0.00442	0.00280	2.56397	0.00427	0.00530	-	0.00009	0.01871	0.06454
0.00360	0.00225	0.00378	0.00360	0.00270	0.00171	1.56687	0.00261	0.00324	-	0.00005	0.01144	0.03944
-	-	-	-	-	-	-	-	-	-	-	-	-
0.00360	0.00225	0.00378	0.00360	0.00270	0.00171	1.56687	0.00261	0.00324	-	0.00005	0.01144	0.03944
0.00168	0.00105	0.00177	0.00168	0.00126	0.00080	0.73284	0.00122	0.00152	-	0.00003	0.00535	0.01845
0.00089	-	0.00979	-	-	0.00089	0.44485	-	-	-	0.00048	-	0.00979
0.00257	0.00105	0.01756	0.00168	0.00126	0.00169	1.17769	0.00122	0.00152	-	0.00051	0.00535	0.02823
0.00191	0.00119	0.00200	0.00191	0.00143	0.00091	0.83055	0.00138	0.00172	-	0.00003	0.00606	0.02091
0.00101	-	0.01109	-	-	0.00101	0.50417	-	-	-	0.00054	-	0.01109
0.00292	0.00119	0.01310	0.00191	0.00143	0.00192	1.33472	0.00138	0.00172	-	0.00057	0.00606	0.03200
0.00044	0.00027	0.00046	0.00044	0.00033	0.00021	0.18947	0.00032	0.00039	-	0.00001	0.00138	0.00477
0.00031	-	0.00344	-	-	0.00031	0.15659	-	-	-	0.00017	-	0.00344
0.00075	0.00027	0.00390	0.00044	0.00033	0.00052	0.34606	0.00032	0.00039	-	0.00018	0.00138	0.00821
0.00054	0.00034	0.00057	0.00054	0.00041	0.00026	0.23684	0.00039	0.00049	-	0.00001	0.00173	0.00596
0.00039	-	0.00431	-	-	0.00039	0.19573	-	-	-	0.00021	-	0.00431
0.00094	0.00034	0.00488	0.00054	0.00041	0.00065	0.43257	0.00039	0.00049	-	0.00022	0.00173	0.01027
0.00063	0.00040	0.00067	0.00063	0.00048	0.00030	0.27559	0.00046	0.00057	-	0.00001	0.00201	0.00694
0.00046	-	0.00501	-	-	0.00046	0.22776	-	-	-	0.00025	-	0.00501
0.00109	0.00040	0.00568	0.00063	0.00048	0.00076	0.50336	0.00046	0.00057	-	0.00026	0.00201	0.01195
0.00135	0.00084	0.00142	0.00135	0.00101	0.00064	0.58668	0.00098	0.00121	-	0.00002	0.00428	0.01477
0.00142	-	0.01566	-	-	0.00142	0.71176	-	-	-	0.00077	-	0.01566
0.00277	0.00084	0.01707	0.00135	0.00101	0.00206	1.29845	0.00098	0.00121	-	0.00079	0.00428	0.03043
0.006	0.002	0.028	0.004	0.003	0.004	2.617	0.003	0.003	-	0.001	0.011	0.062
0.003	0.001	0.017	0.001	0.001	0.002	1.298	0.001	0.001	-	0.001	0.004	0.030

