

**APPENDIX C**  
**Air Quality Appendices**

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# **Appendix C1**

## **Criteria Pollutant and GHG Emission Calculations**

(Tables in Appendix C1 (Criteria Pollutant and GHG Emission Calculations) have all been updated according to the revised No Project Alternative analysis in the FEIR. Changes in emissions are reflected in Hobart-bound trucks and locomotive sources.)

# **Appendix C1.1**

## **Construction Emission Calculations**

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**Table C1.1-1. Unmitigated Construction Equipment Emission Factors Derived from OFFROAD 2007 for 2013 South Coast Air Basin Diesel Construction Equipment**

Construction Equipment	Type	HP Bin	HP	Emission Factor (g/bhp-hr)					
				TOG	CO	NOX	SO2	PM	PM2.5
<b>Construction Year 2013</b>									
14 T Rough Terrain Crane	Offroad	175	155	0.830	3.410	5.100	0.006	0.260	0.239
14 T Rough Terrain Crane	Offroad	175	175	0.830	3.410	5.100	0.006	0.260	0.239
300 scfm Air Compressor	Offroad	175	125	0.774	3.246	5.385	0.006	0.300	0.276
Auger	Offroad	250	177	0.273	1.036	2.306	0.006	0.067	0.061
Auger	Offroad	250	190	0.273	1.036	2.306	0.006	0.067	0.061
Backhoe	Offroad	120	101	0.868	3.877	5.015	0.007	0.421	0.387
Backhoe	Offroad	500	500	0.430	1.227	3.405	0.006	0.115	0.106
Cat 572 Pipe Layer	Offroad	250	230	0.600	1.494	4.900	0.006	0.160	0.147
Concrete Power Saw	Offroad	25	10	0.781	2.340	4.336	0.007	0.168	0.155
Concrete Pump	Offroad	250	177	0.407	1.188	4.555	0.006	0.129	0.119
Crane	Offroad	175	173	0.830	3.410	5.100	0.006	0.260	0.239
Crane	Offroad	175	175	0.830	3.410	5.100	0.006	0.260	0.239
Crushers	Offroad	500	270	0.452	1.290	4.121	0.006	0.134	0.124
Diesel Hammer	Offroad	50	44	1.740	5.386	5.100	0.007	0.390	0.359
Dozer	Offroad	500	310	0.784	3.053	4.700	0.006	0.140	0.129
Dozers	Offroad	500	310	0.784	3.053	4.700	0.006	0.140	0.129
Excavator	Offroad	175	168	0.696	3.377	4.523	0.006	0.259	0.239
Excavator	Offroad	500	321	0.480	1.282	3.589	0.006	0.125	0.115
Foot Roller	Offroad	175	143	0.746	3.258	5.100	0.006	0.260	0.239
Fork Lift	Offroad	175	125	0.661	3.353	4.320	0.006	0.249	0.229
Front End Loader	Offroad	250	197	0.454	1.213	3.858	0.006	0.122	0.113
Front End Loader	Offroad	500	262	0.430	1.227	3.405	0.006	0.115	0.106
Front End Loader	Offroad	500	500	0.430	1.227	3.405	0.006	0.115	0.106
Front End Loader/Backhoe	Offroad	120	101	0.868	3.877	5.015	0.007	0.421	0.387
Front End Loader/Backhoe	Offroad	500	500	0.430	1.227	3.405	0.006	0.115	0.106
Grader	Offroad	175	145	0.766	3.369	5.100	0.006	0.260	0.239
Large Crane	Offroad	250	230	0.600	1.494	4.900	0.006	0.160	0.147
Large Crane	Offroad	500	450	0.557	1.670	4.490	0.006	0.140	0.129
Motor Grader	Offroad	175	145	0.766	3.369	5.100	0.006	0.260	0.239
P.D Crane	Offroad	175	175	0.830	3.410	5.100	0.006	0.260	0.239
P.D Crane	Offroad	250	230	0.600	1.494	4.900	0.006	0.160	0.147
Paving Machine	Offroad	175	170	0.888	3.420	5.100	0.006	0.260	0.239
Paving Machine	Offroad	175	175	0.888	3.420	5.100	0.006	0.260	0.239
Pile driver Crane	Offroad	250	230	0.600	1.494	4.900	0.006	0.160	0.147
Pumps	Offroad	120	60	0.953	3.633	5.618	0.007	0.300	0.276
Self Loading Scrappers	Offroad	500	365	0.641	2.142	4.700	0.006	0.140	0.129
Sheep's Foot Roller	Offroad	175	143	0.746	3.258	5.100	0.006	0.260	0.239
Slip Form Machine	Offroad	500	250	0.369	1.170	3.395	0.006	0.110	0.101
Speed Swing	Offroad	175	170	0.630	3.285	4.314	0.006	0.240	0.221
Striping Machines	Offroad	120	60	0.768	3.355	5.219	0.007	0.346	0.319
Sweeper	Offroad	175	160	0.670	3.270	4.581	0.006	0.260	0.239
Track Hoe	Offroad	500	321	0.480	1.282	3.589	0.006	0.125	0.115
Vibratory Roller	Offroad	175	142	0.746	3.258	5.100	0.006	0.260	0.239
Vibratory Roller	Offroad	250	240	0.533	1.443	4.872	0.006	0.160	0.147
Vibratory rollers	Offroad	175	138	0.746	3.258	5.100	0.006	0.260	0.239
Vibratory Rollers	Offroad	175	142	0.746	3.258	5.100	0.006	0.260	0.239
Vibratory Rollers	Offroad	175	143	0.746	3.258	5.100	0.006	0.260	0.239
Vibratory Rollers	Offroad	250	240	0.533	1.443	4.872	0.006	0.160	0.147
Vibratory Trench Rollers	Offroad	50	50	2.551	6.367	5.100	0.007	0.390	0.359
Welding Unit	Offroad	50	50	2.441	6.028	5.549	0.007	0.525	0.483

**Table C1.1-2. Unmitigated Construction Equipment Emission Factors Derived from OFFROAD 2007 for 2014 South Coast Air Basin Diesel Construction Equipment**

Construction Equipment	Type	HP Bin	HP	Emission Factor (g/bhp-hr)					
				TOG	CO	NOX	SO2	PM	PM2.5
<b>Construction Year 2014</b>									
14 T Rough Terrain Crane	Offroad	175	155	0.787	3.400	4.700	0.006	0.180	0.166
14 T Rough Terrain Crane	Offroad	175	175	0.787	3.400	4.700	0.006	0.180	0.166
300 scfm Air Compressor	Offroad	175	125	0.719	3.234	5.034	0.006	0.277	0.254
Auger	Offroad	250	177	0.253	1.035	1.855	0.006	0.054	0.050
Auger	Offroad	250	190	0.253	1.035	1.855	0.006	0.054	0.050
Backhoe	Offroad	120	101	0.793	3.848	4.671	0.007	0.230	0.212
Backhoe	Offroad	500	500	0.410	1.194	2.700	0.006	0.103	0.095
Cat 572 Pipe Layer	Offroad	250	230	0.565	1.427	2.800	0.006	0.110	0.101
Concrete Power Saw	Offroad	25	10	0.780	2.340	4.332	0.007	0.165	0.151
Concrete Pump	Offroad	250	177	0.377	1.156	4.145	0.006	0.117	0.108
Crane	Offroad	175	173	0.787	3.400	4.700	0.006	0.180	0.166
Crane	Offroad	175	175	0.787	3.400	4.700	0.006	0.180	0.166
Crushers	Offroad	500	270	0.429	1.231	3.702	0.006	0.122	0.112
Diesel Hammer	Offroad	50	44	1.548	5.223	4.900	0.007	0.290	0.267
Dozer	Offroad	500	310	0.750	2.855	2.700	0.006	0.110	0.101
Dozers	Offroad	500	310	0.750	2.855	2.700	0.006	0.110	0.101
Excavator	Offroad	175	168	0.654	3.373	4.215	0.006	0.180	0.166
Excavator	Offroad	500	321	0.458	1.241	2.700	0.006	0.110	0.101
Foot Roller	Offroad	175	143	0.704	3.248	4.700	0.006	0.180	0.166
Fork Lift	Offroad	175	125	0.605	3.357	3.937	0.006	0.180	0.166
Front End Loader	Offroad	250	197	0.430	1.194	2.800	0.006	0.109	0.100
Front End Loader	Offroad	500	262	0.410	1.194	2.700	0.006	0.103	0.095
Front End Loader	Offroad	500	500	0.410	1.194	2.700	0.006	0.103	0.095
Front End Loader/Backhoe	Offroad	120	101	0.793	3.848	4.671	0.007	0.230	0.212
Front End Loader/Backhoe	Offroad	500	500	0.410	1.194	2.700	0.006	0.103	0.095
Grader	Offroad	175	145	0.724	3.362	4.700	0.006	0.180	0.166
Large Crane	Offroad	250	230	0.565	1.427	2.800	0.006	0.110	0.101
Large Crane	Offroad	500	450	0.527	1.561	2.700	0.006	0.110	0.101
Motor Grader	Offroad	175	145	0.724	3.362	4.700	0.006	0.180	0.166
P.D Crane	Offroad	175	175	0.787	3.400	4.700	0.006	0.180	0.166
P.D Crane	Offroad	250	230	0.565	1.427	2.800	0.006	0.110	0.101
Paving Machine	Offroad	175	170	0.847	3.403	4.700	0.006	0.180	0.166
Paving Machine	Offroad	175	175	0.847	3.403	4.700	0.006	0.180	0.166
Pile driver Crane	Offroad	250	230	0.565	1.427	2.800	0.006	0.110	0.101
Pumps	Offroad	120	60	0.870	3.597	5.279	0.007	0.300	0.276
Self Loading Scrappers	Offroad	500	365	0.610	2.008	2.700	0.006	0.110	0.101
Sheep's Foot Roller	Offroad	175	143	0.704	3.248	4.700	0.006	0.180	0.166
Slip Form Machine	Offroad	500	250	0.351	1.136	2.700	0.006	0.099	0.091
Speed Swing	Offroad	175	170	0.590	3.283	4.014	0.006	0.180	0.166
Striping Machines	Offroad	120	60	0.694	3.323	4.905	0.007	0.240	0.221
Sweeper	Offroad	175	160	0.613	3.269	4.203	0.006	0.180	0.166
Track Hoe	Offroad	500	321	0.458	1.241	2.700	0.006	0.110	0.101
Vibratory Roller	Offroad	175	142	0.704	3.248	4.700	0.006	0.180	0.166
Vibratory Roller	Offroad	250	240	0.499	1.380	2.800	0.006	0.110	0.101
Vibratory rollers	Offroad	175	138	0.704	3.248	4.700	0.006	0.180	0.166
Vibratory Rollers	Offroad	175	142	0.704	3.248	4.700	0.006	0.180	0.166
Vibratory Rollers	Offroad	175	143	0.704	3.248	4.700	0.006	0.180	0.166
Vibratory Rollers	Offroad	250	240	0.499	1.380	2.800	0.006	0.110	0.101
Vibratory Trench Rollers	Offroad	50	50	2.357	6.192	4.900	0.007	0.290	0.267
Welding Unit	Offroad	50	50	2.209	5.805	5.331	0.007	0.480	0.442

**Table C1.1-3. Mitigated Construction Equipment Emission Factors for 2013 South Coast Air Basin Diesel Construction Equipment**

Construction Equipment	Type	HP Bin	HP	Emission Factor (g/bhp-hr)					
				TOG	CO	NOX	SO2	PM10	PM2.5
<b>Construction Year 2013</b>									
14 T Rough Terrain Crane	Offroad	175	155	0.308	3.400	4.195	0.006	0.068	0.063
14 T Rough Terrain Crane	Offroad	175	175	0.308	3.400	4.195	0.006	0.068	0.063
300 scfm Air Compressor	Offroad	175	125	0.308	3.234	4.195	0.006	0.068	0.063
Auger	Offroad	250	177	0.253	1.035	1.855	0.006	0.048	0.044
Auger	Offroad	250	190	0.253	1.035	1.855	0.006	0.048	0.044
Backhoe	Offroad	120	101	0.393	3.731	4.634	0.007	0.075	0.069
Backhoe	Offroad	500	500	0.410	1.194	2.700	0.006	0.048	0.044
Cat 572 Pipe Layer	Offroad	250	230	0.565	1.427	2.800	0.006	0.048	0.044
Concrete Power Saw	Offroad	25	10	0.319	2.340	4.332	0.007	0.109	0.100
Concrete Pump	Offroad	250	177	0.377	1.156	4.145	0.006	0.048	0.044
Crane	Offroad	175	173	0.308	3.400	4.195	0.006	0.068	0.063
Crane	Offroad	175	175	0.308	3.400	4.195	0.006	0.068	0.063
Crushers	Offroad	500	270	0.429	1.231	3.702	0.006	0.048	0.044
Diesel Hammer	Offroad	50	44	0.319	4.104	4.900	0.007	0.091	0.084
Dozer	Offroad	500	310	0.657	2.855	2.700	0.006	0.048	0.044
Dozers	Offroad	500	310	0.657	2.855	2.700	0.006	0.048	0.044
Excavator	Offroad	175	168	0.308	3.373	4.195	0.006	0.068	0.063
Excavator	Offroad	500	321	0.458	1.241	2.700	0.006	0.048	0.044
Foot Roller	Offroad	175	143	0.308	3.248	4.195	0.006	0.068	0.063
Fork Lift	Offroad	175	125	0.308	3.357	3.937	0.006	0.068	0.063
Front End Loader	Offroad	250	197	0.430	1.194	2.800	0.006	0.048	0.044
Front End Loader	Offroad	500	262	0.410	1.194	2.700	0.006	0.048	0.044
Front End Loader	Offroad	500	500	0.410	1.194	2.700	0.006	0.048	0.044
Front End Loader/Backhoe	Offroad	120	101	0.393	3.731	4.634	0.007	0.075	0.069
Front End Loader/Backhoe	Offroad	500	500	0.410	1.194	2.700	0.006	0.048	0.044
Grader	Offroad	175	145	0.308	3.362	4.195	0.006	0.068	0.063
Large Crane	Offroad	250	230	0.565	1.427	2.800	0.006	0.048	0.044
Large Crane	Offroad	500	450	0.527	1.561	2.700	0.006	0.048	0.044
Motor Grader	Offroad	175	145	0.308	3.362	4.195	0.006	0.068	0.063
P.D Crane	Offroad	175	175	0.308	3.400	4.195	0.006	0.068	0.063
P.D Crane	Offroad	250	230	0.565	1.427	2.800	0.006	0.048	0.044
Paving Machine	Offroad	175	170	0.308	3.403	4.195	0.006	0.068	0.063
Paving Machine	Offroad	175	175	0.308	3.403	4.195	0.006	0.068	0.063
Pile driver Crane	Offroad	250	230	0.565	1.427	2.800	0.006	0.048	0.044
Pumps	Offroad	120	60	0.393	3.597	4.634	0.007	0.075	0.069
Self Loading Scrappers	Offroad	500	365	0.610	2.008	2.700	0.006	0.048	0.044
Sheep's Foot Roller	Offroad	175	143	0.308	3.248	4.195	0.006	0.068	0.063
Slip Form Machine	Offroad	500	250	0.351	1.136	2.700	0.006	0.048	0.044
Speed Swing	Offroad	175	170	0.308	3.283	4.014	0.006	0.068	0.063
Striping Machines	Offroad	120	60	0.393	3.323	4.634	0.007	0.075	0.069
Sweeper	Offroad	175	160	0.308	3.269	4.195	0.006	0.068	0.063
Track Hoe	Offroad	500	321	0.458	1.241	2.700	0.006	0.048	0.044
Vibratory Roller	Offroad	175	142	0.308	3.248	4.195	0.006	0.068	0.063
Vibratory Roller	Offroad	250	240	0.499	1.380	2.800	0.006	0.048	0.044
Vibratory rollers	Offroad	175	138	0.308	3.248	4.195	0.006	0.068	0.063
Vibratory Rollers	Offroad	175	142	0.308	3.248	4.195	0.006	0.068	0.063
Vibratory Rollers	Offroad	175	143	0.308	3.248	4.195	0.006	0.068	0.063
Vibratory Rollers	Offroad	250	240	0.499	1.380	2.800	0.006	0.048	0.044
Vibratory Trench Rollers	Offroad	50	50	0.319	4.104	4.900	0.007	0.091	0.084
Welding Unit	Offroad	50	50	0.319	4.104	5.331	0.007	0.091	0.084



**Table C1.1-4. Mitigated Construction Equipment Emission Factors for 2014 South Coast Air Basin Diesel Construction Equipment**

Construction Equipment	Type	HP Bin	HP	Emission Factor (g/bhp-hr)					
				TOG	CO	NOX	SO2	PM10	PM2.5
<b>Construction Year 2014</b>									
14 T Rough Terrain Crane	Offroad	175	155	0.308	3.400	4.195	0.006	0.068	0.063
14 T Rough Terrain Crane	Offroad	175	175	0.308	3.400	4.195	0.006	0.068	0.063
300 scfm Air Compressor	Offroad	175	125	0.308	3.234	4.195	0.006	0.068	0.063
Auger	Offroad	250	177	0.253	1.035	1.855	0.006	0.048	0.044
Auger	Offroad	250	190	0.253	1.035	1.855	0.006	0.048	0.044
Backhoe	Offroad	120	101	0.393	3.731	4.634	0.007	0.075	0.069
Backhoe	Offroad	500	500	0.410	1.194	2.700	0.006	0.048	0.044
Cat 572 Pipe Layer	Offroad	250	230	0.565	1.427	2.800	0.006	0.048	0.044
Concrete Power Saw	Offroad	25	10	0.319	2.340	4.332	0.007	0.109	0.100
Concrete Pump	Offroad	250	177	0.377	1.156	4.145	0.006	0.048	0.044
Crane	Offroad	175	173	0.308	3.400	4.195	0.006	0.068	0.063
Crane	Offroad	175	175	0.308	3.400	4.195	0.006	0.068	0.063
Crushers	Offroad	500	270	0.429	1.231	3.702	0.006	0.048	0.044
Diesel Hammer	Offroad	50	44	0.319	4.104	4.900	0.007	0.091	0.084
Dozer	Offroad	500	310	0.657	2.855	2.700	0.006	0.048	0.044
Dozers	Offroad	500	310	0.657	2.855	2.700	0.006	0.048	0.044
Excavator	Offroad	175	168	0.308	3.373	4.195	0.006	0.068	0.063
Excavator	Offroad	500	321	0.458	1.241	2.700	0.006	0.048	0.044
Foot Roller	Offroad	175	143	0.308	3.248	4.195	0.006	0.068	0.063
Fork Lift	Offroad	175	125	0.308	3.357	3.937	0.006	0.068	0.063
Front End Loader	Offroad	250	197	0.430	1.194	2.800	0.006	0.048	0.044
Front End Loader	Offroad	500	262	0.410	1.194	2.700	0.006	0.048	0.044
Front End Loader	Offroad	500	500	0.410	1.194	2.700	0.006	0.048	0.044
Front End Loader/Backhoe	Offroad	120	101	0.393	3.731	4.634	0.007	0.075	0.069
Front End Loader/Backhoe	Offroad	500	500	0.410	1.194	2.700	0.006	0.048	0.044
Grader	Offroad	175	145	0.308	3.362	4.195	0.006	0.068	0.063
Large Crane	Offroad	250	230	0.565	1.427	2.800	0.006	0.048	0.044
Large Crane	Offroad	500	450	0.527	1.561	2.700	0.006	0.048	0.044
Motor Grader	Offroad	175	145	0.308	3.362	4.195	0.006	0.068	0.063
P.D Crane	Offroad	175	175	0.308	3.400	4.195	0.006	0.068	0.063
P.D Crane	Offroad	250	230	0.565	1.427	2.800	0.006	0.048	0.044
Paving Machine	Offroad	175	170	0.308	3.403	4.195	0.006	0.068	0.063
Paving Machine	Offroad	175	175	0.308	3.403	4.195	0.006	0.068	0.063
Pile driver Crane	Offroad	250	230	0.565	1.427	2.800	0.006	0.048	0.044
Pumps	Offroad	120	60	0.393	3.597	4.634	0.007	0.075	0.069
Self Loading Scrappers	Offroad	500	365	0.610	2.008	2.700	0.006	0.048	0.044
Sheep's Foot Roller	Offroad	175	143	0.308	3.248	4.195	0.006	0.068	0.063
Slip Form Machine	Offroad	500	250	0.351	1.136	2.700	0.006	0.048	0.044
Speed Swing	Offroad	175	170	0.308	3.283	4.014	0.006	0.068	0.063
Striping Machines	Offroad	120	60	0.393	3.323	4.634	0.007	0.075	0.069
Sweeper	Offroad	175	160	0.308	3.269	4.195	0.006	0.068	0.063
Track Hoe	Offroad	500	321	0.458	1.241	2.700	0.006	0.048	0.044
Vibratory Roller	Offroad	175	142	0.308	3.248	4.195	0.006	0.068	0.063
Vibratory Roller	Offroad	250	240	0.499	1.380	2.800	0.006	0.048	0.044
Vibratory rollers	Offroad	175	138	0.308	3.248	4.195	0.006	0.068	0.063
Vibratory Rollers	Offroad	175	142	0.308	3.248	4.195	0.006	0.068	0.063
Vibratory Rollers	Offroad	175	143	0.308	3.248	4.195	0.006	0.068	0.063
Vibratory Rollers	Offroad	250	240	0.499	1.380	2.800	0.006	0.048	0.044
Vibratory Trench Rollers	Offroad	50	50	0.319	4.104	4.900	0.007	0.091	0.084
Welding Unit	Offroad	50	50	0.319	4.104	5.331	0.007	0.091	0.084

**Table C1.1-5. Unmitigated Emission Factors for Construction Activities not Included in the OFFROAD Model**

Construction Equipment	Type	Average HP	EF Units	Emission Factors						Notes
				VOC	CO	NOX	SO2	PM10	PM2.5	
<b>Construction Year 2013</b>										
Tie Tamper	Off-road	125	g/bhp-hr	0.88	3.76	5.78	0.01	0.67	0.62	(1)
Switch Tamper	Off-road	250	g/bhp-hr	0.80	3.28	5.50	0.01	0.57	0.53	(1)
Ballast Track Regulator	Off-road	185	g/bhp-hr	0.80	3.28	5.50	0.01	0.57	0.53	(1)
Production Tamper	Off-road	250	g/bhp-hr	0.80	3.28	5.50	0.01	0.57	0.53	(1)
Shoulder Compactor	Off-road	300	g/bhp-hr	0.71	3.79	5.67	0.01	0.52	0.48	(1)
Construction (except demolition)	Fugitive dust	N/A	lb/acre-day	--	--	--	--	4.17	0.87	(2)
Building Demolition	Fugitive dust	N/A	lb/1000 cubit ft	--	--	--	--	0.24	0.05	(3)
<b>Construction Year 2014</b>										
Tie Tamper	Off-road	125	g/bhp-hr	0.82	3.47	5.39	0.01	0.63	0.58	(1)
Switch Tamper	Off-road	250	g/bhp-hr	0.74	3.01	5.12	0.01	0.53	0.49	(1)
Ballast Track Regulator	Off-road	185	g/bhp-hr	0.74	3.01	5.12	0.01	0.53	0.49	(1)
Production Tamper	Off-road	250	g/bhp-hr	0.74	3.01	5.12	0.01	0.53	0.49	(1)
Shoulder Compactor	Off-road	300	g/bhp-hr	0.66	3.52	5.30	0.01	0.49	0.45	(1)
Construction (except demolition)	Fugitive dust	N/A	lb/acre-day	--	--	--	--	4.17	0.87	(2)
Building Demolition	Fugitive dust	N/A	lb/1000 cubit ft	--	--	--	--	0.24	0.05	(3)

Notes:

(1) Source: EPA NONROAD model with default assumptions for track maintenance equipment.