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2011

Year (t/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	1,955										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,955</i>	-	-	-	-	-	-	-	-	-	-
Sea / Fairway - South-Bound	Diesel Engines	82,575										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>82,575</i>	-	-	-	-	-	-	-	-	-	-
Fairway - North-Bound	Diesel Engines	1,465										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,465</i>	-	-	-	-	-	-	-	-	-	-
Fairway - South-Bound	Diesel Engines	24,705										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>24,705</i>	-	-	-	-	-	-	-	-	-	-
Precautionary Zone - North-Bound	Diesel Engines	440										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>440</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	16,653										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.4	4.1	2.0	-	3.5
<i>Total Precautionary Zone - South-Bound</i>		<i>16,653</i>	-	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.4</i>	<i>4.1</i>	<i>2.0</i>	-	<i>3.5</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,022										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.6	0.8	-	1.4
<i>Total Outer Harbor Zone2</i>		<i>5,022</i>	-	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.6</i>	<i>0.8</i>	-	<i>1.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,844										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	1.9	0.9	-	1.6
<i>Total Inner Harbor Zone</i>		<i>5,844</i>	-	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>1.9</i>	<i>0.9</i>	-	<i>1.6</i>
Hoteling	Diesel Engines	75,465										
Hoteling	Boiler		-	17.1	0.8	8.7	0.6	12.6	35.9	17.1	-	30.7
<i>Total Hoteling</i>		<i>75,465</i>	-	<i>17.1</i>	<i>0.8</i>	<i>8.7</i>	<i>0.6</i>	<i>12.6</i>	<i>35.9</i>	<i>17.1</i>	-	<i>30.7</i>
		214,124	-	21	1	11	1	15	44	21	-	37

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.3	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.3	-	-	-	0.0	-	0.1
-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	0.2	-	3.6
-	0.3	-	3.6	-	-	0.3	163.1	-	-	-	0.2	-	3.6
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	0.1	-	1.4
-	0.1	-	1.4	-	-	0.1	65.2	-	-	-	0.1	-	1.4
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	0.1	-	1.7
-	0.2	-	1.7	-	-	0.2	75.9	-	-	-	0.1	-	1.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	1.5	-	31.3
-	2.8	-	31.3	-	-	2.8	1,423.3	-	-	-	1.5	-	31.3
-	3	-	38	-	-	3	1,732	-	-	-	2	-	38

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2015

Year (t/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	1,999										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,999</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	84,417										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>84,417</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,498										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,498</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	25,256										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>25,256</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	450										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>450</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	17,024										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>17,024</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,134										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	1.4
<i>Total Outer Harbor Zone2</i>		<i>5,134</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>1.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,974										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	1.7
<i>Total Inner Harbor Zone</i>		<i>5,974</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>1.7</i>
Hoteling	Diesel Engines	77,148										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hoteling</i>		<i>77,148</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>31.4</i>
		218,899	-	21	1	11	1	16	45	21	-	38

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	4	-	39	-	-	4	1,771	-	-	-	2	-	39

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2022

Year (t/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	1,999										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,999</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	84,417										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>84,417</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,498										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,498</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	25,256										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>25,256</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	450										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>450</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	17,024										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>17,024</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,134										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	1.4
<i>Total Outer Harbor Zone2</i>		<i>5,134</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>1.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,974										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	1.7
<i>Total Inner Harbor Zone</i>		<i>5,974</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>1.7</i>
Hoteling	Diesel Engines	77,148										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hoteling</i>		<i>77,148</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>31.4</i>
		218,899	-	21	1	11	1	16	45	21	-	38

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	4	-	39	-	-	4	1,771	-	-	-	2	-	39

San Pedro Waterfront

Unmitigated Project Toxic Pollutant Emissions

Year: 2037

Year (t/yr)

Spatial Allocation	Power Type	DPM	Acetaldehyde	Benzene	Formaldehyde	Xylenes	Naphthalene	n-Hexane	Propylene	Toluene	Ammonia	Arsenic
Sea / Fairway - North-Bound	Diesel Engines	1,999										
Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>		<i>1,999</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Sea / Fairway - South-Bound	Diesel Engines	84,417										
Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>		<i>84,417</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - North-Bound	Diesel Engines	1,498										
Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>		<i>1,498</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Fairway - South-Bound	Diesel Engines	25,256										
Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>		<i>25,256</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Precautionary Zone - North-Bound	Diesel Engines	450										
Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	0.1
<i>Total Precautionary Zone - North-Bound</i>		<i>450</i>	<i>-</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>-</i>	<i>0.1</i>
Precautionary Zone - South-Bound	Diesel Engines	17,024										
Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	3.6
<i>Total Precautionary Zone - South-Bound</i>		<i>17,024</i>	<i>-</i>	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	<i>-</i>	<i>3.6</i>
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>		<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,134										
Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	1.4
<i>Total Outer Harbor Zone2</i>		<i>5,134</i>	<i>-</i>	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	<i>-</i>	<i>1.4</i>
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,974										
Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	1.7
<i>Total Inner Harbor Zone</i>		<i>5,974</i>	<i>-</i>	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	<i>-</i>	<i>1.7</i>
Hoteling	Diesel Engines	77,148										
Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.7	17.4	-	31.4
<i>Total Hoteling</i>		<i>77,148</i>	<i>-</i>	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.7</i>	<i>17.4</i>	<i>-</i>	<i>31.4</i>
		218,899	-	21	1	11	1	16	45	21	-	38

San Pedro Waterfront

Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	0.3	-	3.7	-	-	0.3	166.8	-	-	-	0.2	-	3.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
-	0.1	-	1.5	-	-	0.1	66.7	-	-	-	0.1	-	1.5
-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
-	0.2	-	1.7	-	-	0.2	77.6	-	-	-	0.1	-	1.7
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	2.9	-	32.0	-	-	2.9	1,455.1	-	-	-	1.6	-	32.0
-	4	-	39	-	-	4	1,771	-	-	-	2	-	39

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 6											
		70-year average	Project Start Year 2009	Evaluation Year			Evaluation Year						
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
DPM													
Sea / Fairway - North-Bound	Diesel Engines	1,997	2,024	2,024	1,955	1,955	1,955	1,955	1,999	1,999	1,999	1,999	1,999
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>													
Sea / Fairway - South-Bound	Diesel Engines	84,342	85,494	85,494	82,575	82,575	82,575	82,575	84,417	84,417	84,417	84,417	84,417
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>													
Fairway - North-Bound	Diesel Engines	1,496	1,501	1,501	1,465	1,465	1,465	1,465	1,498	1,498	1,498	1,498	1,498
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>													
Fairway - South-Bound	Diesel Engines	25,226	25,308	25,308	24,705	24,705	24,705	24,705	25,256	25,256	25,256	25,256	25,256
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>													
Precautionary Zone - North-Bound	Diesel Engines	449	449	449	440	440	440	440	450	450	450	450	450
Precautionary Zone - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - North-Bound</i>													
Precautionary Zone - South-Bound	Diesel Engines	17,002	16,993	16,993	16,653	16,653	16,653	16,653	17,024	17,024	17,024	17,024	17,024
Precautionary Zone - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Precautionary Zone - South-Bound</i>													
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁸	Diesel Engines	-	-	-	-	-	-	-	-	-	-	-	-
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁸	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>													
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁷	Diesel Engines	5,125	5,053	5,053	5,022	5,022	5,022	5,022	5,134	5,134	5,134	5,134	5,134
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁷	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone2</i>													
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines	5,964	5,880	5,880	5,844	5,844	5,844	5,844	5,974	5,974	5,974	5,974	5,974
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Inner Harbor Zone</i>													
Hoteling	Diesel Engines	77,005	75,504	75,504	75,465	75,465	75,465	75,465	77,148	77,148	77,148	77,148	77,148
Hoteling	Boiler	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Hoteling</i>													

San Pedro Waterfront

Evaluation Year																Evaluation Year	
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056
1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148

San Pedro Waterfront

2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999	1,999
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417	84,417
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498	1,498
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256	25,256
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024	17,024
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134	5,134
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974	5,974
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148	77,148