(2) Compilation of Air Pollutant Emission Factors, AP-42, Volume 1, Section 13.2.3 (EPA 1995). The EPA emission factor is reduced by 69% to reflect site watering in compliance with SCAQMD Rule 403.

(3) CEQA Air Quality Handbook, Table A9-9-H (SCAQMD 1993). Units in lbs/1000 cubic feet (cf) of demolished building. The emissions factor is applied with control efficiency of 36% by applying water every 4 hours to the area within 100 feet of a structure being demolished, to reduce vehicle trackout and 10% by applying water to disturbed soils after demolition is completed or at the end of each day of cleanup.

**Table C1.1-6. Mitigated Emission Factors for Construction Activities not Included in the OFFROAD Model**

Construction Equipment	Type	Average HP	EF Units	Emission Factors						Notes
				VOC	CO	NOX	SO2	PM10	PM2.5	
<b>Construction Year 2013</b>										
Tie Tamper	Off-road	125	g/bhp-hr	0.27	3.73	4.19	0.01	0.07	0.06	(1)
Switch Tamper	Off-road	250	g/bhp-hr	0.58	3.28	4.24	0.01	0.05	0.04	(1)
Ballast Track Regulator	Off-road	185	g/bhp-hr	0.58	3.28	4.24	0.01	0.05	0.04	(1)
Production Tamper	Off-road	250	g/bhp-hr	0.58	3.28	4.24	0.01	0.05	0.04	(1)
Shoulder Compactor	Off-road	300	g/bhp-hr	0.58	3.79	4.24	0.01	0.05	0.04	(1)
Construction (except demolition)	Fugitive dust	N/A	lb/acre-day	--	--	--	--	0.42	0.09	(2)
Building Demolition	Fugitive dust	N/A	lb/1000 cubit ft	--	--	--	--	0.02	0.01	(3)
<b>Construction Year 2014</b>										
Tie Tamper	Off-road	125	g/bhp-hr	0.27	3.47	4.19	0.01	0.07	0.06	(1)
Switch Tamper	Off-road	250	g/bhp-hr	0.58	3.01	4.24	0.01	0.05	0.04	(1)
Ballast Track Regulator	Off-road	185	g/bhp-hr	0.58	3.01	4.24	0.01	0.05	0.04	(1)
Production Tamper	Off-road	250	g/bhp-hr	0.58	3.01	4.24	0.01	0.05	0.04	(1)
Shoulder Compactor	Off-road	300	g/bhp-hr	0.58	3.52	4.24	0.01	0.05	0.04	(1)
Construction (except demolition)	Fugitive dust	N/A	lb/acre-day	--	--	--	--	0.42	0.09	(2)
Building Demolition	Fugitive dust	N/A	lb/1000 cubit ft	--	--	--	--	0.02	0.01	(3)

Notes:

(1) Source: EPA NONROAD model with default assumptions for track maintenance equipment. The Port's Construction Guidelines on off-road equipment emission standards are applied where appropriate.

(2) Compilation of Air Pollutant Emission Factors, AP-42, Volume 1, Section 13.2.3 (EPA 1995). The EPA emission factor is reduced by 69% to reflect site watering in compliance with SCAQMD Rule 403. For the mitigation case, emissions are further reduced by 90% per the Port's Construction Guidelines.

(3) CEQA Air Quality Handbook, Table A9-9-H (SCAQMD 1993). Units in lbs/1000 cubic feet (cf) of demolished building. Control efficiency factors of 36% and 10% are applied to the emission factors to reflect applying water every 4 hours to the area within 100 feet of a structure being demolished to reduce vehicle trackout and applying water to disturbed soils after demolition is completed or at the end of each day of cleanup, respectively. For the mitigation case, emissions are further reduced by 90%.

**Table C1.1-7. Unmitigated Case: Emission Factors for On-road Diesel Trucks from EMFAC2011 Model**

Construction Equipment	Type	Emission Factor (g/mile movement or g/hour idling)										Notes
		VOC	CO	NOX	SO2	PM10 On-Site (inc. paved road dust) <sup>(3)</sup>	PM2.5 On-Site (inc. paved road dust) <sup>(3)</sup>	PM10 On-Site (inc. unpaved road dust) <sup>(4)</sup>	PM2.5 On-Site (inc. unpaved road dust) <sup>(4)</sup>	PM10 Off-Site (inc. paved road dust) <sup>(3) (5)</sup>	PM2.5 Off-Site (inc. paved road dust) <sup>(3) (5)</sup>	
<b>Construction Year 2013</b>												
On-road Truck - idle	Onroad - MHDT	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34	3.63	3.34	(1)
On-road Truck - 10 mph	Onroad - MHDT	1.94	3.31	12.96	0.01	2.21	0.92	203.73	20.84	1.09	0.64	(1)
On-road Truck - 25 mph	Onroad - MHDT	0.34	1.25	6.50	0.01	1.89	0.63	203.41	20.55	0.77	0.35	(1)
On-road Truck - 55 mph	Onroad - MHDT	0.17	0.76	5.43	0.01	1.88	0.62	203.40	20.54	0.76	0.34	(1)
On-road Truck - Composite	Onroad - MHDT	0.43	1.26	6.72	0.01	1.92	0.65	203.44	20.57	0.80	0.37	(2)
On-road Truck - idle	Onroad - HHDT	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49	0.53	0.49	(1)
On-road Truck - 10 mph	Onroad - HHDT	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15	1.06	0.64	(1)
On-road Truck - 25 mph	Onroad - HHDT	0.58	2.35	10.67	0.02	1.89	0.65	346.57	34.88	0.77	0.37	(1)
On-road Truck - 55 mph	Onroad - HHDT	0.29	1.72	8.35	0.02	1.92	0.67	346.60	34.91	0.80	0.39	(1)
On-road Truck - Composite	Onroad - HHDT	0.72	2.53	10.78	0.02	1.93	0.68	346.61	34.92	0.81	0.40	(2)
<b>Construction Year 2014</b>												
On-road Truck - idle	Onroad - MHDT	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43	2.64	2.43	(1)
On-road Truck - 10 mph	Onroad - MHDT	1.56	2.70	11.56	0.01	2.07	0.79	203.59	20.71	0.95	0.51	(1)
On-road Truck - 25 mph	Onroad - MHDT	0.28	0.99	5.80	0.01	1.84	0.58	203.37	20.50	0.72	0.30	(1)
On-road Truck - 55 mph	Onroad - MHDT	0.14	0.65	4.80	0.01	1.84	0.58	203.37	20.50	0.72	0.30	(1)
On-road Truck - Composite	Onroad - MHDT	0.35	1.02	5.98	0.01	1.86	0.60	203.39	20.52	0.75	0.32	(2)
On-road Truck - idle	Onroad - HHDT	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31	0.33	0.31	(1)
On-road Truck - 10 mph	Onroad - HHDT	2.35	4.93	18.52	0.02	1.97	0.72	346.65	34.95	0.85	0.44	(1)
On-road Truck - 25 mph	Onroad - HHDT	0.43	1.72	9.37	0.02	1.79	0.55	346.47	34.79	0.67	0.27	(1)
On-road Truck - 55 mph	Onroad - HHDT	0.21	1.32	7.27	0.02	1.80	0.56	346.48	34.80	0.68	0.28	(1)
On-road Truck - Composite	Onroad - HHDT	0.54	1.88	9.44	0.02	1.81	0.57	346.49	34.81	0.69	0.29	(2)

Notes:

- (1) From EMFAC2011. Units in grams/mile or grams/hour.
- (2) Composite EF derived using EMFAC2011 assuming SCAB default fleet age distributions, composite EFs produced assuming 40% at 55mph, 50% at 25mph, 10% at 10mph.
- (3) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (4) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (5) Assume 4-county average travel fraction on major and collector streets is representative of truck travel on surface streets, and 4-county average travel fraction on freeways is representative of truck travel on freeways.

**Table C1.1-8. Mitigated Case: Emission Factors for On-road Diesel Trucks**

Construction Equipment	Type	Emission Factor (g/mile movement or g/hour idling)											Notes
		VOC	CO	NOX	SO2	PM10 On-Site (inc. paved road dust) <sup>(3)</sup>	PM2.5 On-Site (inc. paved road dust) <sup>(3)</sup>	PM10 On-Site (inc. unpaved road dust) <sup>(4)</sup>	PM2.5 On-Site (inc. unpaved road dust) <sup>(4)</sup>	PM10 Off-Site (inc. paved road dust) <sup>(3) (5)</sup>	PM2.5 Off-Site (inc. paved road dust) <sup>(3) (5)</sup>		
<b>Construction Year 2013</b>													
Water - idle	Onroad - MHDT	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34	3.63	3.34	3.34	(1)
Water - 10 mph	Onroad - MHDT	1.94	3.31	2.22	0.01	1.71	0.46	203.24	20.38	0.59	0.18	0.18	(1)
Water - 25 mph	Onroad - MHDT	0.34	1.25	2.22	0.01	1.71	0.46	203.24	20.38	0.59	0.18	0.18	(1)
Water - 55 mph	Onroad - MHDT	0.17	0.76	2.22	0.01	1.71	0.46	203.24	20.38	0.59	0.18	0.18	(1)
Water - Composite	Onroad - MHDT	0.43	1.26	2.22	0.01	1.71	0.46	203.24	20.38	0.59	0.18	0.18	(2)
Concrete Truck - idle	Onroad - HHDT	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49	0.53	0.49	0.49	(1)
Concrete Truck - 10 mph	Onroad - HHDT	3.20	6.65	3.60	0.02	1.67	0.45	346.36	34.69	0.56	0.17	0.17	(1)
Concrete Truck - 25 mph	Onroad - HHDT	0.58	2.35	3.60	0.02	1.67	0.45	346.36	34.69	0.56	0.17	0.17	(1)
Concrete Truck - 55 mph	Onroad - HHDT	0.29	1.72	3.60	0.02	1.67	0.45	346.36	34.69	0.56	0.17	0.17	(1)
Concrete Truck - Composite	Onroad - HHDT	0.72	2.53	3.60	0.02	1.67	0.45	346.36	34.69	0.56	0.17	0.17	(2)
Other Trucks - idle	Onroad - MHDT	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34	3.63	3.34	3.34	(1)
Other Trucks - 10 mph	Onroad - MHDT	1.94	3.31	3.70	0.01	1.88	0.62	203.40	20.54	0.76	0.34	0.34	(1)
Other Trucks - 25 mph	Onroad - MHDT	0.34	1.25	3.70	0.01	1.88	0.62	203.40	20.54	0.76	0.34	0.34	(1)
Other Trucks - 55 mph	Onroad - MHDT	0.17	0.76	3.70	0.01	1.88	0.62	203.40	20.54	0.76	0.34	0.34	(1)
Other Trucks - Composite	Onroad - MHDT	0.43	1.26	3.70	0.01	1.88	0.62	203.40	20.54	0.76	0.34	0.34	(2)
Other Trucks - idle	Onroad - HHDT	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49	0.53	0.49	0.49	(1)
Other Trucks - 10 mph	Onroad - HHDT	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93	0.83	0.42	0.42	(1)
Other Trucks - 25 mph	Onroad - HHDT	0.58	2.35	6.00	0.02	1.89	0.65	346.57	34.88	0.77	0.37	0.37	(1)
Other Trucks - 55 mph	Onroad - HHDT	0.29	1.72	6.00	0.02	1.92	0.67	346.60	34.91	0.80	0.39	0.39	(1)
Other Trucks - Composite	Onroad - HHDT	0.72	2.53	6.00	0.02	1.90	0.66	346.59	34.90	0.79	0.38	0.38	(2)
<b>Construction Year 2014</b>													
Water - idle	Onroad - MHDT	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43	2.64	2.43	2.43	(1)
Water - 10 mph	Onroad - MHDT	1.56	2.70	2.22	0.01	1.71	0.46	203.24	20.38	0.59	0.18	0.18	(1)
Water - 25 mph	Onroad - MHDT	0.28	0.99	2.22	0.01	1.71	0.46	203.24	20.38	0.59	0.18	0.18	(1)
Water - 55 mph	Onroad - MHDT	0.14	0.65	2.22	0.01	1.71	0.46	203.24	20.38	0.59	0.18	0.18	(1)
Water - Composite	Onroad - MHDT	0.35	1.02	2.22	0.01	1.71	0.46	203.24	20.38	0.59	0.18	0.18	(2)
Concrete Truck - idle	Onroad - HHDT	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31	0.33	0.31	0.31	(1)
Concrete Truck - 10 mph	Onroad - HHDT	2.35	4.93	3.60	0.02	1.68	0.45	346.36	34.69	0.56	0.17	0.17	(1)
Concrete Truck - 25 mph	Onroad - HHDT	0.43	1.72	3.60	0.02	1.68	0.45	346.36	34.69	0.56	0.17	0.17	(1)
Concrete Truck - 55 mph	Onroad - HHDT	0.21	1.32	3.60	0.02	1.68	0.45	346.36	34.69	0.56	0.17	0.17	(1)
Concrete Truck - Composite	Onroad - HHDT	0.54	1.88	3.60	0.02	1.68	0.45	346.36	34.69	0.56	0.17	0.17	(2)
Other Trucks - idle	Onroad - MHDT	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43	2.64	2.43	2.43	(1)
Other Trucks - 10 mph	Onroad - MHDT	1.56	2.70	3.70	0.01	1.88	0.62	203.40	20.54	0.76	0.34	0.34	(1)
Other Trucks - 25 mph	Onroad - MHDT	0.28	0.99	3.70	0.01	1.84	0.58	203.37	20.50	0.72	0.30	0.30	(1)
Other Trucks - 55 mph	Onroad - MHDT	0.14	0.65	3.70	0.01	1.84	0.58	203.37	20.50	0.72	0.30	0.30	(1)
Other Trucks - Composite	Onroad - MHDT	0.35	1.02	3.70	0.01	1.84	0.59	203.37	20.51	0.73	0.31	0.31	(2)
Other Trucks - idle	Onroad - HHDT	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31	0.33	0.31	0.31	(1)
Other Trucks - 10 mph	Onroad - HHDT	2.35	4.93	6.00	0.02	1.95	0.70	346.63	34.93	0.83	0.42	0.42	(1)
Other Trucks - 25 mph	Onroad - HHDT	0.43	1.72	6.00	0.02	1.79	0.55	346.47	34.79	0.67	0.27	0.27	(1)
Other Trucks - 55 mph	Onroad - HHDT	0.21	1.32	6.00	0.02	1.80	0.56	346.48	34.80	0.68	0.28	0.28	(1)
Other Trucks - Composite	Onroad - HHDT	0.54	1.88	6.00	0.02	1.81	0.57	346.49	34.81	0.69	0.29	0.29	(2)

Notes:  
 (1) From EMFAC2011 (CARB 2011). Units in grams/mile or grams/hour.  
 (2) Composite em derived using EMFAC2011 assuming SCAB default fleet age distributions, composite EFs produced assuming 40% at 55mph, 50% at 25mph, 10% at 10mph.  
 (3) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.  
 (4) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors were obtained from USEPA AP-42.  
 (5) Assume 4-county average travel fraction on major and collector streets is representative of truck travel on surface streets, and 4-county average travel fraction on freeways is representative of truck travel on freeways.

**Table C1.1-9. Equipment Type, Size and Activity for Site Construction and Sepulveda Bridge**

Construction Sub-Element	Equipment	Number	Size-hp	Fuel	Avg. Load Factor (%)	Avg. Daily Hours	Months on Site	Days Per Unit	Construction Start Year
<b>Site Construction</b>									
Demolition	Crane	1	173	D	43.0	10	2	52	2013
	Excavator	4	321	D	58.0	10	2	52	2013
	Crushers	2	270	D	78.0	10	4	104	2013
	Dozers	2	310	D	59.0	10	4	104	2013
	Front End Loader	5	262	D	54.0	10	4	104	2013
Utility Relocation	14 T Rough Terrain Crane	2	155	D	43.0	10	4	104	2013
	Front End Loader/Backhoe	2	101	D	54.0	10	4	104	2013
	Cat 572 Pipe Layer	2	230	D	62.0	10	4	104	2013
	300 scfm Air Compressor	2	125	D	48.0	10	4	104	2013
	Welding Unit	4	50	D	45.0	10	4	104	2013
Buildings	Crane	1	175	D	43.0	10	3	78	2013
	Fork Lift	1	125	D	30.0	10	9	234	2013
	Concrete Pump	1	177	D	71.3	10	9	39	2013
	Auger	2	177	D	62.0	10	2	52	2013
	Pile driver Crane	1	230	D	62.0	10	2	52	2013
Rough Grade	Diesel Hammer	1	44	D	43.0	10	2	52	2013
	Self Loading Scrappers	6	365	D	66.0	10	9	234	2013
	Dozers	2	310	D	59.0	10	9	234	2013
	Vibratory Rollers	2	143	D	57.5	10	6	156	2013
	Motor Grader	2	145	D	57.5	10	9	234	2013
New Utility	14 T Rough Terrain Crane	2	175	D	43.0	10	6	156	2013
	Cat 572 Pipe Layer	1	230	D	62.0	10	6	156	2013
	Vibratory Rollers	2	142	D	57.5	10	2	52	2013
	Front End Loader/Backhoe	2	101	D	54.0	10	6	156	2013
	Concrete Pump	1	177	D	71.3	10	2	9	2013
Final Grade	Front End Loader/Backhoe	1	101	D	54.0	10	2	52	2014
	Vibratory Rollers	2	142	D	57.5	10	2	52	2014
	Motor Grader	2	145	D	57.5	10	2	52	2014
Track Work	Front End Loader	4	262	D	54.0	10	3	78	2014
	Backhoe	1	500	D	54.0	10	1	26	2014
	Vibratory Rollers	1	142	D	57.5	10	3	78	2014
	Ballast Regulator	1	185	D	21.0	10	3	78	2014
	Tie Tamper	1	125	D	21.0	10	3	78	2014
	Switch Tamper	1	300	D	21.0	10	3	78	2014
Concrete	Front End Loader	1	500	D	54.0	10	1	13	2014
	Vibratory Rollers	1	142	D	57.5	10	1	26	2014
	Slip Form Machine	1	250	D	62.0	10	2	52	2014
	Motor Grader	1	145	D	57.5	10	2	52	2014
Asphalt	Motor Grader	1	145	D	57.5	10	3	78	2014
	Front End Loader	1	262	D	54.0	10	1	13	2014
	Vibratory Rollers	1	138	D	57.5	10	2	52	2014
	Paving Machine	2	170	D	62.0	10	3	78	2014
	Backhoe	1	101	D	54.0	10	3	78	2014
Delineation	Crane	1	175	D	43.0	10	1	5	2014
	Fork Lift	1	125	D	30.0	10	1	5	2014
	Striping Machines	2	60	G	62.0	10	1	26	2014
<b>Sepulveda Bridge</b>									
Demolition	Excavator	2	168	D	58.0	10	2	52	2013
	Dozers	2	310	D	59.0	10	2	52	2013
	Front End Loader	2	262	D	46.5	10	2	52	2013
Preparatory	Front End Loader	2	262	D	46.5	10	1	26	2013
	Crane	1	173	D	43.0	10	1	26	2013
	Backhoe	2	500	D	46.5	10	1	26	2013
Foundation	P.D Crane	1	230	D	43.0	10	1	26	2013
	Crane	1	173	D	43.0	10	1	26	2013
	P.D Crane	1	230	D	43.0	10	1	26	2013
East Track Prep	Excavator	1	168	D	58.0	10	4	104	2013
	Crane	1	173	D	43.0	10	3	78	2013
	Auger	2	177	D	62.0	10	4	104	2013
	Backhoe	4	101	D	46.5	10	4	104	2013
	Vibratory Rollers	2	142	D	57.5	10	4	104	2013
Pile Prep	Auger	2	177	D	62.0	10	2	52	2013
	Vibratory Trench Rollers	2	50	D	57.5	10	2	52	2013
	Pile driver Crane	1	230	D	43.0	10	2	52	2013
	Diesel Hammer	1	44	D	43.0	10	2	52	2013
	Backhoe	2	101	D	46.5	10	2	52	2013
North End Prep	Front End Loader	1	262	D	46.5	10	3	78	2013
	Backhoe	1	101	D	46.5	10	3	78	2013
	Vibratory Rollers	2	142	D	57.5	10	2	52	2013
	Grader	2	145	D	57.5	10	3	78	2013
	Pile driver Crane	2	230	D	43.0	10	2	52	2013
	Diesel Hammer	1	44	D	43.0	10	2	52	2013
Wing Wall & Track	Front End Loader	1	262	D	46.5	10	3	78	2014
	Vibratory Rollers	1	142	D	57.5	10	1	26	2014
	Backhoe	1	101	D	46.5	10	3	78	2014
	Ballast Regulator	1	185	D	21.0	10	1	26	2014
	Tie Tamper	1	125	D	21.0	10	1	26	2014
	Switch Tamper	1	250	D	21.0	10	1	26	2014
Bridge Widening	Front End Loader	1	500	D	46.5	10	2	52	2014
	Vibratory Rollers	1	142	D	57.5	10	2	52	2014
	Dozers	1	310	D	59.0	10	2	52	2014

**Table C1.1-10. Equipment Type, Size and Activity for Lead & Storage Track and Dominguez Channel**

Construction Sub-Element	Equipment	Number	Size-hp	Fuel	Avg. Load Factor (%)	Avg. Daily Hours	Months on Site	Days Per Unit	Construction Start Year
<b>Lead &amp; Storage Track</b>									
Utility Relocation	Front End Loader/Backhoe	2	101	D	46.5	10	3	78	2013
	14 T Rough Terrain Crane	2	155	D	43.0	10	3	78	2013
	Cat 572 Pipe Layer	4	230	D	62.0	10	3	78	2013
	300 scfm Air Compressor	2	125	D	48.0	10	3	78	2013
	Welding Unit	4	50	D	45.0	10	3	78	2013
Demolition	Front End Loader/Backhoe	1	500	D	46.5	10	2	52	2013
	Concrete Power Saw	1	10	G	73.0	3	2	52	2013
	Track Hoe	1	321	D	46.5	10	2	52	2013
Rough Grading	Front End Loader/Backhoe	1	101	D	46.5	10	2	52	2013
	Self Loading Scrappers	2	365	D	66.0	10	3	78	2013
	Excavator	1	168	D	58.0	10	3	78	2013
	Sheep's Foot Roller	3	143	D	57.5	10	3	78	2013
	Motor Grader	1	145	D	57.5	10	3	78	2013
Civil Construction	Front End Loader/Backhoe	2	101	D	46.5	10	3	78	2013
	Vibratory Roller	2	142	D	57.5	10	4	104	2013
	Motor Grader	2	145	D	57.5	10	4	104	2013
Track Work Materials	Front End Loader/Backhoe	2	101	D	46.5	10	2	52	2013
	Speed Swing	2	170	D	62.0	10	4	104	2013
Track Work Assembly	Tie Tamper	1	125	D	21.0	10	3	78	2013
	Switch Tamper	1	250	D	21.0	10	3	78	2013
	Production Tamper	1	250	D	21.0	10	3	78	2013
	Shoulder Compactor	1	300	D	21.0	10	3	78	2013
	Ballast Track Regulator	1	185	D	21.0	10	3	78	2014
<b>Dominguez Channel</b>									
Utilities	Front End Loader	2	197	D	46.5	10	1.5	39	2013
	Backhoe	2	101	D	46.5	10	3	78	2013
	14 T Rough Terrain Crane	2	155	D	43.0	10	1.5	39	2013
	Cat 572 Pipe Layer	2	230	D	43.7	10	1.5	39	2013
	300 scfm Air Compressor	2	125	D	48.0	10	3	78	2013
	Welding Unit	2	50	D	45.0	10	3	78	2013
Demolition	Front End Loader	2	197	D	46.5	10	1	26	2013
	14 T Rough Terrain Crane	1	155	D	43.0	10	1	26	2013
	300 scfm Air Compressor	2	125	D	48.0	10	3	78	2013
	Pile driver Crane	1	230	D	62.0	10	1	26	2013
	Vibratory Roller	1	240	D	57.5	10	1	26	2013
	Excavator	1	321	D	58.0	10	2	52	2013
	Pumps	2	60	D	48.0	10	3	78	2013
	Dozer	1	310	D	59.0	10	2	52	2013
	Backhoe	1	101	D	46.5	10	2	52	2013
Excavation	Front End Loader	1	197	D	46.5	10	1	26	2013
	Backhoe	1	101	D	46.5	10	1	26	2013
	Auger	1	177	D	62.0	10	1	26	2013
CISS Piles	Front End Loader	1	197	D	46.5	10	2	52	2013
	Pile driver Crane	1	230	D	62.0	10	2	52	2013
	Diesel Hammer	1	44	D	43.0	4	2	52	2013
	Concrete Pump	1	177	D	41.0	10	2	9	2013
Concrete	Front End Loader	1	197	D	46.5	10	2	52	2013
	Concrete Pump	1	177	D	41.0	10	2	9	2013
	Crane	1	173	D	43.0	10	2	52	2013
Backfill Cofferdam Piling	Front End Loader	1	197	D	46.5	10	1	26	2013
	Vibratory Roller	1	142	D	57.5	10	1	26	2013
	Foot Roller	1	143	D	57.5	10	1	26	2013
	Motor Grader	1	145	D	57.5	10	1	26	2013
	Large Crane	1	230	D	43.0	10	1	26	2013
Bearing & Structural Steel Beams	300 scfm Air Compressor	1	125	D	48.0	10	1	26	2013
	Welding Unit	1	50	D	45.0	10	1	26	2013
	Large Crane	1	450	D	43.0	10	1	26	2013
	Fork Lift	1	125	D	30.0	10	1	26	2013
Bridge Deck Plate, Waterproffing, Misc. Steel	300 scfm Air Compressor	1	125	D	48.0	10	1	26	2013
	Welding Unit	1	50	D	45.0	10	1	26	2013
	Crane	1	175	D	43.0	10	1	26	2013
	Fork Lift	1	125	D	30.0	10	1	26	2013
Bridge Deck Ballast	Front End Loader	1	197	D	46.5	10	1	26	2013
	Balast Compactor	1	185	D	21.0	10	1	26	2013
Concrete Ties & Track	Front End Loader	1	262	D	46.5	10	0.5	13	2013
	Ballast Regulator	1	185	D	21.0	10	1	26	2013
	Tie Tamper	1	125	D	21.0	10	1	26	2013
	Switch Tamper	1	250	D	21.0	10	1	26	2013
	Speed Swing	2	170	D	62.0	10	1	26	2013
Painting & Reparis	Front End Loader	1	197	D	46.5	10	1	26	2013
	Backhoe	1	101	D	46.5	10	1	26	2013
	Large Crane	1	230	D	43.0	10	1	26	2013
	Sweeper	1	160	D	68.0	10	1	26	2013

**Table C1.1-11. Equipment Type, Size and Activity for PCH Grade Separation**

Construction Sub-Element	Equipment	Number	Size-hp	Fuel	Avg. Load Factor (%)	Avg. Daily Hours	Months on Site	Days Per Unit	Construction Start Year
<b>PCH Grade Separation</b>									
Demolition - North Side	P.D Crane	1	230	D	43	10	3	78	2013
	Vibratory Rollers	1	240	D	56	10	5	130	2013
	Excavator	2	321	D	58	10	5	130	2013
	Dozers	2	310	D	64	10	5	130	2013
	Front End Loader	2	262	D	54	10	3	78	2013
Preparatory Work - North Side	Front End Loader	2	262	D	54	10	3	78	2013
	Crane	2	173	D	43	10	3	78	2013
	P.D Crane	1	230	D	43	10	3	78	2013
	Backhoe	2	101	D	54	10	3	78	2013
	Vibratory Rollers	1	142	D	56	10	3	78	2013
	Motor Grader	1	145	D	61	10	3	78	2013
	Paving Machine	1	170	D	62	10	3	78	2013
North Bridge	Auger	1	177	D	75	10	6	156	2013
	Pile driver Crane	1	230	D	43	10	4	104	2013
	Diesel Hammer	1	44	D	43	5	6	156	2013
	Crane	2	173	D	43	10	2	52	2013
	Backhoe	2	101	D	54	10	6	156	2013
Pave N/S Bridge And Reroute Traffic	Motor Grader	1	145	D	61	10	2	52	2013
	Front End Loader	1	262	D	54	10	2	52	2013
	Vibratory rollers	1	138	D	56	10	2	52	2013
	Slip Form Machine	1	250	D	62	10	2	52	2013
	Paving Machine	1	170	D	62	10	2	52	2013
	Backhoe	1	101	D	54	10	2	52	2013
Demolition - South Side	P.D Crane	1	230	D	43	10	1	26	2014
	Vibratory Rollers	1	240	D	56	10	2	52	2014
	Excavator	2	321	D	58	10	2	52	2014
	Dozers	2	310	D	64	10	2	52	2014
	Front End Loader	2	262	D	54	10	1	26	2014
Preparatory Work - South Side	Front End Loader	2	262	D	54	10	1	26	2014
	Crane	2	173	D	43	10	2	52	2014
	P.D Crane	1	175	D	43	10	1	26	2014
	Backhoe	2	101	D	54	10	2	52	2014
	Vibratory Rollers	1	142	D	56	10	2	52	2014
	Motor Grader	1	145	D	61	10	2	52	2014
	Paving Machine	1	175	D	62	10	2	52	2014
South Bridge	Auger	1	190	D	75	10	7	182	2014
	Pile driver Crane	1	230	D	43	10	7	182	2014
	Diesel Hammer	1	44	D	43	5	7	182	2014
	Crane	2	173	D	43	10	7	182	2014
	Backhoe	2	101	D	54	10	3	78	2014
Pave S/S Bridge And Yard Access Roads	Motor Grader	1	145	D	61	10	2	52	2014
	Front End Loader	1	262	D	54	10	2	52	2014
	Vibratory rollers	1	138	D	56	10	2	52	2014
	Slip Form Machine	1	250	D	62	10	2	52	2014
	Paving Machine	1	170	D	62	10	2	52	2014
	Backhoe	1	101	D	54	10	2	52	2014



**Table C1.1-12. Emission Factors of Equipment Used at Site Construction and Sepulveda Bridge**

Construction Sub-Element	Equipment	Size-hp	Fuel	Emission Factor (g/bhp-hr)					
				VOC	CO	NOX	SO2	PM10	PM2.5
<b>Site Construction</b>									
Demolition	Crane	173	D	0.72	3.41	4.95	0.01	0.23	0.21
	Excavator	321	D	0.41	1.27	3.26	0.01	0.12	0.11
	Crushers	270	D	0.39	1.27	3.97	0.01	0.13	0.12
	Dozers	310	D	0.68	2.98	3.96	0.01	0.13	0.12
	Front End Loader	262	D	0.37	1.21	3.14	0.01	0.11	0.10
Utility Relocation	14 T Rough Terrain Crane	155	D	0.72	3.41	4.95	0.01	0.23	0.21
	Front End Loader/Backhoe	101	D	0.74	3.87	4.89	0.01	0.35	0.32
	Cat 572 Pipe Layer	230	D	0.52	1.47	4.13	0.01	0.14	0.13
	300 scfm Air Compressor	125	D	0.66	3.24	5.26	0.01	0.29	0.27
	Welding Unit	50	D	2.07	5.95	5.47	0.01	0.51	0.47
Buildings	Crane	175	D	0.72	3.41	4.95	0.01	0.23	0.21
	Fork Lift	125	D	0.56	3.35	4.18	0.01	0.22	0.21
	Concrete Pump	177	D	0.35	1.18	4.40	0.01	0.12	0.11
	Auger	177	D	0.23	1.04	2.14	0.01	0.06	0.06
	Pile driver Crane	230	D	0.52	1.47	4.13	0.01	0.14	0.13
Rough Grade	Diesel Hammer	44	D	1.47	5.33	5.03	0.01	0.35	0.32
	Self Loading Scrappers	365	D	0.55	2.09	3.96	0.01	0.13	0.12
	Dozers	310	D	0.68	2.98	3.96	0.01	0.13	0.12
	Vibratory Rollers	143	D	0.64	3.25	4.95	0.01	0.23	0.21
	Motor Grader	145	D	0.66	3.37	4.95	0.01	0.23	0.21
New Utility	14 T Rough Terrain Crane	175	D	0.72	3.41	4.95	0.01	0.23	0.21
	Cat 572 Pipe Layer	230	D	0.52	1.47	4.13	0.01	0.14	0.13
	Vibratory Rollers	142	D	0.64	3.25	4.95	0.01	0.23	0.21
	Front End Loader/Backhoe	101	D	0.74	3.87	4.89	0.01	0.35	0.32
	Concrete Pump	177	D	0.35	1.18	4.40	0.01	0.12	0.11
Final Grade	Front End Loader/Backhoe	101	D	0.74	3.87	4.89	0.01	0.35	0.32
	Vibratory Rollers	142	D	0.64	3.25	4.95	0.01	0.23	0.21
	Motor Grader	145	D	0.66	3.37	4.95	0.01	0.23	0.21
Track Work	Front End Loader	262	D	0.37	1.21	3.14	0.01	0.11	0.10
	Backhoe	500	D	0.37	1.21	3.14	0.01	0.11	0.10
	Vibratory Rollers	142	D	0.64	3.25	4.95	0.01	0.23	0.21
	Ballast Regulator	185	D	0.74	3.01	5.12	0.01	0.53	0.49
	Tie Tamper	125	D	0.82	3.47	5.39	0.01	0.63	0.58
	Switch Tamper	300	D	0.66	3.52	5.30	0.01	0.49	0.45
Concrete	Front End Loader	500	D	0.37	1.21	3.14	0.01	0.11	0.10
	Vibratory Rollers	142	D	0.64	3.25	4.95	0.01	0.23	0.21
	Slip Form Machine	250	D	0.32	1.16	3.14	0.01	0.11	0.10
	Motor Grader	145	D	0.66	3.37	4.95	0.01	0.23	0.21
Asphalt	Motor Grader	145	D	0.66	3.37	4.95	0.01	0.23	0.21
	Front End Loader	262	D	0.37	1.21	3.14	0.01	0.11	0.10
	Vibratory Rollers	138	D	0.64	3.25	4.95	0.01	0.23	0.21
	Paving Machine	170	D	0.77	3.41	4.95	0.01	0.23	0.21
	Backhoe	101	D	0.74	3.87	4.89	0.01	0.35	0.32
Delineation	Crane	175	D	0.72	3.41	4.95	0.01	0.23	0.21
	Fork Lift	125	D	0.56	3.35	4.18	0.01	0.22	0.21
	Striping Machines	60	G	1.65	30.34	6.66	0.01	0.06	0.06
<b>Sepulveda Bridge</b>									
Demolition	Excavator	168	D	0.60	3.38	4.45	0.01	0.24	0.22
	Dozers	310	D	0.68	3.00	4.20	0.01	0.13	0.12
	Front End Loader	262	D	0.37	1.22	3.23	0.01	0.11	0.10
Preparatory	Front End Loader	262	D	0.37	1.22	3.23	0.01	0.11	0.10
	Crane	173	D	0.72	3.41	5.00	0.01	0.24	0.22
	Backhoe	500	D	0.37	1.22	3.23	0.01	0.11	0.10
Foundation	P.D Crane	230	D	0.52	1.48	4.38	0.01	0.15	0.14
	Crane	173	D	0.72	3.41	5.00	0.01	0.24	0.22
	P.D Crane	230	D	0.52	1.48	4.38	0.01	0.15	0.14
East Track Prep	Excavator	168	D	0.60	3.38	4.45	0.01	0.24	0.22
	Crane	173	D	0.72	3.41	5.00	0.01	0.24	0.22
	Auger	177	D	0.24	1.04	2.19	0.01	0.06	0.06
	Backhoe	101	D	0.75	3.87	4.93	0.01	0.37	0.34
	Vibratory Rollers	142	D	0.65	3.26	5.00	0.01	0.24	0.22
Pile Prep	Auger	177	D	0.24	1.04	2.19	0.01	0.06	0.06
	Vibratory Trench Rollers	50	D	2.20	6.32	5.05	0.01	0.37	0.34
	Pile driver Crane	230	D	0.52	1.48	4.38	0.01	0.15	0.14
	Diesel Hammer	44	D	1.49	5.35	5.05	0.01	0.37	0.34
	Backhoe	101	D	0.75	3.87	4.93	0.01	0.37	0.34
North End Prep	Front End Loader	262	D	0.37	1.22	3.23	0.01	0.11	0.10
	Backhoe	101	D	0.75	3.87	4.93	0.01	0.37	0.34
	Vibratory Rollers	142	D	0.65	3.26	5.00	0.01	0.24	0.22
	Grader	145	D	0.66	3.37	5.00	0.01	0.24	0.22
	Pile driver Crane	230	D	0.52	1.48	4.38	0.01	0.15	0.14
	Diesel Hammer	44	D	1.49	5.35	5.05	0.01	0.37	0.34
Wing Wall & Track	Front End Loader	262	D	0.37	1.22	3.23	0.01	0.11	0.10
	Vibratory Rollers	142	D	0.65	3.26	5.00	0.01	0.24	0.22
	Backhoe	101	D	0.75	3.87	4.93	0.01	0.37	0.34
	Ballast Regulator	185	D	0.74	3.01	5.12	0.01	0.53	0.49
	Tie Tamper	125	D	0.74	3.01	5.12	0.01	0.53	0.49
	Switch Tamper	250	D	0.74	3.01	5.12	0.01	0.53	0.49
Bridge Widening	Front End Loader	500	D	0.37	1.22	3.23	0.01	0.11	0.10
	Vibratory Rollers	142	D	0.65	3.26	5.00	0.01	0.24	0.22
	Dozers	310	D	0.68	3.00	4.20	0.01	0.13	0.12

**Table C1.1-13. Emission Factors of Equipment Used at Lead & Storage Track and Dominguez Channel**

Construction Sub-Element	Equipment	Size-(hp)	Fuel	Emission Factor (g/bhp-hr)					
				VOC	CO	NOX	SO2	PM10	PM2.5
<b>Lead &amp; Storage Track</b>									
Utility Relocation	Front End Loader/Backhoe	101	D	0.75	3.87	4.97	0.01	0.39	0.36
	14 T Rough Terrain Crane	155	D	0.72	3.41	5.04	0.01	0.25	0.23
	Cat 572 Pipe Layer	230	D	0.52	1.48	4.60	0.01	0.15	0.14
	300 scfm Air Compressor	125	D	0.67	3.24	5.34	0.01	0.30	0.27
	Welding Unit	50	D	2.11	6.00	5.52	0.01	0.52	0.48
Demolition	Front End Loader/Backhoe	500	D	0.37	1.22	3.30	0.01	0.11	0.10
	Concrete Power Saw	10	G	6.94	266.75	4.49	0.01	3.60	3.31
	Track Hoe	321	D	0.42	1.28	3.46	0.01	0.12	0.11
Rough Grading	Front End Loader/Backhoe	101	D	0.75	3.87	4.97	0.01	0.39	0.36
	Self Loading Scrappers	365	D	0.56	2.12	4.41	0.01	0.14	0.12
	Excavator	168	D	0.61	3.38	4.48	0.01	0.25	0.23
	Sheep's Foot Roller	143	D	0.65	3.26	5.04	0.01	0.25	0.23
	Motor Grader	145	D	0.67	3.37	5.04	0.01	0.25	0.23
Civil Construction	Front End Loader/Backhoe	101	D	0.75	3.87	4.97	0.01	0.39	0.36
	Vibratory Roller	142	D	0.65	3.26	5.04	0.01	0.25	0.23
	Motor Grader	145	D	0.67	3.37	5.04	0.01	0.25	0.23
Track Work Materials	Front End Loader/Backhoe	101	D	0.75	3.87	4.97	0.01	0.39	0.36
	Speed Swing	170	D	0.55	3.28	4.27	0.01	0.23	0.21
Track Work Assembly	Tie Tamper	125	D	0.86	3.66	5.65	0.01	0.66	0.61
	Switch Tamper	250	D	0.78	3.19	5.37	0.01	0.56	0.51
	Production Tamper	250	D	0.78	3.19	5.37	0.01	0.56	0.51
	Shoulder Compactor	300	D	0.69	3.70	5.54	0.01	0.51	0.47
	Ballast Track Regulator	185	D	0.78	3.19	5.37	0.01	0.56	0.51
<b>Dominguez Channel</b>									
Utilities	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.12	0.11
	Backhoe	101	D	0.76	3.88	5.01	0.01	0.42	0.39
	14 T Rough Terrain Crane	155	D	0.73	3.41	5.10	0.01	0.26	0.24
	Cat 572 Pipe Layer	230	D	0.53	1.49	4.90	0.01	0.16	0.15
	300 scfm Air Compressor	125	D	0.68	3.25	5.39	0.01	0.30	0.28
	Welding Unit	50	D	2.14	6.03	5.55	0.01	0.52	0.48
Demolition	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.12	0.11
	14 T Rough Terrain Crane	155	D	0.73	3.41	5.10	0.01	0.26	0.24
	300 scfm Air Compressor	125	D	0.68	3.25	5.39	0.01	0.30	0.28
	Pile driver Crane	230	D	0.53	1.49	4.90	0.01	0.16	0.15
	Vibratory Roller	240	D	0.47	1.44	4.87	0.01	0.16	0.15
	Excavator	321	D	0.42	1.28	3.59	0.01	0.13	0.12
	Pumps	60	D	0.84	3.63	5.62	0.01	0.30	0.28
	Dozer	310	D	0.69	3.05	4.70	0.01	0.14	0.13
Excavation	Backhoe	101	D	0.76	3.88	5.01	0.01	0.42	0.39
	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.12	0.11
	Auger	177	D	0.24	1.04	2.31	0.01	0.07	0.06
CISS Piles	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.12	0.11
	Pile driver Crane	230	D	0.53	1.49	4.90	0.01	0.16	0.15
	Diesel Hammer	44	D	1.53	5.39	5.10	0.01	0.39	0.36
	Concrete Pump	177	D	0.36	1.19	4.56	0.01	0.13	0.12
Concrete	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.12	0.11
	Concrete Pump	177	D	0.36	1.19	4.56	0.01	0.13	0.12
	Crane	173	D	0.73	3.41	5.10	0.01	0.26	0.24
Backfill Cofferdam Piling	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.12	0.11
	Vibratory Roller	142	D	0.66	3.26	5.10	0.01	0.26	0.24
	Foot Roller	143	D	0.66	3.26	5.10	0.01	0.26	0.24
	Motor Grader	145	D	0.67	3.37	5.10	0.01	0.26	0.24
	Large Crane	230	D	0.53	1.49	4.90	0.01	0.16	0.15
Bearing & Structural Steel Beams	300 scfm Air Compressor	125	D	0.68	3.25	5.39	0.01	0.30	0.28
	Welding Unit	50	D	2.14	6.03	5.55	0.01	0.52	0.48
	Large Crane	450	D	0.49	1.67	4.49	0.01	0.14	0.13
Bridge Deck Plate, Waterproffing, Misc. Steel	Fork Lift	125	D	0.58	3.35	4.32	0.01	0.25	0.23
	300 scfm Air Compressor	125	D	0.68	3.25	5.39	0.01	0.30	0.28
	Welding Unit	50	D	2.14	6.03	5.55	0.01	0.52	0.48
	Crane	175	D	0.73	3.41	5.10	0.01	0.26	0.24
Bridge Deck Ballast	Fork Lift	125	D	0.58	3.35	4.32	0.01	0.25	0.23
	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.12	0.11
Concrete Ties & Track	Balast Compactor	185	D	0.80	3.28	5.50	0.01	0.57	0.53
	Front End Loader	262	D	0.38	1.23	3.40	0.01	0.12	0.11
	Ballast Regulator	185	D	0.80	3.28	5.50	0.01	0.57	0.53
	Tie Tamper	125	D	0.88	3.76	5.78	0.01	0.67	0.62
	Switch Tamper	250	D	0.80	3.28	5.50	0.01	0.57	0.53
Painting & Reparis	Speed Swing	170	D	0.55	3.29	4.31	0.01	0.24	0.22
	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.12	0.11
	Backhoe	101	D	0.76	3.88	5.01	0.01	0.42	0.39
	Large Crane	230	D	0.53	1.49	4.90	0.01	0.16	0.15
	Sweeper	160	D	0.59	3.27	4.58	0.01	0.26	0.24