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 6												
		70-year average	Project Start Year	Evaluation Year					Evaluation Year					
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
PM from OGV boilers														
Sea / Fairway - North-Bound	Diesel Engines													
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>														
Sea / Fairway - South-Bound	Diesel Engines													
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>														
Fairway - North-Bound	Diesel Engines													
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>														
Fairway - South-Bound	Diesel Engines													
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>														
Precautionary Zone - North-Bound	Diesel Engines													
Precautionary Zone - North-Bound	Boiler	18	17	17	17	17	17	17	18	18	18	18	18	18
<i>Total Precautionary Zone - North-Bound</i>														
Precautionary Zone - South-Bound	Diesel Engines													
Precautionary Zone - South-Bound	Boiler	665	626	626	653	653	653	653	667	667	667	667	667	667
<i>Total Precautionary Zone - South-Bound</i>														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁸	Diesel Engines													
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁸	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁹	Diesel Engines													
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁹	Boiler	266	250	250	261	261	261	261	267	267	267	267	267	267
<i>Total Outer Harbor Zone2</i>														
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines													
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	309	291	291	304	304	304	304	310	310	310	310	310	310
<i>Total Inner Harbor Zone</i>														
Hoteling	Diesel Engines													
Hoteling	Boiler	5,803	5,460	5,460	5,693	5,693	5,693	5,693	5,820	5,820	5,820	5,820	5,820	5,820
<i>Total Hoteling</i>														

San Pedro Waterfront

Evaluation Year																Evaluation Year	
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
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267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
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667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
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267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267
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310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

San Pedro Waterfront

2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
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667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667	667
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267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267	267
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310	310
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820	5,820

San Pedro Waterfront

70-Year Average Calculations		Unmitigated Alternative 6												
		70-year average	Project Start Year	Evaluation Year					Evaluation Year					
			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
VOC from OGV boilers														
Sea / Fairway - North-Bound	Diesel Engines													
Sea / Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - North-Bound</i>														
Sea / Fairway - South-Bound	Diesel Engines													
Sea / Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Sea / Fairway - South-Bound</i>														
Fairway - North-Bound	Diesel Engines													
Fairway - North-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - North-Bound</i>														
Fairway - South-Bound	Diesel Engines													
Fairway - South-Bound	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total in Fairway - South-Bound</i>														
Precautionary Zone - North-Bound	Diesel Engines													
Precautionary Zone - North-Bound	Boiler	2	2	2	2	2	2	2	2	2	2	2	2	2
<i>Total Precautionary Zone - North-Bound</i>														
Precautionary Zone - South-Bound	Diesel Engines													
Precautionary Zone - South-Bound	Boiler	88	82	82	86	86	86	86	88	88	88	88	88	88
<i>Total Precautionary Zone - South-Bound</i>														
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁸	Diesel Engines													
Outer Harbor Zone1 (vessels bound to outer harbor berths) ¹⁸	Boiler	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Total Outer Harbor Zone1</i>														
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁷	Diesel Engines													
Outer Harbor Zone2 (vessels bound to inner harbor berths) ¹⁷	Boiler	35	33	33	34	34	34	34	35	35	35	35	35	35
<i>Total Outer Harbor Zone2</i>														
Inner Harbor Zone (maneuvering through main channel: inn)	Diesel Engines													
Inner Harbor Zone (maneuvering through main channel: inn)	Boiler	41	38	38	40	40	40	40	41	41	41	41	41	41
<i>Total Inner Harbor Zone</i>														
Hoteling	Diesel Engines													
Hoteling	Boiler	764	719	719	749	749	749	749	766	766	766	766	766	766
<i>Total Hoteling</i>														

San Pedro Waterfront

Evaluation Year																Evaluation Year	
2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
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35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056
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88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
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35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
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41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
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766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	End of 70 years 2078
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2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88
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35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
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766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766	766