**Table C1.1-14. Emission Factors of Equipment Used at PCH Grade Separation**

Construction Sub-Element	Equipment	Size-hp	Fuel	Emission Factor (g/bhp-hr)					
				VOC	CO	NOX	SO2	PM10	PM2.5
<b>PCH Grade Separation</b>									
Demolition - North Side	P.D Crane	230	D	0.51	1.46	3.95	0.01	0.14	0.13
	Vibratory Rollers	240	D	0.45	1.41	3.93	0.01	0.14	0.13
	Excavator	321	D	0.41	1.26	3.19	0.01	0.12	0.11
	Dozers	310	D	0.68	2.96	3.79	0.01	0.13	0.12
	Front End Loader	262	D	0.37	1.21	3.08	0.01	0.11	0.10
Preparatory Work - North Side	Front End Loader	262	D	0.37	1.21	3.08	0.01	0.11	0.10
	Crane	173	D	0.71	3.41	4.92	0.01	0.22	0.21
	P.D Crane	230	D	0.51	1.46	3.95	0.01	0.14	0.13
	Backhoe	101	D	0.73	3.86	4.86	0.01	0.33	0.31
	Vibratory Rollers	142	D	0.64	3.25	4.92	0.01	0.22	0.21
	Motor Grader	145	D	0.66	3.37	4.92	0.01	0.22	0.21
	Paving Machine	170	D	0.76	3.41	4.92	0.01	0.22	0.21
North Bridge	Auger	177	D	0.23	1.04	2.10	0.01	0.06	0.06
	Pile driver Crane	230	D	0.51	1.46	3.95	0.01	0.14	0.13
	Diesel Hammer	44	D	1.45	5.31	5.01	0.01	0.34	0.32
	Crane	173	D	0.71	3.41	4.92	0.01	0.22	0.21
	Backhoe	101	D	0.73	3.86	4.86	0.01	0.33	0.31
Pave N/S Bridge And Reroute Traffic	Motor Grader	145	D	0.66	3.37	4.92	0.01	0.22	0.21
	Front End Loader	262	D	0.37	1.21	3.08	0.01	0.11	0.10
	Vibratory rollers	138	D	0.64	3.25	4.92	0.01	0.22	0.21
	Slip Form Machine	250	D	0.32	1.15	3.08	0.01	0.10	0.10
	Paving Machine	170	D	0.76	3.41	4.92	0.01	0.22	0.21
	Backhoe	101	D	0.73	3.86	4.86	0.01	0.33	0.31
Demolition - South Side	P.D Crane	230	D	0.51	1.46	3.95	0.01	0.14	0.13
	Vibratory Rollers	240	D	0.45	1.41	3.93	0.01	0.14	0.13
	Excavator	321	D	0.41	1.26	3.19	0.01	0.12	0.11
	Dozers	310	D	0.68	2.96	3.79	0.01	0.13	0.12
	Front End Loader	262	D	0.37	1.21	3.08	0.01	0.11	0.10
Preparatory Work - South Side	Front End Loader	262	D	0.37	1.21	3.08	0.01	0.11	0.10
	Crane	173	D	0.71	3.41	4.92	0.01	0.22	0.21
	P.D Crane	175	D	0.71	3.41	4.92	0.01	0.22	0.21
	Backhoe	101	D	0.73	3.86	4.86	0.01	0.33	0.31
	Vibratory Rollers	142	D	0.64	3.25	4.92	0.01	0.22	0.21
	Motor Grader	145	D	0.66	3.37	4.92	0.01	0.22	0.21
	Paving Machine	175	D	0.76	3.41	4.92	0.01	0.22	0.21
South Bridge	Auger	190	D	0.23	1.04	2.10	0.01	0.06	0.06
	Pile driver Crane	230	D	0.51	1.46	3.95	0.01	0.14	0.13
	Diesel Hammer	44	D	1.45	5.31	5.01	0.01	0.34	0.32
	Crane	173	D	0.71	3.41	4.92	0.01	0.22	0.21
	Backhoe	101	D	0.73	3.86	4.86	0.01	0.33	0.31
Pave S/S Bridge And Yard Access Roads	Motor Grader	145	D	0.66	3.37	4.92	0.01	0.22	0.21
	Front End Loader	262	D	0.37	1.21	3.08	0.01	0.11	0.10
	Vibratory rollers	138	D	0.64	3.25	4.92	0.01	0.22	0.21
	Slip Form Machine	250	D	0.32	1.15	3.08	0.01	0.10	0.10
	Paving Machine	170	D	0.76	3.41	4.92	0.01	0.22	0.21
	Backhoe	101	D	0.73	3.86	4.86	0.01	0.33	0.31

**Table C1.1-15. Mitigated Emission Factors of Equipment Used at Site Construction and Sepulveda Bridge**

Construction Sub-Element	Equipment	Size-hp	Fuel	Emission Factor (g/bhp-hr)					
				VOC	CO	NOX	SO2	PM10	PM2.5
<b>Site Construction</b>									
Demolition	Crane	173	D	0.27	3.41	4.19	0.01	0.07	0.06
	Excavator	321	D	0.41	1.27	3.26	0.01	0.05	0.04
	Crushers	270	D	0.39	1.27	3.97	0.01	0.05	0.04
	Dozers	310	D	0.58	2.98	3.67	0.01	0.05	0.04
	Front End Loader	262	D	0.37	1.21	3.14	0.01	0.05	0.04
Utility Relocation	14 T Rough Terrain Crane	155	D	0.27	3.41	4.19	0.01	0.07	0.06
	Front End Loader/Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	Cat 572 Pipe Layer	230	D	0.52	1.47	3.71	0.01	0.05	0.04
	300 scfm Air Compressor	125	D	0.27	3.24	4.19	0.01	0.07	0.06
	Welding Unit	50	D	0.28	4.10	5.47	0.01	0.09	0.08
Buildings	Crane	175	D	0.27	3.41	4.19	0.01	0.07	0.06
	Fork Lift	125	D	0.27	3.35	4.10	0.01	0.07	0.06
	Concrete Pump	177	D	0.35	1.18	4.21	0.01	0.05	0.04
	Auger	177	D	0.23	1.04	2.14	0.01	0.05	0.04
	Pile driver Crane	230	D	0.52	1.47	3.71	0.01	0.05	0.04
Rough Grade	Diesel Hammer	44	D	0.28	4.10	5.03	0.01	0.09	0.08
	Self Loading Scrappers	365	D	0.55	2.09	3.67	0.01	0.05	0.04
	Dozers	310	D	0.58	2.98	3.67	0.01	0.05	0.04
	Vibratory Rollers	143	D	0.27	3.25	4.19	0.01	0.07	0.06
	Motor Grader	145	D	0.27	3.37	4.19	0.01	0.07	0.06
New Utility	14 T Rough Terrain Crane	175	D	0.27	3.41	4.19	0.01	0.07	0.06
	Cat 572 Pipe Layer	230	D	0.52	1.47	3.71	0.01	0.05	0.04
	Vibratory Rollers	142	D	0.27	3.25	4.19	0.01	0.07	0.06
	Front End Loader/Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	Concrete Pump	177	D	0.35	1.18	4.21	0.01	0.05	0.04
Final Grade	Front End Loader/Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	Vibratory Rollers	142	D	0.27	3.25	4.19	0.01	0.07	0.06
	Motor Grader	145	D	0.27	3.37	4.19	0.01	0.07	0.06
Track Work	Front End Loader	262	D	0.37	1.21	3.14	0.01	0.05	0.04
	Backhoe	500	D	0.37	1.21	3.14	0.01	0.05	0.04
	Vibratory Rollers	142	D	0.27	3.25	4.19	0.01	0.07	0.06
	Ballast Regulator	185	D	0.58	3.01	4.24	0.01	0.58	0.53
	Tie Tamper	125	D	0.27	3.47	4.19	0.01	0.27	0.25
	Switch Tamper	300	D	0.58	3.52	4.24	0.01	0.58	0.53
Concrete	Front End Loader	500	D	0.37	1.21	3.14	0.01	0.05	0.04
	Vibratory Rollers	142	D	0.27	3.25	4.19	0.01	0.07	0.06
	Slip Form Machine	250	D	0.32	1.16	3.14	0.01	0.05	0.04
	Motor Grader	145	D	0.27	3.37	4.19	0.01	0.07	0.06
Asphalt	Motor Grader	145	D	0.27	3.37	4.19	0.01	0.07	0.06
	Front End Loader	262	D	0.37	1.21	3.14	0.01	0.05	0.04
	Vibratory Rollers	138	D	0.27	3.25	4.19	0.01	0.07	0.06
	Paving Machine	170	D	0.27	3.41	4.19	0.01	0.07	0.06
	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
Delineation	Crane	175	D	0.27	3.41	4.19	0.01	0.07	0.06
	Fork Lift	125	D	0.27	3.35	4.10	0.01	0.07	0.06
	Striping Machines	60	G	1.65	30.34	6.66	0.01	0.06	0.06
<b>Sepulveda Bridge</b>									
Demolition	Excavator	168	D	0.27	3.38	4.19	0.01	0.07	0.06
	Dozers	310	D	0.58	3.00	3.86	0.01	0.05	0.04
	Front End Loader	262	D	0.37	1.22	3.23	0.01	0.05	0.04
Preparatory	Front End Loader	262	D	0.37	1.22	3.23	0.01	0.05	0.04
	Crane	173	D	0.27	3.41	4.19	0.01	0.07	0.06
	Backhoe	500	D	0.37	1.22	3.23	0.01	0.05	0.04
Foundation	P.D Crane	230	D	0.52	1.48	3.88	0.01	0.05	0.04
	Crane	173	D	0.27	3.41	4.19	0.01	0.07	0.06
	P.D Crane	230	D	0.52	1.48	3.88	0.01	0.05	0.04
East Track Prep	Excavator	168	D	0.27	3.38	4.19	0.01	0.07	0.06
	Crane	173	D	0.27	3.41	4.19	0.01	0.07	0.06
	Auger	177	D	0.24	1.04	2.19	0.01	0.05	0.04
	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	Vibratory Rollers	142	D	0.27	3.26	4.19	0.01	0.07	0.06
Pile Prep	Auger	177	D	0.24	1.04	2.19	0.01	0.05	0.04
	Vibratory Trench Rollers	50	D	0.28	4.10	5.05	0.01	0.09	0.08
	Pile driver Crane	230	D	0.52	1.48	3.88	0.01	0.05	0.04
	Diesel Hammer	44	D	0.28	4.10	5.05	0.01	0.09	0.08
	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
North End Prep	Front End Loader	262	D	0.37	1.22	3.23	0.01	0.05	0.04
	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	Vibratory Rollers	142	D	0.27	3.26	4.19	0.01	0.07	0.06
	Grader	145	D	0.27	3.37	4.19	0.01	0.07	0.06
	Pile driver Crane	230	D	0.52	1.48	3.88	0.01	0.05	0.04
	Diesel Hammer	44	D	0.28	4.10	5.05	0.01	0.09	0.08
Wing Wall & Track	Front End Loader	262	D	0.37	1.22	3.23	0.01	0.05	0.04
	Vibratory Rollers	142	D	0.27	3.26	4.19	0.01	0.07	0.06
	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	Ballast Regulator	185	D	0.58	3.01	4.24	0.01	0.05	0.04
	Tie Tamper	125	D	0.58	3.01	4.24	0.01	0.05	0.04
	Switch Tamper	250	D	0.58	3.01	4.24	0.01	0.05	0.04
Bridge Widening	Front End Loader	500	D	0.37	1.22	3.23	0.01	0.05	0.04
	Vibratory Rollers	142	D	0.27	3.26	4.19	0.01	0.07	0.06
	Dozers	310	D	0.58	3.00	3.86	0.01	0.05	0.04

Note: Emission factors comply with the POLA Construction Guidelines.

**Table C1.1-16. Mitigated Emission Factors of Equipment Used at Lead & Storage Track and Dominguez Channel**

Construction Sub-Element	Equipment	Size-(hp)	Fuel	Emission Factor (g/bhp-hr)					
				VOC	CO	NOX	SO2	PM10	PM2.5
<b>Lead &amp; Storage Track</b>									
Utility Relocation	Front End Loader/Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	14 T Rough Terrain Crane	155	D	0.27	3.41	4.19	0.01	0.07	0.06
	Cat 572 Pipe Layer	230	D	0.52	1.48	4.03	0.01	0.05	0.04
	300 scfm Air Compressor	125	D	0.27	3.24	4.19	0.01	0.07	0.06
	Welding Unit	50	D	0.28	4.10	5.52	0.01	0.09	0.08
Demolition	Front End Loader/Backhoe	500	D	0.37	1.22	3.30	0.01	0.05	0.04
	Concrete Power Saw	10	G	6.94	266.75	4.49	0.01	3.60	3.31
	Track Hoe	321	D	0.42	1.28	3.46	0.01	0.05	0.04
Rough Grading	Front End Loader/Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	Self Loading Scrappers	365	D	0.56	2.12	4.02	0.01	0.05	0.04
	Excavator	168	D	0.27	3.38	4.19	0.01	0.07	0.06
	Sheep's Foot Roller	143	D	0.27	3.26	4.19	0.01	0.07	0.06
	Motor Grader	145	D	0.27	3.37	4.19	0.01	0.07	0.06
Civil Construction	Front End Loader/Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	Vibratory Roller	142	D	0.27	3.26	4.19	0.01	0.07	0.06
	Motor Grader	145	D	0.27	3.37	4.19	0.01	0.07	0.06
Track Work Materials	Front End Loader/Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	Speed Swing	170	D	0.27	3.28	4.17	0.01	0.07	0.06
Track Work Assembly	Tie Tamper	125	D	0.27	3.65	4.19	0.01	0.07	0.06
	Switch Tamper	250	D	0.58	3.19	4.24	0.01	0.05	0.04
	Production Tamper	250	D	0.58	3.19	4.24	0.01	0.05	0.04
	Shoulder Compactor	300	D	0.58	3.70	4.24	0.01	0.05	0.04
<b>Dominguez Channel</b>									
Utilities	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.05	0.04
	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	14 T Rough Terrain Crane	155	D	0.27	3.41	4.19	0.01	0.07	0.06
	Cat 572 Pipe Layer	230	D	0.53	1.49	4.24	0.01	0.05	0.04
	300 scfm Air Compressor	125	D	0.27	3.25	4.19	0.01	0.07	0.06
	Welding Unit	50	D	0.28	4.10	5.55	0.01	0.09	0.08
Demolition	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.05	0.04
	14 T Rough Terrain Crane	155	D	0.27	3.41	4.19	0.01	0.07	0.06
	300 scfm Air Compressor	125	D	0.27	3.25	4.19	0.01	0.07	0.06
	Pile driver Crane	230	D	0.53	1.49	4.24	0.01	0.05	0.04
	Vibratory Roller	240	D	0.47	1.44	4.24	0.01	0.05	0.04
	Excavator	321	D	0.42	1.28	3.59	0.01	0.05	0.04
	Pumps	60	D	0.35	3.63	4.63	0.01	0.08	0.07
	Dozer	310	D	0.58	3.05	4.24	0.01	0.05	0.04
Excavation	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.05	0.04
	Auger	177	D	0.24	1.04	2.31	0.01	0.05	0.04
CISS Piles	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.05	0.04
	Pile driver Crane	230	D	0.53	1.49	4.24	0.01	0.05	0.04
	Diesel Hammer	44	D	0.28	4.10	5.10	0.01	0.09	0.08
	Concrete Pump	177	D	0.36	1.19	4.24	0.01	0.05	0.04
Concrete	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.05	0.04
	Concrete Pump	177	D	0.36	1.19	4.24	0.01	0.05	0.04
	Crane	173	D	0.27	3.41	4.19	0.01	0.07	0.06
Backfill Cofferdam Piling	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.05	0.04
	Vibratory Roller	142	D	0.27	3.26	4.19	0.01	0.07	0.06
	Foot Roller	143	D	0.27	3.26	4.19	0.01	0.07	0.06
	Motor Grader	145	D	0.27	3.37	4.19	0.01	0.07	0.06
	Large Crane	230	D	0.53	1.49	4.24	0.01	0.05	0.04
Bearing & Structural Steel Beams	300 scfm Air Compressor	125	D	0.27	3.25	4.19	0.01	0.07	0.06
	Welding Unit	50	D	0.28	4.10	5.55	0.01	0.09	0.08
	Large Crane	450	D	0.49	1.67	4.24	0.01	0.05	0.04
Bridge Deck Plate, Waterproffing, Misc. Steel	Fork Lift	125	D	0.27	3.35	4.19	0.01	0.07	0.06
	300 scfm Air Compressor	125	D	0.27	3.25	4.19	0.01	0.07	0.06
	Welding Unit	50	D	0.28	4.10	5.55	0.01	0.09	0.08
	Crane	175	D	0.27	3.41	4.19	0.01	0.07	0.06
Bridge Deck Ballast	Fork Lift	125	D	0.27	3.35	4.19	0.01	0.07	0.06
	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.05	0.04
	Balast Compactor	185	D	0.58	3.28	4.24	0.01	0.05	0.04
Concrete Ties & Track	Front End Loader	262	D	0.38	1.23	3.40	0.01	0.05	0.04
	Ballast Regulator	185	D	0.58	3.28	4.24	0.01	0.05	0.04
	Tie Tamper	125	D	0.27	3.73	4.19	0.01	0.07	0.06
	Switch Tamper	250	D	0.58	3.28	4.24	0.01	0.05	0.04
	Speed Swing	170	D	0.27	3.29	4.19	0.01	0.07	0.06
Painting & Reparis	Fork Lift	125	D	0.27	3.35	4.19	0.01	0.07	0.06
	Front End Loader	197	D	0.40	1.21	3.86	0.01	0.05	0.04
	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	Large Crane	230	D	0.53	1.49	4.24	0.01	0.05	0.04
Sweeper	160	D	0.27	3.27	4.19	0.01	0.07	0.06	

Note: Emission factors comply with the POLA Construction Guidelines.

**Table C1.1-17. Mitigated Emission Factors of Equipment Used at PCH Grade Separation**

Construction Sub-Element	Equipment	Size-hp	Fuel	Emission Factor (g/bhp-hr)					
				VOC	CO	NOX	SO2	PM10	PM2.5
<b>PCH Grade Separation</b>									
Demolition - North Side	P.D Crane	230	D	0.51	1.46	3.59	0.01	0.05	0.04
	Vibratory Rollers	240	D	0.45	1.41	3.59	0.01	0.05	0.04
	Excavator	321	D	0.41	1.26	3.19	0.01	0.05	0.04
	Dozers	310	D	0.58	2.96	3.54	0.01	0.05	0.04
	Front End Loader	262	D	0.37	1.21	3.08	0.01	0.05	0.04
Preparatory Work - North Side	Front End Loader	262	D	0.37	1.21	3.08	0.01	0.05	0.04
	Crane	173	D	0.27	3.41	4.19	0.01	0.07	0.06
	P.D Crane	230	D	0.51	1.46	3.59	0.01	0.05	0.04
	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	Vibratory Rollers	142	D	0.27	3.25	4.19	0.01	0.07	0.06
	Motor Grader	145	D	0.27	3.37	4.19	0.01	0.07	0.06
	Paving Machine	170	D	0.27	3.41	4.19	0.01	0.07	0.06
North Bridge	Auger	177	D	0.23	1.04	2.10	0.01	0.05	0.04
	Pile driver Crane	230	D	0.51	1.46	3.59	0.01	0.05	0.04
	Diesel Hammer	44	D	0.28	4.10	5.01	0.01	0.09	0.08
	Crane	173	D	0.27	3.41	4.19	0.01	0.07	0.06
	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
Pave N/S Bridge And Reroute Traffic	Motor Grader	145	D	0.27	3.37	4.19	0.01	0.07	0.06
	Front End Loader	262	D	0.37	1.21	3.08	0.01	0.05	0.04
	Vibratory rollers	138	D	0.27	3.25	4.19	0.01	0.07	0.06
	Slip Form Machine	250	D	0.32	1.15	3.08	0.01	0.05	0.04
	Paving Machine	170	D	0.27	3.41	4.19	0.01	0.07	0.06
	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
Demolition - South Side	P.D Crane	230	D	0.51	1.46	3.59	0.01	0.05	0.04
	Vibratory Rollers	240	D	0.45	1.41	3.59	0.01	0.05	0.04
	Excavator	321	D	0.41	1.26	3.19	0.01	0.05	0.04
	Dozers	310	D	0.58	2.96	3.54	0.01	0.05	0.04
	Front End Loader	262	D	0.37	1.21	3.08	0.01	0.05	0.04
Preparatory Work - South Side	Front End Loader	262	D	0.37	1.21	3.08	0.01	0.05	0.04
	Crane	173	D	0.27	3.41	4.19	0.01	0.07	0.06
	P.D Crane	175	D	0.27	3.41	4.19	0.01	0.07	0.06
	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
	Vibratory Rollers	142	D	0.27	3.25	4.19	0.01	0.07	0.06
	Motor Grader	145	D	0.27	3.37	4.19	0.01	0.07	0.06
	Paving Machine	175	D	0.27	3.41	4.19	0.01	0.07	0.06
South Bridge	Auger	190	D	0.23	1.04	2.10	0.01	0.05	0.04
	Pile driver Crane	230	D	0.51	1.46	3.59	0.01	0.05	0.04
	Diesel Hammer	44	D	0.28	4.10	5.01	0.01	0.09	0.08
	Crane	173	D	0.27	3.41	4.19	0.01	0.07	0.06
	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07
Pave S/S Bridge And Yard Access Roads	Motor Grader	145	D	0.27	3.37	4.19	0.01	0.07	0.06
	Front End Loader	262	D	0.37	1.21	3.08	0.01	0.05	0.04
	Vibratory rollers	138	D	0.27	3.25	4.19	0.01	0.07	0.06
	Slip Form Machine	250	D	0.32	1.15	3.08	0.01	0.05	0.04
	Paving Machine	170	D	0.27	3.41	4.19	0.01	0.07	0.06
	Backhoe	101	D	0.35	3.73	4.63	0.01	0.08	0.07

Note: Emission factors comply with the POLA Construction Guidelines.

**Table C1.1-18. Summary of Daily Emissions of Offroad Construction Equipment at Site Construction and Sepulveda Bridge**

Construction Sub-Element	Equipment	Number	Size-hp	Fuel	Emissions (lb/day)					
					VOC	CO	NOX	SO2	PM10	PM2.5
<b>Site Construction</b>										
Demolition	Crane	1	173	D	1.17	5.59	8.12	0.01	0.38	0.35
	Excavator	4	321	D	6.81	20.79	53.55	0.09	1.97	1.81
	Crushers	2	270	D	3.62	11.77	36.84	0.05	1.20	1.11
	Dozers	2	310	D	5.47	24.03	31.96	0.04	1.04	0.96
	Front End Loader	5	262	D	5.79	18.94	49.05	0.10	1.73	1.59
Utility Relocation	14 T Rough Terrain Crane	2	155	D	2.10	10.01	14.55	0.02	0.68	0.62
	Front End Loader/Backhoe	2	101	D	1.78	9.30	11.76	0.02	0.84	0.78
	Cat 572 Pipe Layer	2	230	D	3.24	9.24	25.94	0.04	0.89	0.82
	300 scfm Air Compressor	2	125	D	1.75	8.58	13.90	0.02	0.77	0.71
	Welding Unit	4	50	D	4.11	11.80	10.85	0.01	1.01	0.93
Buildings	Crane	1	175	D	1.19	5.65	8.22	0.01	0.38	0.35
	Fork Lift	1	125	D	0.46	2.77	3.45	0.01	0.18	0.17
	Concrete Pump	1	177	D	0.97	3.27	12.25	0.02	0.35	0.32
	Auger	2	177	D	1.13	5.01	10.35	0.03	0.30	0.28
	Pile driver Crane	1	230	D	1.62	4.62	12.97	0.02	0.45	0.41
Rough Grade	Diesel Hammer	1	44	D	0.61	2.22	2.10	0.00	0.15	0.14
	Self Loading Scrappers	6	365	D	17.63	66.67	126.29	0.18	4.11	3.78
	Dozers	2	310	D	5.47	24.03	31.96	0.04	1.04	0.96
	Vibratory Rollers	2	143	D	2.33	11.80	17.96	0.02	0.84	0.77
	Motor Grader	2	145	D	2.42	12.37	18.21	0.02	0.85	0.78
New Utility	14 T Rough Terrain Crane	2	175	D	2.37	11.30	16.43	0.02	0.76	0.70
	Cat 572 Pipe Layer	1	230	D	1.62	4.62	12.97	0.02	0.45	0.41
	Vibratory Rollers	2	142	D	2.31	11.72	17.83	0.02	0.83	0.76
	Front End Loader/Backhoe	2	101	D	1.78	9.30	11.76	0.02	0.84	0.78
	Concrete Pump	1	177	D	0.97	3.27	12.25	0.02	0.35	0.32
Final Grade	Front End Loader/Backhoe	1	101	D	0.89	4.65	5.88	0.01	0.42	0.39
	Vibratory Rollers	2	142	D	2.31	11.72	17.83	0.02	0.83	0.76
	Motor Grader	2	145	D	2.42	12.37	18.21	0.02	0.85	0.78
Track Work	Front End Loader	4	262	D	4.63	15.15	39.24	0.08	1.38	1.27
	Backhoe	1	500	D	2.21	7.23	18.72	0.04	0.66	0.61
	Vibratory Rollers	1	142	D	1.16	5.86	8.91	0.01	0.41	0.38
	Ballast Regulator	1	185	D	0.62	2.50	4.26	0.00	0.44	0.51
	Tie Tamper	1	125	D	0.46	1.95	3.03	0.00	0.35	0.26
	Switch Tamper	1	300	D	0.89	4.75	7.15	0.01	0.66	1.20
Concrete	Front End Loader	1	500	D	2.21	7.23	18.72	0.04	0.66	0.61
	Vibratory Rollers	1	142	D	1.16	5.86	8.91	0.01	0.41	0.38
	Slip Form Machine	1	250	D	1.09	3.95	10.73	0.02	0.36	0.33
	Motor Grader	1	145	D	1.21	6.19	9.10	0.01	0.42	0.39
Asphalt	Motor Grader	1	145	D	1.21	6.19	9.10	0.01	0.42	0.39
	Front End Loader	1	262	D	1.16	3.79	9.81	0.02	0.35	0.32
	Vibratory Rollers	1	138	D	1.12	5.69	8.66	0.01	0.40	0.37
	Paving Machine	2	170	D	3.56	15.86	23.02	0.03	1.07	0.99
	Backhoe	1	101	D	0.89	4.65	5.88	0.01	0.42	0.39
Delination	Crane	1	175	D	1.19	5.65	8.22	0.01	0.38	0.35
	Fork Lift	1	125	D	0.46	2.77	3.45	0.01	0.18	0.17
	Striping Machines	2	60	G	2.70	49.77	10.93	0.01	0.10	0.09
Total Emissions					112.26	492.46	821.29	1.25	33.58	31.53
<b>Sepulveda Bridge</b>										
Demolition	Excavator	2	168	D	2.59	14.50	19.10	0.03	1.03	0.95
	Dozers	2	310	D	5.50	24.22	33.87	0.04	1.07	0.98
	Front End Loader	2	262	D	2.00	6.55	17.34	0.03	0.60	0.56
Preparatory	Front End Loader	2	262	D	2.00	6.55	17.34	0.03	0.60	0.56
	Crane	1	173	D	1.18	5.59	8.20	0.01	0.39	0.36
	Backhoe	2	500	D	3.82	12.49	33.10	0.07	1.15	1.06
Foundation	P.D Crane	1	230	D	1.13	3.22	9.54	0.01	0.32	0.30
	Crane	1	173	D	1.18	5.59	8.20	0.01	0.39	0.36
	P.D Crane	1	230	D	1.13	3.22	9.54	0.01	0.32	0.30
East Track Prep	Excavator	1	168	D	1.29	7.25	9.55	0.01	0.51	0.47
	Crane	1	173	D	1.18	5.59	8.20	0.01	0.39	0.36
	Auger	2	177	D	1.14	5.01	10.61	0.03	0.31	0.28
	Backhoe	4	101	D	3.09	16.03	20.41	0.03	1.54	1.42
	Vibratory Rollers	2	142	D	2.33	11.72	18.00	0.02	0.86	0.79
Pile Prep	Auger	2	177	D	1.14	5.01	10.61	0.03	0.31	0.28
	Vibratory Trench Rollers	2	50	D	2.79	8.02	6.40	0.01	0.46	0.43
	Pile driver Crane	1	230	D	1.13	3.22	9.54	0.01	0.32	0.30
	Diesel Hammer	1	44	D	0.62	2.23	2.11	0.00	0.15	0.14
	Backhoe	2	101	D	1.55	8.01	10.21	0.01	0.77	0.71
North End Prep	Front End Loader	1	262	D	1.00	3.27	8.67	0.02	0.30	0.28
	Backhoe	1	101	D	0.77	4.01	5.10	0.01	0.39	0.36
	Vibratory Rollers	2	142	D	2.33	11.72	18.00	0.02	0.86	0.79
	Grader	2	145	D	2.44	12.38	18.38	0.02	0.88	0.81
	Pile driver Crane	2	230	D	2.27	6.44	19.08	0.03	0.64	0.59
	Diesel Hammer	1	44	D	0.62	2.23	2.11	0.00	0.15	0.14
Wing Wall & Track	Front End Loader	1	262	D	1.00	3.27	8.67	0.02	0.30	0.28
	Vibratory Rollers	1	142	D	1.16	5.86	9.00	0.01	0.43	0.40
	Backhoe	1	101	D	0.77	4.01	5.10	0.01	0.39	0.36
	Ballast Regulator	1	185	D	0.04	0.16	0.27	0.00	0.03	0.00
	Tie Tamper	1	125	D	0.03	0.11	0.19	0.00	0.02	0.00
	Switch Tamper	1	250	D	0.05	0.22	0.37	0.00	0.04	0.00
Bridge Widening	Front End Loader	1	500	D	1.91	6.25	16.55	0.03	0.58	0.53
	Vibratory Rollers	1	142	D	1.16	5.86	9.00	0.01	0.43	0.40
	Dozers	1	310	D	2.75	12.11	16.94	0.02	0.53	0.49
Total Emissions					55.11	231.90	399.30	0.64	17.51	16.04

**Table C1.1-19. Summary of Daily Emissions of Offroad Construction Equipment at Lead & Storage Track and Dominguez Channel**

Construction Sub-Element	Equipment	No.	Size-(hp)	Fuel	Emissions (lb/day)					
					VOC	CO	NOX	SO2	PM10	PM2.5
<b>Lead &amp; Storage Track</b>										
Utility Relocation	Front End Loader/Backhoe	2	101	D	1.56	8.02	10.28	0.01	0.81	0.75
	14 T Rough Terrain Crane	2	155	D	2.13	10.02	14.82	0.02	0.73	0.67
	Cat 572 Pipe Layer	4	230	D	6.57	18.66	57.84	0.08	1.92	1.77
	300 scfm Air Compressor	2	125	D	1.78	8.58	14.11	0.02	0.78	0.72
	Welding Unit	4	50	D	4.20	11.90	10.95	0.01	1.03	0.95
Demolition	Front End Loader/Backhoe	1	500	D	1.92	6.26	16.93	0.03	0.58	0.54
	Concrete Power Saw	1	10	G	0.34	12.88	0.22	0.00	0.17	0.16
	Track Hoe	1	321	D	1.38	4.20	11.39	0.02	0.41	0.37
Rough Grading	Front End Loader/Backhoe	1	101	D	0.78	4.01	5.14	0.01	0.41	0.37
	Self Loading Scrappers	2	365	D	5.94	22.54	46.89	0.06	1.44	1.33
	Excavator	1	168	D	1.30	7.25	9.62	0.01	0.53	0.49
	Sheep's Foot Roller	3	143	D	3.54	17.71	27.42	0.03	1.35	1.24
	Motor Grader	1	145	D	1.23	6.19	9.27	0.01	0.46	0.42
Civil Construction	Front End Loader/Backhoe	2	101	D	1.56	8.02	10.28	0.01	0.81	0.75
	Vibratory Roller	2	142	D	2.34	11.72	18.15	0.02	0.89	0.82
	Motor Grader	2	145	D	2.45	12.38	18.54	0.02	0.91	0.84
Track Work Materials	Front End Loader/Backhoe	2	101	D	1.56	8.02	10.28	0.01	0.81	0.75
	Speed Swing	2	170	D	2.55	15.27	19.85	0.03	1.07	0.99
Track Work Assembly	Tie Tamper	1	125	D	0.40	1.72	2.66	0.00	0.31	0.29
	Switch Tamper	1	250	D	0.73	3.00	5.05	0.01	0.52	0.48
	Production Tamper	1	250	D	0.73	3.00	5.05	0.01	0.52	0.48
	Shoulder Compactor	1	300	D	0.78	4.18	6.26	0.01	0.58	0.53
	Ballast Track Regulator	1	185	D	0.54	2.22	3.74	0.00	0.39	0.36
Total Emissions					46.32	207.76	334.77	0.45	17.47	16.07
<b>Dominguez Channel</b>										
Utilities	Front End Loader	2	197	D	1.61	4.90	15.58	0.03	0.49	0.45
	Backhoe	2	101	D	1.58	8.03	10.38	0.01	0.87	0.80
	14 T Rough Terrain Crane	2	155	D	2.14	10.02	14.99	0.02	0.76	0.70
	Cat 572 Pipe Layer	2	230	D	2.34	6.62	21.72	0.03	0.71	0.65
	300 scfm Air Compressor	2	125	D	1.80	8.59	14.25	0.02	0.79	0.73
	Welding Unit	2	50	D	2.13	5.98	5.51	0.01	0.52	0.48
Demolition	Front End Loader	2	197	D	1.61	4.90	15.58	0.03	0.49	0.45
	14 T Rough Terrain Crane	1	155	D	1.07	5.01	7.49	0.01	0.38	0.35
	300 scfm Air Compressor	2	125	D	1.80	8.59	14.25	0.02	0.79	0.73
	Pile driver Crane	1	230	D	1.66	4.70	15.40	0.02	0.50	0.46
	Vibratory Roller	1	240	D	1.43	4.39	14.82	0.02	0.49	0.45
	Excavator	1	321	D	1.73	5.26	14.73	0.02	0.52	0.47
	Pumps	2	60	D	1.06	4.61	7.13	0.01	0.38	0.35
	Dozer	1	310	D	2.78	12.31	18.95	0.02	0.56	0.52
Excavation	Backhoe	1	101	D	0.79	4.01	5.19	0.01	0.44	0.40
	Front End Loader	1	197	D	0.80	2.45	7.79	0.01	0.25	0.23
	Auger	1	177	D	0.58	2.51	5.58	0.02	0.16	0.15
CISS Piles	Front End Loader	1	197	D	0.80	2.45	7.79	0.01	0.25	0.23
	Pile driver Crane	1	230	D	1.66	4.70	15.40	0.02	0.50	0.46
	Diesel Hammer	1	44	D	0.26	0.90	0.85	0.00	0.07	0.06
	Concrete Pump	1	177	D	0.57	1.90	7.29	0.01	0.21	0.19
Concrete	Front End Loader	1	197	D	0.80	2.45	7.79	0.01	0.25	0.23
	Concrete Pump	1	177	D	0.57	1.90	7.29	0.01	0.21	0.19
	Crane	1	173	D	1.20	5.59	8.36	0.01	0.43	0.39
Backfill Cofferdam Piling	Front End Loader	1	197	D	0.80	2.45	7.79	0.01	0.25	0.23
	Vibratory Roller	1	142	D	1.18	5.86	9.18	0.01	0.47	0.43
	Foot Roller	1	143	D	1.19	5.91	9.24	0.01	0.47	0.43
	Motor Grader	1	145	D	1.24	6.19	9.37	0.01	0.48	0.44
	Large Crane	1	230	D	1.15	3.26	10.68	0.01	0.35	0.32
Bearing & Structural Steel Beams	300 scfm Air Compressor	1	125	D	0.90	4.29	7.12	0.01	0.40	0.37
	Welding Unit	1	50	D	1.06	2.99	2.75	0.00	0.26	0.24
	Large Crane	1	450	D	2.09	7.12	19.16	0.02	0.60	0.55
	Fork Lift	1	125	D	0.48	2.77	3.57	0.01	0.21	0.19
Bridge Deck Plate, Waterproofing, Misc. Steel	300 scfm Air Compressor	1	125	D	0.90	4.29	7.12	0.01	0.40	0.37
	Welding Unit	1	50	D	1.06	2.99	2.75	0.00	0.26	0.24
	Crane	1	175	D	1.21	5.66	8.46	0.01	0.43	0.40
	Fork Lift	1	125	D	0.48	2.77	3.57	0.01	0.21	0.19
Bridge Deck Ballast	Front End Loader	1	197	D	0.80	2.45	7.79	0.01	0.25	0.23
	Balast Compactor	1	185	D	0.68	2.81	4.71	0.00	0.49	0.45
Concrete Ties & Track	Front End Loader	1	262	D	1.01	3.29	9.14	0.02	0.31	0.29
	Ballast Regulator	1	185	D	0.02	0.07	0.12	0.00	0.01	0.01
	Tie Tamper	1	125	D	0.01	0.06	0.09	0.00	0.01	0.01
	Switch Tamper	1	250	D	0.02	0.10	0.17	0.00	0.02	0.02
	Speed Swing	2	170	D	2.57	15.27	20.05	0.03	1.11	1.03
Painting & Reparis	Front End Loader	1	197	D	0.80	2.45	7.79	0.01	0.25	0.23
	Backhoe	1	101	D	0.79	4.01	5.19	0.01	0.44	0.40
	Large Crane	1	230	D	1.15	3.26	10.68	0.01	0.35	0.32
	Sweeper	1	160	D	1.41	7.84	10.99	0.02	0.62	0.57
Total Emissions					56.58	224.94	446.83	0.62	20.08	18.47



**Table C1.1-20. Summary of Daily Emissions of Offroad Construction Equipment at PCH Grade Separation**

Construction Sub-Element	Equipment	No.	Size-hp	Fuel	Emissions (lb/day)					
					VOC	CO	NOX	SO2	PM10	PM2.5
<b>PCH Grade Separation</b>										
Demolition - North Side	P.D Crane	1	230	D	1.12	3.19	8.60	0.01	0.30	0.28
	Vibratory Rollers	1	240	D	1.35	4.19	11.65	0.02	0.41	0.37
	Excavator	2	321	D	3.39	10.37	26.15	0.05	0.97	0.89
	Dozers	2	310	D	5.91	25.92	33.16	0.05	1.11	1.02
	Front End Loader	2	262	D	2.31	7.56	19.24	0.04	0.69	0.63
Preparatory Work - North Side	Front End Loader	2	262	D	2.31	7.56	19.24	0.04	0.69	0.63
	Crane	2	173	D	2.34	11.17	16.13	0.02	0.73	0.67
	P.D Crane	1	230	D	1.12	3.19	8.60	0.01	0.30	0.28
	Backhoe	2	101	D	1.76	9.29	11.68	0.02	0.80	0.74
	Vibratory Rollers	1	142	D	1.12	5.70	8.62	0.01	0.39	0.36
	Motor Grader	1	145	D	1.28	6.56	9.59	0.01	0.44	0.40
	Paving Machine	1	170	D	1.77	7.93	11.43	0.01	0.52	0.48
North Bridge	Auger	1	177	D	0.68	3.03	6.15	0.02	0.18	0.16
	Pile driver Crane	1	230	D	1.12	3.19	8.60	0.01	0.30	0.28
	Diesel Hammer	1	44	D	0.30	1.11	1.04	0.00	0.07	0.07
	Crane	2	173	D	2.34	11.17	16.13	0.02	0.73	0.67
	Backhoe	2	101	D	1.76	9.29	11.68	0.02	0.80	0.74
Pave N/S Bridge And Reroute Traffic	Motor Grader	1	145	D	1.28	6.56	9.59	0.01	0.44	0.40
	Front End Loader	1	262	D	1.15	3.78	9.62	0.02	0.34	0.32
	Vibratory rollers	1	138	D	1.09	5.54	8.38	0.01	0.38	0.35
	Slip Form Machine	1	250	D	1.08	3.94	10.52	0.02	0.36	0.33
	Paving Machine	1	170	D	1.77	7.93	11.43	0.01	0.52	0.48
	Backhoe	1	101	D	0.88	4.65	5.84	0.01	0.40	0.37
Demolition - South Side	P.D Crane	1	230	D	1.12	3.19	8.60	0.01	0.30	0.28
	Vibratory Rollers	1	240	D	1.35	4.19	11.65	0.02	0.41	0.37
	Excavator	2	321	D	3.39	10.37	26.15	0.05	0.97	0.89
	Dozers	2	310	D	5.91	25.92	33.16	0.05	1.11	1.02
	Front End Loader	2	262	D	2.31	7.56	19.24	0.04	0.69	0.63
	Front End Loader	2	262	D	2.31	7.56	19.24	0.04	0.69	0.63
Preparatory Work - South Side	Crane	2	173	D	2.34	11.17	16.13	0.02	0.73	0.67
	P.D Crane	1	175	D	1.18	5.65	8.16	0.01	0.37	0.34
	Backhoe	2	101	D	1.76	9.29	11.68	0.02	0.80	0.74
	Vibratory Rollers	1	142	D	1.12	5.70	8.62	0.01	0.39	0.36
	Motor Grader	1	145	D	1.28	6.56	9.59	0.01	0.44	0.40
	Paving Machine	1	175	D	1.83	8.16	11.76	0.02	0.53	0.49
	Auger	1	190	D	0.73	3.25	6.60	0.02	0.19	0.18
South Bridge	Pile driver Crane	1	230	D	1.12	3.19	8.60	0.01	0.30	0.28
	Diesel Hammer	1	44	D	0.30	1.11	1.04	0.00	0.07	0.07
	Crane	2	173	D	2.34	11.17	16.13	0.02	0.73	0.67
	Backhoe	2	101	D	1.76	9.29	11.68	0.02	0.80	0.74
	Motor Grader	1	145	D	1.28	6.56	9.59	0.01	0.44	0.40
Pave S/S Bridge And Yard Access Roads	Front End Loader	1	262	D	1.15	3.78	9.62	0.02	0.34	0.32
	Vibratory rollers	1	138	D	1.09	5.54	8.38	0.01	0.38	0.35
	Slip Form Machine	1	250	D	1.08	3.94	10.52	0.02	0.36	0.33
	Paving Machine	1	170	D	1.77	7.93	11.43	0.01	0.52	0.48
	Backhoe	1	101	D	0.88	4.65	5.84	0.01	0.40	0.37
	Total Emissions					78.62	328.57	566.52	0.90	23.83

**Table C1.1-21. Summary of Mitigated Daily Emissions of Offroad Construction Equipment at Site Construction and Sepulveda Bridge**