San Pedro Waterfront

Unmitigated Alternative 6 Toxic Pollutant Emissions

70-Year Average

Year (lb/yr)	Spatial Allocation	Power Type	DPM	VOC							PM		
				Acetaldehyde	Benzene	Formaldehyde	Xylenes	Napthalene	n-Hexane	Propylene	Toluene	Ammonia	
	Sea / Fairway - North-Bound	Diesel Engines	1,997										
	Sea / Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - North-Bound</i>		<i>1,997</i>	-	-	-	-	-	-	-	-	-	-
	Sea / Fairway - South-Bound	Diesel Engines	84,342										
	Sea / Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Sea / Fairway - South-Bound</i>		<i>84,342</i>	-	-	-	-	-	-	-	-	-	-
	Fairway - North-Bound	Diesel Engines	1,496										
	Fairway - North-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - North-Bound</i>		<i>1,496</i>	-	-	-	-	-	-	-	-	-	-
	Fairway - South-Bound	Diesel Engines	25,226										
	Fairway - South-Bound	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total in Fairway - South-Bound</i>		<i>25,226</i>	-	-	-	-	-	-	-	-	-	-
	Precautionary Zone - North-Bound	Diesel Engines	449										
	Precautionary Zone - North-Bound	Boiler		-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	-	-
	<i>Total Precautionary Zone - North-Bound</i>		<i>449</i>	-	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	-	-
	Precautionary Zone - South-Bound	Diesel Engines	17,002										
	Precautionary Zone - South-Bound	Boiler		-	2.0	0.1	1.0	0.1	1.5	4.2	2.0	-	-
	<i>Total Precautionary Zone - South-Bound</i>		<i>17,002</i>	-	<i>2.0</i>	<i>0.1</i>	<i>1.0</i>	<i>0.1</i>	<i>1.5</i>	<i>4.2</i>	<i>2.0</i>	-	-
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Diesel Engines	-										
	Outer Harbor Zone1 (vessels bound to outer harbor berths) ⁽⁵⁾	Boiler		-	-	-	-	-	-	-	-	-	-
	<i>Total Outer Harbor Zone1</i>		<i>-</i>	-	-	-	-	-	-	-	-	-	-
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Diesel Engines	5,125										
	Outer Harbor Zone2 (vessels bound to inner harbor berths) ⁽²⁾	Boiler		-	0.8	0.0	0.4	0.0	0.6	1.7	0.8	-	-
	<i>Total Outer Harbor Zone2</i>		<i>5,125</i>	-	<i>0.8</i>	<i>0.0</i>	<i>0.4</i>	<i>0.0</i>	<i>0.6</i>	<i>1.7</i>	<i>0.8</i>	-	-
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Diesel Engines	5,964										
	Inner Harbor Zone (maneuvering through main channel: inner harbor to inner harbor berths):	Boiler		-	0.9	0.0	0.5	0.0	0.7	2.0	0.9	-	-
	<i>Total Inner Harbor Zone</i>		<i>5,964</i>	-	<i>0.9</i>	<i>0.0</i>	<i>0.5</i>	<i>0.0</i>	<i>0.7</i>	<i>2.0</i>	<i>0.9</i>	-	-
	Hoteling	Diesel Engines	77,005										
	Hoteling	Boiler		-	17.4	0.8	8.9	0.6	12.8	36.6	17.4	-	-
	<i>Total Hoteling</i>		<i>77,005</i>	-	<i>17.4</i>	<i>0.8</i>	<i>8.9</i>	<i>0.6</i>	<i>12.8</i>	<i>36.6</i>	<i>17.4</i>	-	-

San Pedro Waterfront

Arsenic	Bromine	Cadmium	Copper	Lead	Manganese	Mercury	Nickel	Sulfates	Vanadium	Antimony	Chlorine	Hexavalent Chromium	Phosphorous	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.1	-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
0.1	-	0.0	-	0.1	-	-	0.0	4.4	-	-	-	0.0	-	0.1
3.6	-	0.3	-	3.7	-	-	0.3	166.3	-	-	-	0.2	-	3.7
3.6	-	0.3	-	3.7	-	-	0.3	166.3	-	-	-	0.2	-	3.7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4	-	0.1	-	1.5	-	-	0.1	66.5	-	-	-	0.1	-	1.5
1.4	-	0.1	-	1.5	-	-	0.1	66.5	-	-	-	0.1	-	1.5
1.7	-	0.2	-	1.7	-	-	0.2	77.4	-	-	-	0.1	-	1.7
1.7	-	0.2	-	1.7	-	-	0.2	77.4	-	-	-	0.1	-	1.7
31.3	-	2.9	-	31.9	-	-	2.9	1,450.7	-	-	-	1.6	-	31.9
31.3	-	2.9	-	31.9	-	-	2.9	1,450.7	-	-	-	1.6	-	31.9