Construction Sub-Element	Equipment	Number	Size-hp	Fuel	Emissions (lb/day)					
					VOC	CO	NOX	SO2	PM10	PM2.5
<b>Site Construction</b>										
Demolition	Crane	1	173	D	0.44	5.59	6.88	0.01	0.11	0.10
	Excavator	4	321	D	6.81	20.79	53.55	0.09	0.79	0.73
	Crushers	2	270	D	3.62	11.77	36.84	0.05	0.45	0.41
	Dozers	2	310	D	4.65	24.03	29.62	0.04	0.39	0.36
	Front End Loader	5	262	D	5.79	18.94	49.05	0.10	0.75	0.69
Utility Relocation	14 T Rough Terrain Crane	2	155	D	0.80	10.01	12.33	0.02	0.20	0.18
	Front End Loader/Backhoe	2	101	D	0.83	8.97	11.14	0.02	0.18	0.17
	Cat 572 Pipe Layer	2	230	D	3.24	9.24	23.32	0.04	0.30	0.28
	300 scfm Air Compressor	2	125	D	0.72	8.58	11.10	0.02	0.18	0.17
	Welding Unit	4	50	D	0.56	8.14	10.85	0.01	0.18	0.17
Buildings	Crane	1	175	D	0.45	5.65	6.96	0.01	0.11	0.10
	Fork Lift	1	125	D	0.22	2.77	3.39	0.01	0.06	0.05
	Concrete Pump	1	177	D	0.97	3.27	11.70	0.02	0.13	0.12
	Auger	2	177	D	1.13	5.01	10.35	0.03	0.23	0.21
	Pile driver Crane	1	230	D	1.62	4.62	11.66	0.02	0.15	0.14
Rough Grade	Diesel Hammer	1	44	D	0.12	1.71	2.10	0.00	0.04	0.04
	Self Loading Scrappers	6	365	D	17.63	66.67	117.03	0.18	1.53	1.41
	Dozers	2	310	D	4.65	24.03	29.62	0.04	0.39	0.36
	Vibratory Rollers	2	143	D	0.98	11.80	15.21	0.02	0.25	0.23
	Motor Grader	2	145	D	1.00	12.37	15.42	0.02	0.25	0.23
New Utility	14 T Rough Terrain Crane	2	175	D	0.90	11.30	13.92	0.02	0.23	0.21
	Cat 572 Pipe Layer	1	230	D	1.62	4.62	11.66	0.02	0.15	0.14
	Vibratory Rollers	2	142	D	0.98	11.72	15.10	0.02	0.25	0.23
	Front End Loader/Backhoe	2	101	D	0.83	8.97	11.14	0.02	0.18	0.17
	Concrete Pump	1	177	D	0.97	3.27	11.70	0.02	0.13	0.12
Final Grade	Front End Loader/Backhoe	1	101	D	0.42	4.49	5.57	0.01	0.09	0.08
	Vibratory Rollers	2	142	D	0.98	11.72	15.10	0.02	0.25	0.23
	Motor Grader	2	145	D	1.00	12.37	15.42	0.02	0.25	0.23
Track Work	Front End Loader	4	262	D	4.63	15.15	39.24	0.08	0.60	0.55
	Backhoe	1	500	D	2.21	7.23	18.72	0.04	0.29	0.26
	Vibratory Rollers	1	142	D	0.49	5.86	7.55	0.01	0.12	0.11
	Ballast Regulator	1	185	D	0.48	2.50	3.53	0.00	0.48	0.40
	Tie Tamper	1	125	D	0.15	1.95	2.36	0.00	0.15	0.09
	Switch Tamper	1	300	D	0.78	4.75	5.72	0.01	0.78	1.05
Concrete	Front End Loader	1	500	D	2.21	7.23	18.72	0.04	0.29	0.26
	Vibratory Rollers	1	142	D	0.49	5.86	7.55	0.01	0.12	0.11
	Slip Form Machine	1	250	D	1.09	3.95	10.73	0.02	0.16	0.15
	Motor Grader	1	145	D	0.50	6.19	7.71	0.01	0.13	0.12
Asphalt	Motor Grader	1	145	D	0.50	6.19	7.71	0.01	0.13	0.12
	Front End Loader	1	262	D	1.16	3.79	9.81	0.02	0.15	0.14
	Vibratory Rollers	1	138	D	0.47	5.69	7.34	0.01	0.12	0.11
	Paving Machine	2	170	D	1.26	15.86	19.49	0.03	0.32	0.29
	Backhoe	1	101	D	0.42	4.49	5.57	0.01	0.09	0.08
Delination	Crane	1	175	D	0.45	5.65	6.96	0.01	0.11	0.10
	Fork Lift	1	125	D	0.22	2.77	3.39	0.01	0.06	0.05
	Striping Machines	2	60	G	2.70	49.77	10.93	0.01	0.10	0.09
Total Emissions					84.12	487.33	760.76	1.25	12.38	11.63
<b>Sepulveda Bridge</b>										
Demolition	Excavator	2	168	D	1.16	14.50	18.02	0.03	0.29	0.27
	Dozers	2	310	D	4.65	24.22	31.09	0.04	0.39	0.36
	Front End Loader	2	262	D	2.00	6.55	17.34	0.03	0.26	0.24
Preparatory	Front End Loader	2	262	D	2.00	6.55	17.34	0.03	0.26	0.24
	Crane	1	173	D	0.44	5.59	6.88	0.01	0.11	0.10
	Backhoe	2	500	D	3.82	12.49	33.10	0.07	0.49	0.45
Foundation	P.D Crane	1	230	D	1.13	3.22	8.46	0.01	0.10	0.10
	Crane	1	173	D	0.44	5.59	6.88	0.01	0.11	0.10
	P.D Crane	1	230	D	1.13	3.22	8.46	0.01	0.10	0.10
East Track Prep	Excavator	1	168	D	0.58	7.25	9.01	0.01	0.15	0.13
	Crane	1	173	D	0.44	5.59	6.88	0.01	0.11	0.10
	Auger	2	177	D	1.14	5.01	10.61	0.03	0.23	0.21
	Backhoe	4	101	D	1.43	15.45	19.19	0.03	0.31	0.29
Pile Prep	Vibratory Rollers	2	142	D	0.98	11.72	15.10	0.02	0.25	0.23
	Auger	2	177	D	1.14	5.01	10.61	0.03	0.23	0.21
	Vibratory Trench Rollers	2	50	D	0.36	5.20	6.40	0.01	0.12	0.11
	Pile driver Crane	1	230	D	1.13	3.22	8.46	0.01	0.10	0.10
	Diesel Hammer	1	44	D	0.12	1.71	2.11	0.00	0.04	0.04
North End Prep	Backhoe	2	101	D	0.72	7.73	9.60	0.01	0.16	0.14
	Front End Loader	1	262	D	1.00	3.27	8.67	0.02	0.13	0.12
	Backhoe	1	101	D	0.36	3.86	4.80	0.01	0.08	0.07
	Vibratory Rollers	2	142	D	0.98	11.72	15.10	0.02	0.25	0.23
	Grader	2	145	D	1.00	12.38	15.42	0.02	0.25	0.23
	Pile driver Crane	2	230	D	2.27	6.44	16.92	0.03	0.21	0.19
Wing Wall & Track	Diesel Hammer	1	44	D	0.12	1.71	2.11	0.00	0.04	0.04
	Front End Loader	1	262	D	1.00	3.27	8.67	0.02	0.13	0.12
	Vibratory Rollers	1	142	D	0.49	5.86	7.55	0.01	0.12	0.11
	Backhoe	1	101	D	0.36	3.86	4.80	0.01	0.08	0.07
	Ballast Regulator	1	185	D	0.03	0.16	0.23	0.00	0.00	0.00
	Tie Tamper	1	125	D	0.02	0.11	0.15	0.00	0.00	0.00
Bridge Widening	Switch Tamper	1	250	D	0.04	0.22	0.31	0.00	0.00	0.00
	Front End Loader	1	500	D	1.91	6.25	16.55	0.03	0.25	0.23
	Vibratory Rollers	1	142	D	0.49	5.86	7.55	0.01	0.12	0.11
Total Emissions					37.22	226.90	369.91	0.64	5.67	5.21

**Table C1.1-22. Summary of Mitigated Daily Emissions of Offroad Construction Equipment at Lead & Storage Track and Dominguez Channel**

Construction Sub-Element	Equipment	No.	Size-(hp)	Fuel	Emissions (lb/day)					
					VOC	CO	NOX	SO2	PM10	PM2.5
<b>Lead &amp; Storage Track</b>										
Utility Relocation	Front End Loader/Backhoe	2	101	D	0.72	7.73	9.60	0.01	0.16	0.14
	14 T Rough Terrain Crane	2	155	D	0.80	10.02	12.33	0.02	0.20	0.18
	Cat 572 Pipe Layer	4	230	D	6.57	18.66	50.73	0.08	0.60	0.56
	300 scfm Air Compressor	2	125	D	0.72	8.58	11.10	0.02	0.18	0.17
	Welding Unit	4	50	D	0.56	8.14	10.95	0.01	0.18	0.17
Demolition	Front End Loader/Backhoe	1	500	D	1.92	6.26	16.93	0.03	0.25	0.23
	Concrete Power Saw	1	10	G	0.34	12.88	0.22	0.00	0.17	0.16
	Track Hoe	1	321	D	1.38	4.20	11.39	0.02	0.16	0.15
Rough Grading	Front End Loader/Backhoe	1	101	D	0.36	3.86	4.80	0.01	0.08	0.07
	Self Loading Scrappers	2	365	D	5.94	22.54	42.70	0.06	0.51	0.47
	Excavator	1	168	D	0.58	7.25	9.01	0.01	0.15	0.13
	Sheep's Foot Roller	3	143	D	1.47	17.71	22.81	0.03	0.37	0.34
	Motor Grader	1	145	D	0.50	6.19	7.71	0.01	0.13	0.12
Civil Construction	Front End Loader/Backhoe	2	101	D	0.72	7.73	9.60	0.01	0.16	0.14
	Vibratory Roller	2	142	D	0.98	11.72	15.10	0.02	0.25	0.23
	Motor Grader	2	145	D	1.00	12.38	15.42	0.02	0.25	0.23
Track Work Materials	Front End Loader/Backhoe	2	101	D	0.72	7.73	9.60	0.01	0.16	0.14
	Speed Swing	2	170	D	1.26	15.27	19.37	0.03	0.32	0.29
Track Work Assembly	Tie Tamper	1	125	D	0.13	1.71	1.97	0.00	0.03	0.03
	Switch Tamper	1	250	D	0.55	3.00	3.99	0.01	0.05	0.04
	Production Tamper	1	250	D	0.55	3.00	3.99	0.01	0.05	0.04
	Shoulder Compactor	1	300	D	0.65	4.18	4.79	0.01	0.05	0.05
	Ballast Track Regulator	1	185	D	0.40	2.22	2.95	0.00	0.03	0.03
Total Emissions					28.79	202.97	297.06	0.45	4.46	4.11
<b>Dominguez Channel</b>										
Utilities	Front End Loader	2	197	D	1.61	4.90	15.58	0.03	0.19	0.18
	Backhoe	2	101	D	0.72	7.73	9.60	0.01	0.16	0.14
	14 T Rough Terrain Crane	2	155	D	0.80	10.02	12.33	0.02	0.20	0.18
	Cat 572 Pipe Layer	2	230	D	2.34	6.62	18.79	0.03	0.21	0.20
	300 scfm Air Compressor	2	125	D	0.72	8.59	11.10	0.02	0.18	0.17
	Welding Unit	2	50	D	0.28	4.07	5.51	0.01	0.09	0.08
Demolition	Front End Loader	2	197	D	1.61	4.90	15.58	0.03	0.19	0.18
	14 T Rough Terrain Crane	1	155	D	0.40	5.01	6.16	0.01	0.10	0.09
	300 scfm Air Compressor	2	125	D	0.72	8.59	11.10	0.02	0.18	0.17
	Pile driver Crane	1	230	D	1.66	4.70	13.33	0.02	0.15	0.14
	Vibratory Roller	1	240	D	1.43	4.39	12.90	0.02	0.15	0.13
	Excavator	1	321	D	1.73	5.26	14.73	0.02	0.20	0.18
	Pumps	2	60	D	0.44	4.61	5.88	0.01	0.10	0.09
	Dozer	1	310	D	2.33	12.31	17.10	0.02	0.19	0.18
Excavation	Backhoe	1	101	D	0.36	3.86	4.80	0.01	0.08	0.07
	Front End Loader	1	197	D	0.80	2.45	7.79	0.01	0.10	0.09
	Backhoe	1	101	D	0.36	3.86	4.80	0.01	0.08	0.07
	Auger	1	177	D	0.58	2.51	5.58	0.02	0.12	0.11
CISS Piles	Front End Loader	1	197	D	0.80	2.45	7.79	0.01	0.10	0.09
	Pile driver Crane	1	230	D	1.66	4.70	13.33	0.02	0.15	0.14
	Diesel Hammer	1	44	D	0.05	0.68	0.85	0.00	0.02	0.01
	Concrete Pump	1	177	D	0.57	1.90	6.78	0.01	0.08	0.07
Concrete	Front End Loader	1	197	D	0.80	2.45	7.79	0.01	0.10	0.09
	Concrete Pump	1	177	D	0.57	1.90	6.78	0.01	0.08	0.07
	Crane	1	173	D	0.44	5.59	6.88	0.01	0.11	0.10
Backfill Cofferdam Piling	Front End Loader	1	197	D	0.80	2.45	7.79	0.01	0.10	0.09
	Vibratory Roller	1	142	D	0.49	5.86	7.55	0.01	0.12	0.11
	Foot Roller	1	143	D	0.49	5.91	7.60	0.01	0.12	0.11
	Motor Grader	1	145	D	0.50	6.19	7.71	0.01	0.13	0.12
	Large Crane	1	230	D	1.15	3.26	9.24	0.01	0.10	0.10
Bearing & Structural Steel Beams	300 scfm Air Compressor	1	125	D	0.36	4.29	5.55	0.01	0.09	0.08
	Welding Unit	1	50	D	0.14	2.04	2.75	0.00	0.05	0.04
	Large Crane	1	450	D	2.09	7.12	18.09	0.02	0.20	0.19
	Fork Lift	1	125	D	0.22	2.77	3.47	0.01	0.06	0.05
Bridge Deck Plate, Waterproffing, Misc. Steel	300 scfm Air Compressor	1	125	D	0.36	4.29	5.55	0.01	0.09	0.08
	Welding Unit	1	50	D	0.14	2.04	2.75	0.00	0.05	0.04
	Crane	1	175	D	0.45	5.66	6.96	0.01	0.11	0.10
	Fork Lift	1	125	D	0.22	2.77	3.47	0.01	0.06	0.05
Bridge Deck Ballast	Front End Loader	1	197	D	0.80	2.45	7.79	0.01	0.10	0.09
	Balast Compactor	1	185	D	0.50	2.81	3.63	0.00	0.04	0.04
Concrete Ties & Track	Front End Loader	1	262	D	1.01	3.29	9.14	0.02	0.13	0.12
	Ballast Regulator	1	185	D	0.01	0.07	0.10	0.00	0.00	0.00
	Tie Tamper	1	125	D	0.00	0.06	0.06	0.00	0.00	0.00
	Switch Tamper	1	250	D	0.02	0.10	0.13	0.00	0.00	0.00
	Speed Swing	2	170	D	1.26	15.27	19.49	0.03	0.32	0.29
Painting & Reparis	Front End Loader	1	197	D	0.80	2.45	7.79	0.01	0.10	0.09
	Backhoe	1	101	D	0.36	3.86	4.80	0.01	0.08	0.07
	Large Crane	1	230	D	1.15	3.26	9.24	0.01	0.10	0.10
	Sweeper	1	160	D	0.65	7.84	10.06	0.02	0.16	0.15
Total Emissions					37.74	220.16	403.59	0.62	5.59	5.14

**Table C1.1-23. Summary of Mitigated Daily Emissions of Offroad Construction Equipment at PCH Grade Separation**

Construction Sub-Element	Equipment	No.	Size-hp	Fuel	Emissions (lb/day)						
					VOC	CO	NOX	SO2	PM10	PM2.5	
<b>PCH Grade Separation</b>											
Demolition - North Side	P.D Crane	1	230	D	1.12	3.19	7.82	0.01	0.10	0.10	
	Vibratory Rollers	1	240	D	1.35	4.19	10.62	0.02	0.14	0.13	
	Excavator	2	321	D	3.39	10.37	26.15	0.05	0.39	0.36	
	Dozers	2	310	D	5.05	25.92	30.97	0.05	0.42	0.39	
	Front End Loader	2	262	D	2.31	7.56	19.24	0.04	0.30	0.28	
Preparatory Work - North Side	Front End Loader	2	262	D	2.31	7.56	19.24	0.04	0.30	0.28	
	Crane	2	173	D	0.89	11.17	13.76	0.02	0.22	0.21	
	P.D Crane	1	230	D	1.12	3.19	7.82	0.01	0.10	0.10	
	Backhoe	2	101	D	0.83	8.97	11.14	0.02	0.18	0.17	
	Vibratory Rollers	1	142	D	0.48	5.70	7.35	0.01	0.12	0.11	
	Motor Grader	1	145	D	0.53	6.56	8.18	0.01	0.13	0.12	
	Paving Machine	1	170	D	0.63	7.93	9.75	0.01	0.16	0.15	
North Bridge	Auger	1	177	D	0.68	3.03	6.15	0.02	0.14	0.13	
	Pile driver Crane	1	230	D	1.12	3.19	7.82	0.01	0.10	0.10	
	Diesel Hammer	1	44	D	0.06	0.86	1.04	0.00	0.02	0.02	
	Crane	2	173	D	0.89	11.17	13.76	0.02	0.22	0.21	
	Backhoe	2	101	D	0.83	8.97	11.14	0.02	0.18	0.17	
Pave N/S Bridge And Reroute Traffic	Motor Grader	1	145	D	0.53	6.56	8.18	0.01	0.13	0.12	
	Front End Loader	1	262	D	1.15	3.78	9.62	0.02	0.15	0.14	
	Vibratory rollers	1	138	D	0.46	5.54	7.15	0.01	0.12	0.11	
	Slip Form Machine	1	250	D	1.08	3.94	10.52	0.02	0.16	0.15	
	Paving Machine	1	170	D	0.63	7.93	9.75	0.01	0.16	0.15	
	Backhoe	1	101	D	0.42	4.49	5.57	0.01	0.09	0.08	
Demolition - South Side	P.D Crane	1	230	D	1.12	3.19	7.82	0.01	0.10	0.10	
	Vibratory Rollers	1	240	D	1.35	4.19	10.62	0.02	0.14	0.13	
	Excavator	2	321	D	3.39	10.37	26.15	0.05	0.39	0.36	
	Dozers	2	310	D	5.05	25.92	30.97	0.05	0.42	0.39	
	Front End Loader	2	262	D	2.31	7.56	19.24	0.04	0.30	0.28	
	Front End Loader	2	262	D	2.31	7.56	19.24	0.04	0.30	0.28	
Preparatory Work - South Side	Crane	2	173	D	0.89	11.17	13.76	0.02	0.22	0.21	
	P.D Crane	1	175	D	0.45	5.65	6.96	0.01	0.11	0.10	
	Backhoe	2	101	D	0.83	8.97	11.14	0.02	0.18	0.17	
	Vibratory Rollers	1	142	D	0.48	5.70	7.35	0.01	0.12	0.11	
	Motor Grader	1	145	D	0.53	6.56	8.18	0.01	0.13	0.12	
	Paving Machine	1	175	D	0.65	8.16	10.03	0.02	0.16	0.15	
	Auger	1	190	D	0.73	3.25	6.60	0.02	0.15	0.14	
	Pile driver Crane	1	230	D	1.12	3.19	7.82	0.01	0.10	0.10	
South Bridge	Diesel Hammer	1	44	D	0.06	0.86	1.04	0.00	0.02	0.02	
	Crane	2	173	D	0.89	11.17	13.76	0.02	0.22	0.21	
	Backhoe	2	101	D	0.83	8.97	11.14	0.02	0.18	0.17	
	Motor Grader	1	145	D	0.53	6.56	8.18	0.01	0.13	0.12	
	Front End Loader	1	262	D	1.15	3.78	9.62	0.02	0.15	0.14	
Pave S/S Bridge And Yard Access Roads	Vibratory rollers	1	138	D	0.46	5.54	7.15	0.01	0.12	0.11	
	Slip Form Machine	1	250	D	1.08	3.94	10.52	0.02	0.16	0.15	
	Paving Machine	1	170	D	0.63	7.93	9.75	0.01	0.16	0.15	
	Backhoe	1	101	D	0.42	4.49	5.57	0.01	0.09	0.08	
	Total Emissions					55.07	326.47	525.35	0.90	8.15	7.49

**Table C1.1-24. On-Road Trucks Activities - Site Construction**

Year	Truck Type	Vehicle Class	Sub-Element	Idling Time [hr/Trip]	On-Site Round Trip Distance [mi/trip]	Off-site Round Trip Distance [mi/Trip]	Number of days of operation	Total Number of Trips	Max Number of truck trips per day
2013	Stakebed trucks	MHDT	Mobilization	0.17	0.76	40.00	26	10	1
	Dump trucks	HHDT	Demolition	0.17	0.76	40.00	104	4853	47
	Semi-End Dump trucks	HHDT	Demolition	0.17	0.76	40.00	52	4517	87
	48-ft flatbed trailer trucks	HHDT	Demolition	0.17	0.76	40.00	52	146	3
	Stakebed trucks	MHDT	Utility Relocation	0.17	0.76	40.00	104	208	2
	Semi-End Dump trucks	HHDT	Rough Grading	0.17	0.76	40.00	234	13462	58
	48-ft flatbed trailer trucks	HHDT	New Utility	0.17	0.76	40.00	78	50	1
	Concrete trucks	HHDT	Building	0.33	0.76	15.00	78	472	7
2014	Water trucks	MHDT	Site	0.17	0.76	13.00	312	3744	12
	48-ft flatbed trailer trucks	HHDT	New Utility	0.17	0.76	40.00	78	50	1
	48-ft flatbed trailer trucks	HHDT	Building	0.17	0.76	40.00	52	730	15
	Concrete trucks	HHDT	Building	0.17	0.76	40.00	156	2808	18
	Concrete trucks	HHDT	Final Grading	0.33	0.76	15.00	52	624	12
	Semi end dump trucks	HHDT	Trackwork	0.17	0.76	40.00	78	16962	218
	48-ft flatbed trailer trucks	HHDT	Trackwork	0.17	0.76	40.00	78	819	11
	Concrete trucks	HHDT	Cranepads	0.33	0.76	15.00	52	1545	30
	Dump trucks	HHDT	Asphalt	0.17	0.76	40.00	78	156	2
	Bottom-dump asphalt trucks	HHDT	Asphalt	0.17	0.76	40.00	78	11924	153
	48-ft flatbed trailer trucks	HHDT	Delination	0.17	0.76	40.00	26	4	1
	Stakebed trucks	MHDT	Commissioning	0.17	0.76	40.00	26	10	1
	Stakebed trucks	MHDT	Demobilization	0.17	0.76	40.00	26	10	1
	Water trucks	MHDT	Site	0.17	0.76	13.00	182	2184	12

**Table C1.1-25. On-Road Trucks Activities - Sepulveda Bridge**

Year	Truck Type	Vehicle Class	Sub-Element	Idling Time [hr/Trip]	On-Site Round Trip Distance [mi/trip]	Off-site Round Trip Distance [mi/Trip]	Number of days of operation	Total Number of Trips	Max Number of truck trips per day
2013	48-ft flatbed trailer trucks	HHDT	Mobilization	0.17	0.76	40.00	208	48	1
	Stakebed trucks	MHDT	Demolition	0.17	0.76	40.00	52	8	1
	Semi-End dump trucks	HHDT	Demolition	0.17	0.76	40.00	40	13	1
	48-ft flatbed trailer trucks	HHDT	Demolition	0.17	0.76	40.00	12	4	1
	Concrete trucks	HHDT	Demolition	0.33	0.76	15.00	52	21	1
	Stakebed trucks	MHDT	Preparatory	0.17	0.76	40.00	26	7	1
	Dump trucks	HHDT	Preparatory	0.17	0.76	40.00	26	8	1
	Stakebed trucks	MHDT	Foundation	0.17	0.76	40.00	78	20	1
	Semi-End dump trucks	HHDT	Foundation	0.17	0.76	40.00	50	28	1
	48-ft flatbed trailer trucks	HHDT	Foundation	0.17	0.76	40.00	28	16	1
	Concrete trucks	HHDT	Foundation	0.33	0.76	15.00	78	57	1
	Stakebed trucks	MHDT	East Track	0.17	0.76	40.00	104	27	1
	Semi-End dump trucks	HHDT	East Track	0.17	0.76	40.00	104	23	1
	Concrete trucks	HHDT	East Track	0.33	0.76	15.00	104	269	3
	Stakebed trucks	MHDT	Pile Prep	0.17	0.76	40.00	52	20	1
	Semi-End dump trucks	HHDT	Pile Prep	0.17	0.76	40.00	39	75	2
	48-ft flatbed trailer trucks	HHDT	Pile Prep	0.17	0.76	40.00	13	24	2
	Concrete trucks	HHDT	Pile Prep	0.33	0.76	15.00	52	68	2
	Stakebed trucks	MHDT	North End Prep	0.17	0.76	40.00	26	7	1
	Semi-End dump trucks	HHDT	North End Prep	0.17	0.76	40.00	18	15	1
	48-ft flatbed trailer trucks	HHDT	North End Prep	0.17	0.76	40.00	8	6	1
	Concrete trucks	HHDT	North End Prep	0.33	0.76	15.00	26	17	1
	Water trucks	MHDT	Site	0.17	0.76	13.00	312	1248	4
2014	Stakebed trucks	MHDT	North End Prep	0.17	0.76	40.00	52	13	1
	Semi-End dump trucks	HHDT	North End Prep	0.17	0.76	40.00	37	29	1
	48-ft flatbed trailer trucks	HHDT	North End Prep	0.17	0.76	40.00	15	13	1
	Concrete trucks	HHDT	North End Prep	0.33	0.76	15.00	52	35	1
	Stakebed trucks	MHDT	Wingwall	0.17	0.76	40.00	78	3	1
	Semi-End dump trucks	HHDT	Wingwall	0.17	0.76	40.00	78	24	1
	Concrete trucks	HHDT	Wingwall	0.33	0.76	15.00	78	17	1
	48-ft flatbed trailer trucks	HHDT	Demobilization	0.17	0.76	40.00	26	24	1
	Water trucks	MHDT	Site	0.17	0.76	13.00	104	416	4

**Table C1.1-26. On-Road Trucks Activities - Lead & Storage Track**

Year	Truck Type	Vehicle Class	Sub-Element	Idling Time [hr/Trip]	On-Site Round Trip Distance [mi/trip]	Off-site Round Trip Distance [mi/Trip]	Number of days of operation	Total Number of Trips	Max Number of truck trips per day
2013	48-ft flatbed trailer trucks	HHDT	Mobilization	0.17	0.76	40.00	26	10	1
	Stakedbed trucks	MHDT	Utility Relocation	0.17	0.76	40.00	78	624	8
	48-ft flatbed trailer trucks	HHDT	Demolition	0.17	0.76	40.00	52	125	3
	Dump trucks	HHDT	Rough Grading	0.17	0.76	40.00	104	2118	21
	Bottom-dump trucks	HHDT	Civil Construction	0.17	0.76	40.00	104	2524	25
	Bottom-dump trucks	HHDT	Trackwork Distribu	0.17	0.76	40.00	104	954	10
	48-ft flatbed trailer trucks	HHDT	Trackwork	0.17	0.76	40.00	87	370	5
2014	Water trucks	MHDT	Site	0.17	0.76	13.00	312	2496	8
	48-ft flatbed trailer trucks	HHDT	Trackwork	0.17	0.76	40.00	43	185	5
	48-ft flatbed trailer trucks	HHDT	Demobilization	0.17	0.76	40.00	26	10	1
	Water trucks	MHDT	Site	0.17	0.76	13.00	52	208	4

**Table C1.1-27. On-Road Trucks Activities - Dominguez Channel**

Year	Truck Type	Vehicle Class	Sub-Element	Idling Time [hr/Trip]	On-Site Round Trip Distance [mi/trip]	Off-site Round Trip Distance [mi/Trip]	Number of days of operation	Total Number of Trips	Max Number of truck trips per day
2013	48-ft flatbed trailer trucks	HHDT	Mobilization	0.17	0.76	40.00	156	10	1
	Stakebed Trucks	MHDT	Demolition	0.17	0.76	40.00	78	8	1
	Semi-End Dump Trucks	HHDT	Demolition	0.17	0.76	40.00	78	9	1
	Semi-End Dump Trucks	HHDT	Excavation	0.17	0.76	40.00	26	24	1
	Stakebed Trucks	MHDT	CISS Piles	0.17	0.76	40.00	52	5	1
	Semi-End Dump Trucks	HHDT	CISS Piles	0.17	0.76	40.00	23	13	1
	48-ft flatbed trailer trucks	HHDT	CISS Piles	0.17	0.76	40.00	29	16	1
	Concrete Trucks	HHDT	CISS Piles	0.33	0.76	15.00	52	30	1
	Stakebed Trucks	MHDT	Concrete	0.17	0.76	40.00	52	3	1
	Concrete Trucks	HHDT	Concrete	0.33	0.76	15.00	52	17	1
	Semi-End Dump Trucks	HHDT	Backfill Coffers	0.17	0.76	40.00	26	8	1
	48-ft flatbed trailer trucks	HHDT	Bearings & Structures	0.17	0.76	40.00	26	6	1
	Stakebed Trucks	MHDT	Bridge Deck	0.17	0.76	40.00	26	2	1
	48-ft flatbed trailer trucks	HHDT	Bridge Deck	0.17	0.76	40.00	26	3	1
	Double Bottom Dump Trucks	HHDT	Bridge Deck Ballast	0.17	0.76	40.00	26	14	1
	48-ft flatbed trailer trucks	HHDT	Concrete Tie & Tr	0.17	0.76	40.00	26	2	1
	Semi-End Dump Trucks	HHDT	Painting & Repairs	0.17	0.76	40.00	26	1	1
	Water trucks	MHDT	Site	0.17	0.76	13.00	312	104	1
	Dump trucks	HHDT	Site	0.17	0.76	40.00	312	104	1
	48-ft flatbed trailer trucks	HHDT	Demobilization	0.17	0.76	40.00	26	10	1



**Table C1.1-28. On-Road Trucks Activities - PCH Grade Separation**

Year	Truck Type	Vehicle Class	Sub-Element	Idling Time [hr/Trip]	On-Site Round Trip Distance [mi/trip]	Off-site Round Trip Distance [mi/Trip]	Number of days of operation	Total Number of Trips	Max Number of truck trips per day
2013	Semi-End Dump Trucks	HHDT	Demolition (north s	0.17	0.76	40.00	54	119	3
	48 - ft flatbed trailer trucks	HHDT	Demolition (north s	0.17	0.76	40.00	132	518	4
	Stakebed Trucks	MHDT	Demolition (north s	0.17	0.76	40.00	132	36	1
	Semi-End Dump Trucks	HHDT	North Side Bridge	0.17	0.76	40.00	204	237	2
	48 - ft flatbed trailer trucks	HHDT	North Side Bridge	0.17	0.76	40.00	204	5987	30
	Stakebed Trucks	MHDT	North Side Bridge	0.17	0.76	40.00	204	244	2
	Concrete trucks	HHDT	North Side Bridge	0.33	0.76	15.00	204	1127	6
2014	Water Truck	MHDT	Site	0.17	0.76	2.00	312	3120	10
	Semi-End Dump Trucks	HHDT	Demolition (south	0.17	0.76	40.00	60	143	3
	48 - ft flatbed trailer trucks	HHDT	Demolition (south	0.17	0.76	40.00	60	1036	18
	Stakebed Trucks	MHDT	Demolition (south	0.17	0.76	40.00	60	21	1
	Semi-End Dump Trucks	HHDT	South Side Bridge	0.17	0.76	40.00	264	251	1
	48 - ft flatbed trailer trucks	HHDT	South Side Bridge	0.17	0.76	40.00	264	4641	18
	Stakebed Trucks	MHDT	South Side Bridge	0.17	0.76	40.00	180	222	2
	Concrete trucks	HHDT	South Side Bridge	0.33	0.76	15.00	264	1163	5
	48 - ft flatbed trailer trucks	HHDT	Demobilization	0.17	0.76	40.00	30	24	1
Water Truck	MHDT	Site	0.17	0.76	2.00	260	2600	10	

**Table C1.1-29. Unmitigated Emission Factors for On-Road Trucks - Site Construction**

Truck Type	Vehicle Class	Speed <sup>(1)</sup>	Emission Factors (grams/mile or grams/hr)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust) <sup>(2)</sup>	Total PM2.5 (incl. paved road dust) <sup>(2)</sup>	Total PM10 (incl. unpaved road dust) <sup>(3)</sup>	Total PM2.5 (incl. unpaved road dust) <sup>(3)</sup>
<b>2013</b>										
Stakebed trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Stakebed trucks	MHDT	On-site	1.94	3.31	12.96	0.01	2.21	0.92	203.73	20.84
Stakebed trucks	MHDT	Off-site	0.43	1.26	6.72	0.01	0.80	0.37		
Dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Dump trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Dump trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Semi-End Dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Semi-End Dump trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Semi-End Dump trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
48-ft flatbed trailer trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
48-ft flatbed trailer trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
48-ft flatbed trailer trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Concrete trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Concrete trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Concrete trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Water trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Water trucks	MHDT	On-site	1.94	3.31	12.96	0.01	2.21	0.92	203.73	20.84
Water trucks	MHDT	Off-site	0.43	1.26	6.72	0.01	0.80	0.37		
<b>2014</b>										
48-ft flatbed trailer trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
48-ft flatbed trailer trucks	HHDT	On-site	2.35	4.93	18.52	0.02	1.97	0.72	346.65	34.95
48-ft flatbed trailer trucks	HHDT	Off-site	0.54	1.88	9.44	0.02	0.69	0.29		
Concrete trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Concrete trucks	HHDT	On-site	2.35	4.93	18.52	0.02	1.97	0.72	346.65	34.95
Concrete trucks	HHDT	Off-site	0.54	1.88	9.44	0.02	0.69	0.29		
Semi end dump trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Semi end dump trucks	HHDT	On-site	2.35	4.93	18.52	0.02	1.97	0.72	346.65	34.95
Semi end dump trucks	HHDT	Off-site	0.54	1.88	9.44	0.02	0.69	0.29		
Dump trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Dump trucks	HHDT	On-site	2.35	4.93	18.52	0.02	1.97	0.72	346.65	34.95
Dump trucks	HHDT	Off-site	0.54	1.88	9.44	0.02	0.69	0.29		
Bottom-dump asphalt trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Bottom-dump asphalt trucks	HHDT	On-site	2.35	4.93	18.52	0.02	1.97	0.72	346.65	34.95
Bottom-dump asphalt trucks	HHDT	Off-site	0.54	1.88	9.44	0.02	0.69	0.29		
Stakebed trucks	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Stakebed trucks	MHDT	On-site	1.56	2.70	11.56	0.01	2.07	0.79	203.59	20.71
Stakebed trucks	MHDT	Off-site	0.35	1.02	5.98	0.01	0.75	0.32		
Water trucks	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Water trucks	MHDT	On-site	1.56	2.70	11.56	0.01	2.07	0.79	203.59	20.71
Water trucks	MHDT	Off-site	0.35	1.02	5.98	0.01	0.75	0.32		

Notes:

- (1) On-site operation assume a speed of 10 mph; Off-site travel assumes a composite speed of 40% at 55 mph, 50% at 25 mph, and 10% at 10 mph
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (3) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (4) Emission factors modeled using EMFAC2011 with default SCAB fleet distribution.

**Table C1.1-30. Unmitigated Emission Factors for On-Road Trucks - Sepulveda Bridge**

Truck Type	Vehicle Class	Speed <sup>(1)</sup>	Emission Factors (grams/mile or grams/hr)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust) <sup>(2)</sup>	Total PM2.5 (incl. paved road dust) <sup>(2)</sup>	Total PM10 (incl. unpaved road dust) <sup>(3)</sup>	Total PM2.5 (incl. unpaved road dust) <sup>(3)</sup>
<b>2013</b>										
48-ft flatbed trailer trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
48-ft flatbed trailer trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
48-ft flatbed trailer trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Stakebed trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Stakebed trucks	MHDT	On-site	1.94	3.31	12.96	0.01	2.21	0.92	203.73	20.84
Stakebed trucks	MHDT	Off-site	0.43	1.26	6.72	0.01	0.80	0.37		
Semi-End dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Semi-End dump trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Semi-End dump trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Concrete trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Concrete trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Concrete trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Dump trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Dump trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Water trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Water trucks	MHDT	On-site	1.94	3.31	12.96	0.01	2.21	0.92	203.73	20.84
Water trucks	MHDT	Off-site	0.43	1.26	6.72	0.01	0.80	0.37		
<b>2014</b>										
Stakebed trucks	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Stakebed trucks	MHDT	On-site	1.56	2.70	11.56	0.01	2.07	0.79	203.59	20.71
Stakebed trucks	MHDT	Off-site	0.35	1.02	5.98	0.01	0.75	0.32		
Semi-End dump trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Semi-End dump trucks	HHDT	On-site	2.35	4.93	18.52	0.02	1.97	0.72	346.65	34.95
Semi-End dump trucks	HHDT	Off-site	0.54	1.88	9.44	0.02	0.69	0.29		
48-ft flatbed trailer trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
48-ft flatbed trailer trucks	HHDT	On-site	2.35	4.93	18.52	0.02	1.97	0.72	346.65	34.95
48-ft flatbed trailer trucks	HHDT	Off-site	0.54	1.88	9.44	0.02	0.69	0.29		
Concrete trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Concrete trucks	HHDT	On-site	2.35	4.93	18.52	0.02	1.97	0.72	346.65	34.95
Concrete trucks	HHDT	Off-site	0.54	1.88	9.44	0.02	0.69	0.29		
Water trucks	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Water trucks	MHDT	On-site	1.56	2.70	11.56	0.01	2.07	0.79	203.59	20.71
Water trucks	MHDT	Off-site	0.35	1.02	5.98	0.01	0.75	0.32		

Notes:

- (1) On-site operation assume a speed of 10 mph; Off-site travel assumes a composite speed of 40% at 55 mph, 50% at 25 mph, and 10% at 10 mph
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (3) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (4) Emission factors modeled using EMFAC2011 with default SCAB fleet distribution.

**Table C1.1-31. Unmitigated Emission Factors for On-Road Trucks - Lead & Storage Track**

Truck Type	Vehicle Class	Speed <sup>(1)</sup>	Emission Factors (grams/mile or grams/hr)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust) <sup>(2)</sup>	Total PM2.5 (incl. paved road dust) <sup>(2)</sup>	Total PM10 (incl. unpaved road dust) <sup>(3)</sup>	Total PM2.5 (incl. unpaved road dust) <sup>(3)</sup>
<b>2013</b>										
48-ft flatbed trailer trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
48-ft flatbed trailer trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
48-ft flatbed trailer trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Stakebed trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Stakebed trucks	MHDT	On-site	1.94	3.31	12.96	0.01	2.21	0.92	203.73	20.84
Stakebed trucks	MHDT	Off-site	0.43	1.26	6.72	0.01	0.80	0.37		
Dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Dump trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Dump trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Bottom-dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Bottom-dump trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Bottom-dump trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Water trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Water trucks	MHDT	On-site	1.94	3.31	12.96	0.01	2.21	0.92	203.73	20.84
Water trucks	MHDT	Off-site	0.43	1.26	6.72	0.01	0.80	0.37		
<b>2014</b>										
48-ft flatbed trailer trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
48-ft flatbed trailer trucks	HHDT	On-site	2.35	4.93	18.52	0.02	1.97	0.72	346.65	34.95
48-ft flatbed trailer trucks	HHDT	Off-site	0.54	1.88	9.44	0.02	0.69	0.29		
Water trucks	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Water trucks	MHDT	On-site	1.56	2.70	11.56	0.01	2.07	0.79	203.59	20.71
Water trucks	MHDT	Off-site	0.35	1.02	5.98	0.01	0.75	0.32		

Notes:

- (1) On-site operation assume a speed of 10 mph; Off-site travel assumes a composite speed of 40% at 55 mph, 50% at 25 mph, and 10% at 10 mph
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (3) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (4) Emission factors modeled using EMFAC2011 with default SCAB fleet distribution.

**Table C1.1-32. Unmitigated Emission Factors for On-Road Trucks - Dominguez Channel**

Truck Type	Vehicle Class	Speed <sup>(1)</sup>	Emission Factors (grams/mile or grams/hr)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust) <sup>(2)</sup>	Total PM2.5 (incl. paved road dust) <sup>(2)</sup>	Total PM10 (incl. unpaved road dust) <sup>(3)</sup>	Total PM2.5 (incl. unpaved road dust) <sup>(3)</sup>
<b>2013</b>										
48-ft flatbed trailer trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
48-ft flatbed trailer trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
48-ft flatbed trailer trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Stakebed Trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Stakebed Trucks	MHDT	On-site	1.94	3.31	12.96	0.01	2.21	0.92	203.73	20.84
Stakebed Trucks	MHDT	Off-site	0.43	1.26	6.72	0.01	0.80	0.37		
Semi-End Dump Trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Semi-End Dump Trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Semi-End Dump Trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Concrete Trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Concrete Trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Concrete Trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Double Bottom Dump Trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Double Bottom Dump Trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Double Bottom Dump Trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Water trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Water trucks	MHDT	On-site	1.94	3.31	12.96	0.01	2.21	0.92	203.73	20.84
Water trucks	MHDT	Off-site	0.43	1.26	6.72	0.01	0.80	0.37		
Dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Dump trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Dump trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		

Notes:

- (1) On-site operation assume a speed of 10 mph; Off-site travel assumes a composite speed of 40% at 55 mph, 50% at 25 mph, and 10% at 10 mph
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (3) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (4) Emission factors modeled using EMFAC2011 with default SCAB fleet distribution.

**Table C1.1-33. Unmitigated Emission Factors for On-Road Trucks - PCH Grade Separation**

Truck Type	Vehicle Class	Speed <sup>(1)</sup>	Emission Factors (grams/mile or grams/hr)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust) <sup>(2)</sup>	Total PM2.5 (incl. paved road dust) <sup>(2)</sup>	Total PM10 (incl. unpaved road dust) <sup>(3)</sup>	Total PM2.5 (incl. unpaved road dust) <sup>(3)</sup>
<b>2013</b>										
Semi-End Dump Trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Semi-End Dump Trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Semi-End Dump Trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
48-ft flatbed trailer trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
48-ft flatbed trailer trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
48-ft flatbed trailer trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Stakebed Trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Stakebed Trucks	MHDT	On-site	1.94	3.31	12.96	0.01	2.21	0.92	203.73	20.84
Stakebed Trucks	MHDT	Off-site	0.43	1.26	6.72	0.01	0.80	0.37		
Concrete trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Concrete trucks	HHDT	On-site	3.20	6.65	21.10	0.02	2.18	0.91	346.86	35.15
Concrete trucks	HHDT	Off-site	0.72	2.53	10.78	0.02	0.81	0.40		
Water Truck	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Water Truck	MHDT	On-site	1.94	3.31	12.96	0.01	2.21	0.92	203.73	20.84
Water Truck	MHDT	Off-site	0.43	1.26	6.72	0.01	0.80	0.37		
<b>2014</b>										
Semi-End Dump Trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Semi-End Dump Trucks	HHDT	On-site	2.35	4.93	18.52	0.02	1.97	0.72	346.65	34.95
Semi-End Dump Trucks	HHDT	Off-site	0.54	1.88	9.44	0.02	0.69	0.29		
48-ft flatbed trailer trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
48-ft flatbed trailer trucks	HHDT	On-site	2.35	4.93	18.52	0.02	1.97	0.72	346.65	34.95
48-ft flatbed trailer trucks	HHDT	Off-site	0.54	1.88	9.44	0.02	0.69	0.29		
Stakebed Trucks	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Stakebed Trucks	MHDT	On-site	1.56	2.70	11.56	0.01	2.07	0.79	203.59	20.71
Stakebed Trucks	MHDT	Off-site	0.35	1.02	5.98	0.01	0.75	0.32		
Concrete trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Concrete trucks	HHDT	On-site	2.35	4.93	18.52	0.02	1.97	0.72	346.65	34.95
Concrete trucks	HHDT	Off-site	0.54	1.88	9.44	0.02	0.69	0.29		
Water Truck	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Water Truck	MHDT	On-site	1.56	2.70	11.56	0.01	2.07	0.79	203.59	20.71
Water Truck	MHDT	Off-site	0.35	1.02	5.98	0.01	0.75	0.32		

Notes:

(1) On-site operation assume a speed of 10 mph; Off-site travel assumes a composite speed of 40% at 55 mph, 50% at 25 mph, and 10% at 10 mph

(2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.

(3) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors were obtained from USEPA AP-42.

(4) Emission factors modeled using EMFAC2011 with default SCAB fleet distribution.

**Table C1.1-34. Mitigated Emission Factors for On-Road Trucks - Site Construction**

Truck Type	Vehicle Class	Speed <sup>(1)</sup>	Emission Factors (grams/mile or grams/hr)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust) <sup>(2)</sup>	Total PM2.5 (incl. paved road dust) <sup>(2)</sup>	Total PM10 (incl. unpaved road dust) <sup>(3)</sup>	Total PM2.5 (incl. unpaved road dust) <sup>(3)</sup>
<b>2013</b>										
Stakebed trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Stakebed trucks	MHDT	On-site	1.94	3.31	3.70	0.01	1.88	0.62	203.40	20.54
Stakebed trucks	MHDT	Off-site	0.43	1.26	3.70	0.01	0.76	0.34		
Dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Dump trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
Dump trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
Semi-End Dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Semi-End Dump trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
Semi-End Dump trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
48-ft flatbed trailer trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
48-ft flatbed trailer trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
48-ft flatbed trailer trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
Concrete trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Concrete trucks	HHDT	On-site	3.20	6.65	3.60	0.02	1.67	0.45	346.36	34.69
Concrete trucks	HHDT	Off-site	0.72	2.53	3.60	0.02	0.56	0.17		
Water trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Water trucks	MHDT	On-site	1.94	3.31	2.22	0.01	1.71	0.46	203.24	20.38
Water trucks	MHDT	Off-site	0.43	1.26	2.22	0.01	0.59	0.18		
<b>2014</b>										
48-ft flatbed trailer trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
48-ft flatbed trailer trucks	HHDT	On-site	2.35	4.93	6.00	0.02	1.95	0.70	346.63	34.93
48-ft flatbed trailer trucks	HHDT	Off-site	0.54	1.88	6.00	0.02	0.69	0.29		
Concrete trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Concrete trucks	HHDT	On-site	2.35	4.93	3.60	0.02	1.68	0.45	346.36	34.69
Concrete trucks	HHDT	Off-site	0.54	1.88	3.60	0.02	0.56	0.17		
Semi-End Dump trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Semi-End Dump trucks	HHDT	On-site	2.35	4.93	6.00	0.02	1.95	0.70	346.63	34.93
Semi-End Dump trucks	HHDT	Off-site	0.54	1.88	6.00	0.02	0.69	0.29		
Dump trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Dump trucks	HHDT	On-site	2.35	4.93	6.00	0.02	1.95	0.70	346.63	34.93
Dump trucks	HHDT	Off-site	0.54	1.88	6.00	0.02	0.69	0.29		
Bottom-dump asphalt trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Bottom-dump asphalt trucks	HHDT	On-site	2.35	4.93	6.00	0.02	1.95	0.70	346.63	34.93
Bottom-dump asphalt trucks	HHDT	Off-site	0.54	1.88	6.00	0.02	0.69	0.29		
Stakebed trucks	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Stakebed trucks	MHDT	On-site	1.56	2.70	3.70	0.01	1.88	0.62	203.40	20.54
Stakebed trucks	MHDT	Off-site	0.35	1.02	3.70	0.01	0.73	0.31		
Water trucks	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Water trucks	MHDT	On-site	1.56	2.70	2.22	0.01	1.71	0.46	203.24	20.38
Water trucks	MHDT	Off-site	0.35	1.02	2.22	0.01	0.59	0.18		

Notes:

- (1) On-site operation assume a speed of 10 mph; Off-site travel assumes a composite speed of 40% at 55 mph, 50% at 25 mph, and 10% at 10 mph
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (3) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (4) Emission factors modeled using EMFAC2011 with default SCAB fleet distribution.
- (5) NOx and PM emission factors are adjusted for the Mitigated Case to comply with the Port's Construction Guidelines.

**Table C1.1-35. Mitigated Emission Factors for On-Road Trucks - Sepulveda Bridge**

Truck Type	Vehicle Class	Speed <sup>(1)</sup>	Emission Factors (grams/mile or grams/hr)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust) <sup>(2)</sup>	Total PM2.5 (incl. paved road dust) <sup>(2)</sup>	Total PM10 (incl. unpaved road dust) <sup>(3)</sup>	Total PM2.5 (incl. unpaved road dust) <sup>(3)</sup>
<b>2013</b>										
48-ft flatbed trailer trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
48-ft flatbed trailer trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
48-ft flatbed trailer trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
Stakebed trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Stakebed trucks	MHDT	On-site	1.94	3.31	3.70	0.01	1.88	0.62	203.40	20.54
Stakebed trucks	MHDT	Off-site	0.43	1.26	3.70	0.01	0.76	0.34		
Semi-End dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Semi-End dump trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
Semi-End dump trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
Concrete trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Concrete trucks	HHDT	On-site	3.20	6.65	3.60	0.02	1.67	0.45	346.36	34.69
Concrete trucks	HHDT	Off-site	0.72	2.53	3.60	0.02	0.56	0.17		
Dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Dump trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
Dump trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
Water trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Water trucks	MHDT	On-site	1.94	3.31	2.22	0.01	1.71	0.46	203.24	20.38
Water trucks	MHDT	Off-site	0.43	1.26	2.22	0.01	0.59	0.18		
<b>2014</b>										
Stakebed trucks	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Stakebed trucks	MHDT	On-site	1.56	2.70	3.70	0.01	1.88	0.62	203.40	20.54
Stakebed trucks	MHDT	Off-site	0.35	1.02	3.70	0.01	0.73	0.31		
Semi-End dump trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Semi-End dump trucks	HHDT	On-site	2.35	4.93	6.00	0.02	1.95	0.70	346.63	34.93
Semi-End dump trucks	HHDT	Off-site	0.54	1.88	6.00	0.02	0.69	0.29		
48-ft flatbed trailer trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
48-ft flatbed trailer trucks	HHDT	On-site	2.35	4.93	6.00	0.02	1.95	0.70	346.63	34.93
48-ft flatbed trailer trucks	HHDT	Off-site	0.54	1.88	6.00	0.02	0.69	0.29		
Concrete trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Concrete trucks	HHDT	On-site	2.35	4.93	3.60	0.02	1.68	0.45	346.36	34.69
Concrete trucks	HHDT	Off-site	0.54	1.88	3.60	0.02	0.56	0.17		
Water trucks	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Water trucks	MHDT	On-site	1.56	2.70	2.22	0.01	1.71	0.46	203.24	20.38
Water trucks	MHDT	Off-site	0.35	1.02	2.22	0.01	0.59	0.18		

Notes:

(1) On-site operation assume a speed of 10 mph; Off-site travel assumes a composite speed of 40% at 55 mph, 50% at 25 mph, and 10% at 10 mph

(2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.

(3) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors were obtained from USEPA AP-42.

(4) Emission factors modeled using EMFAC2011 with default SCAB fleet distribution.

(5) NOx and PM emission factors are adjusted for the Mitigated Case to comply with the Port's Construction Guidelines.



**Table C1.1-36. Mitigated Emission Factors for On-Road Trucks - Lead & Storage Track**

Truck Type	Vehicle Class	Speed <sup>(1)</sup>	Emission Factors (grams/mile or grams/hr)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust) <sup>(2)</sup>	Total PM2.5 (incl. paved road dust) <sup>(2)</sup>	Total PM10 (incl. unpaved road dust) <sup>(3)</sup>	Total PM2.5 (incl. unpaved road dust) <sup>(3)</sup>
<b>2013</b>										
48-ft flatbed trailer trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
48-ft flatbed trailer trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
48-ft flatbed trailer trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
Stakebed trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Stakebed trucks	MHDT	On-site	1.94	3.31	3.70	0.01	1.88	0.62	203.40	20.54
Stakebed trucks	MHDT	Off-site	0.43	1.26	3.70	0.01	0.76	0.34		
Dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Dump trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
Dump trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
Bottom-dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Bottom-dump trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
Bottom-dump trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
Water trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Water trucks	MHDT	On-site	1.94	3.31	2.22	0.01	1.71	0.46	203.24	20.38
Water trucks	MHDT	Off-site	0.43	1.26	2.22	0.01	0.59	0.18		
<b>2014</b>										
48-ft flatbed trailer trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
48-ft flatbed trailer trucks	HHDT	On-site	2.35	4.93	6.00	0.02	1.95	0.70	346.63	34.93
48-ft flatbed trailer trucks	HHDT	Off-site	0.54	1.88	6.00	0.02	0.69	0.29		
Water trucks	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Water trucks	MHDT	On-site	1.56	2.70	2.22	0.01	1.71	0.46	203.24	20.38
Water trucks	MHDT	Off-site	0.35	1.02	2.22	0.01	0.59	0.18		

Notes:

- (1) On-site operation assume a speed of 10 mph; Off-site travel assumes a composite speed of 40% at 55 mph, 50% at 25 mph, and 10% at 10 mph
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (3) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (4) Emission factors modeled using EMFAC2011 with default SCAB fleet distribution.
- (5) NOx and PM emission factors are adjusted for the Mitigated Case to comply with the Port's Construction Guidelines.

**Table C1.1-37. Mitigated Emission Factors for On-Road Trucks - Dominguez Channel**

Truck Type	Vehicle Class	Speed <sup>(1)</sup>	Emission Factors (grams/mile or grams/hr)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust) <sup>(2)</sup>	Total PM2.5 (incl. paved road dust) <sup>(2)</sup>	Total PM10 (incl. unpaved road dust) <sup>(3)</sup>	Total PM2.5 (incl. unpaved road dust) <sup>(3)</sup>
<b>2013</b>										
48-ft flatbed trailer trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
48-ft flatbed trailer trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
48-ft flatbed trailer trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
Stakebed Trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Stakebed Trucks	MHDT	On-site	1.94	3.31	3.70	0.01	1.88	0.62	203.40	20.54
Stakebed Trucks	MHDT	Off-site	0.43	1.26	3.70	0.01	0.76	0.34		
Semi-End Dump Trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Semi-End Dump Trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
Semi-End Dump Trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
Concrete Trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Concrete Trucks	HHDT	On-site	3.20	6.65	3.60	0.02	1.67	0.45	346.36	34.69
Concrete Trucks	HHDT	Off-site	0.72	2.53	3.60	0.02	0.56	0.17		
Double Bottom Dump Trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Double Bottom Dump Trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
Double Bottom Dump Trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
Water trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Water trucks	MHDT	On-site	1.94	3.31	2.22	0.01	1.71	0.46	203.24	20.38
Water trucks	MHDT	Off-site	0.43	1.26	2.22	0.01	0.59	0.18		
Dump trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Dump trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
Dump trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		

Notes:

- (1) On-site operation assume a speed of 10 mph; Off-site travel assumes a composite speed of 40% at 55 mph, 50% at 25 mph, and 10% at 10 mph
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (3) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (4) Emission factors modeled using EMFAC2011 with default SCAB fleet distribution.
- (5) NOx and PM emission factors are adjusted for the Mitigated Case to comply with the Port's Construction Guidelines.

**Table C1.1-38. Mitigated Emission Factors for On-Road Trucks - PCH Grade Separation**

Truck Type	Vehicle Class	Speed <sup>(1)</sup>	Emission Factors (grams/mile or grams/hr)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust) <sup>(2)</sup>	Total PM2.5 (incl. paved road dust) <sup>(2)</sup>	Total PM10 (incl. unpaved road dust) <sup>(3)</sup>	Total PM2.5 (incl. unpaved road dust) <sup>(3)</sup>
<b>2013</b>										
Semi-End Dump Trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Semi-End Dump Trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
Semi-End Dump Trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
48-ft flatbed trailer trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
48-ft flatbed trailer trucks	HHDT	On-site	3.20	6.65	6.00	0.02	1.94	0.70	346.63	34.93
48-ft flatbed trailer trucks	HHDT	Off-site	0.72	2.53	6.00	0.02	0.79	0.38		
Stakebed Trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Stakebed Trucks	MHDT	On-site	1.94	3.31	3.70	0.01	1.88	0.62	203.40	20.54
Stakebed Trucks	MHDT	Off-site	0.43	1.26	3.70	0.01	0.76	0.34		
Concrete trucks	HHDT	Idle	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
Concrete trucks	HHDT	On-site	3.20	6.65	3.60	0.02	1.67	0.45	346.36	34.69
Concrete trucks	HHDT	Off-site	0.72	2.53	3.60	0.02	0.56	0.17		
Water trucks	MHDT	Idle	16.46	23.83	91.94	0.05	3.63	3.34	3.63	3.34
Water trucks	MHDT	On-site	1.94	3.31	2.22	0.01	1.71	0.46	203.24	20.38
Water trucks	MHDT	Off-site	0.43	1.26	2.22	0.01	0.59	0.18		
<b>2014</b>										
Semi-End Dump Trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Semi-End Dump Trucks	HHDT	On-site	2.35	4.93	6.00	0.02	1.95	0.70	346.63	34.93
Semi-End Dump Trucks	HHDT	Off-site	0.54	1.88	6.00	0.02	0.69	0.29		
48-ft flatbed trailer trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
48-ft flatbed trailer trucks	HHDT	On-site	2.35	4.93	6.00	0.02	1.95	0.70	346.63	34.93
48-ft flatbed trailer trucks	HHDT	Off-site	0.54	1.88	6.00	0.02	0.69	0.29		
Stakebed Trucks	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Stakebed Trucks	MHDT	On-site	1.56	2.70	3.70	0.01	1.88	0.62	203.40	20.54
Stakebed Trucks	MHDT	Off-site	0.35	1.02	3.70	0.01	0.73	0.31		
Concrete trucks	HHDT	Idle	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
Concrete trucks	HHDT	On-site	2.35	4.93	3.60	0.02	1.68	0.45	346.36	34.69
Concrete trucks	HHDT	Off-site	0.54	1.88	3.60	0.02	0.56	0.17		
Water trucks	MHDT	Idle	13.25	19.68	81.78	0.05	2.64	2.43	2.64	2.43
Water trucks	MHDT	On-site	1.56	2.70	2.22	0.01	1.71	0.46	203.24	20.38
Water trucks	MHDT	Off-site	0.35	1.02	2.22	0.01	0.59	0.18		

Notes:

(1) On-site operation assume a speed of 10 mph; Off-site travel assumes a composite speed of 40% at 55 mph, 50% at 25 mph, and 10% at 10 mph

(2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.

(3) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors were obtained from USEPA AP-42.

(4) Emission factors modeled using EMFAC2011 with default SCAB fleet distribution.

(5) NOx and PM emission factors are adjusted for the Mitigated Case to comply with the Port's Construction Guidelines.

**Table C1.1-39. Summary of Unmitigated Daily On-Site Emissions of On-Road Trucks at Site Construction and Sepulveda Bridge**

Year	Construction Sub-Element	Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Mobilization (Site)	0.00	0.01	0.02	0.00	0.13	0.01
	Demolition (Site)	1.09	3.41	8.63	0.01	78.95	8.02
	Utility Relocation (Site)	0.02	0.03	0.11	0.00	0.68	0.07
	Rough Grade (Site)	0.46	1.44	3.64	0.00	33.31	3.39
	New Utility (Site)	0.01	0.02	0.04	0.00	0.37	0.04
	Building (Site)	0.06	0.24	0.55	0.00	3.51	0.36
	Site (Site)	0.11	0.17	0.67	0.00	4.10	0.43
	Mobilization (Sep)	0.00	0.01	0.01	0.00	0.13	0.01
	Demolition (Sep)	0.01	0.03	0.09	0.00	0.67	0.07
	Preparatory (Sep)	0.00	0.01	0.03	0.00	0.27	0.03
	Foundation (Sep)	0.02	0.06	0.15	0.00	1.16	0.12
	East Track (Sep)	0.03	0.11	0.26	0.00	1.71	0.18
	Pile Prep (Sep)	0.05	0.15	0.38	0.00	3.09	0.32
	North End Prep (Sep)	0.02	0.07	0.18	0.00	1.41	0.14
Site (Sep)	0.04	0.06	0.22	0.00	1.37	0.14	
	<b>Total</b>	<b>1.92</b>	<b>5.81</b>	<b>15.00</b>	<b>0.01</b>	<b>130.86</b>	<b>13.33</b>
2014	New Utility (Site)	0.00	0.01	0.04	0.00	0.37	0.04
	Building (Site)	0.24	0.88	2.27	0.00	18.54	1.87
	Final Grade (Site)	0.10	0.39	0.98	0.00	6.95	0.70
	Track Work (Site)	1.42	4.67	12.87	0.01	131.90	13.32
	Cranepads (Site)	0.25	0.97	2.44	0.00	17.20	1.74
	Asphalt (Site)	0.96	3.17	8.74	0.01	89.61	9.05
	Delination (Site)	0.00	0.00	0.01	0.00	0.00	0.00
	Commissioning (Site)	0.00	0.00	0.02	0.00	0.00	0.00
	Demobilization (Site)	0.00	0.00	0.02	0.00	0.00	0.00
	Site (Site)	0.09	0.14	0.59	0.00	4.09	0.43
	North End Prep (Sep)	0.02	0.06	0.16	0.00	1.41	0.14
	Wing wall (Sep)	0.00	0.01	0.04	0.00	0.32	0.03
	Bridge Widening (Sep)	0.00	0.00	0.00	0.00	0.00	0.00
	Commissioning (Sep)	0.00	0.00	0.00	0.00	0.00	0.00
	Demobilization (Sep)	0.01	0.02	0.05	0.00	0.00	0.00
Site (Sep)	0.03	0.05	0.20	0.00	1.36	0.14	
	<b>Total</b>	<b>3.14</b>	<b>10.39</b>	<b>28.43</b>	<b>0.03</b>	<b>271.75</b>	<b>27.47</b>

**Table C1.1-40. Summary of Unmitigated Daily On-Site Emissions of On-Road Trucks at Lead & Storage Track and Dominguez Channel**

Year	Construction Sub-Element	Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Mobilization (Lead)	0.00	0.01	0.02	0.00	0.22	0.02
	Utility Relocation (Lead)	0.07	0.11	0.44	0.00	2.73	0.29
	Demolition (Lead)	0.02	0.06	0.15	0.00	1.39	0.14
	Rough Grading (Lead)	0.16	0.51	1.29	0.00	11.79	1.20
	Civil Construction (Lead)	0.19	0.61	1.54	0.00	14.05	1.43
	Track Work Materials (Lead)	0.07	0.23	0.58	0.00	5.31	0.54
	Track Work Assembly (Lead)	0.03	0.11	0.27	0.00	2.47	0.25
	Site (Lead)	0.07	0.11	0.44	0.00	2.73	0.29
	Mobilization (Dom)	0.00	0.00	0.00	0.00	0.04	0.00
	Demolition (Dom)	0.00	0.00	0.01	0.00	0.10	0.01
	Excavation (Dom)	0.01	0.02	0.06	0.00	0.53	0.05
	CISS Piles (Dom)	0.02	0.05	0.13	0.00	1.01	0.10
	Concrete (Dom)	0.00	0.01	0.03	0.00	0.21	0.02
	Backfill Cofferdam Piling (Dom)	0.00	0.01	0.02	0.00	0.18	0.02
	Bearing & Structural Steel Beams (Dom)	0.00	0.01	0.01	0.00	0.13	0.01
	Bridge Deck Plate, Waterproofing, Misc. Steel (Dom)	0.00	0.00	0.01	0.00	0.09	0.01
	Bridge Deck Ballast (Dom)	0.00	0.01	0.03	0.00	0.31	0.03
	Concrete Ties & Track (Dom)	0.00	0.00	0.00	0.00	0.04	0.00
	Painting & Repairs (Dom)	0.00	0.00	0.00	0.00	0.02	0.00
	Site (Dom)	0.01	0.01	0.04	0.00	0.31	0.03
	Demobilization (Dom)	0.00	0.01	0.02	0.00	0.00	0.00
<b>Total</b>		<b>0.68</b>	<b>1.90</b>	<b>5.13</b>	<b>0.00</b>	<b>43.69</b>	<b>4.46</b>
2014	Track Work Assembly (Lead)	0.03	0.09	0.24	0.00	2.47	0.25
	Demobilization (Lead)	0.00	0.01	0.02	0.00	0.00	0.00
	Site (Lead)	0.03	0.05	0.20	0.00	1.36	0.14
<b>Total</b>		<b>0.06</b>	<b>0.14</b>	<b>0.46</b>	<b>0.00</b>	<b>3.83</b>	<b>0.39</b>

**Table C1.1-41. Summary of Unmitigated Daily On-Site Emissions of On-Road Trucks at PCH Grade Separation**

Year	Construction Sub-Element	Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Demolition - North Side	0.05	0.14	0.39	0.00	3.18	0.33
	North Bridge	0.31	1.00	2.50	0.00	21.28	2.17
	Site	0.09	0.14	0.55	0.00	3.41	0.36
<b>Total</b>		<b>0.46</b>	<b>1.27</b>	<b>3.45</b>	<b>0.00</b>	<b>27.88</b>	<b>2.85</b>
2014	Demolition - South Side	0.13	0.39	1.11	0.00	11.01	1.11
	South Bridge	0.16	0.54	1.47	0.00	13.76	1.39
	Demobilization	0.00	0.02	0.05	0.00	0.00	0.00
	Site	0.07	0.12	0.49	0.00	3.41	0.35
<b>Total</b>		<b>0.37</b>	<b>1.06</b>	<b>3.12</b>	<b>0.00</b>	<b>28.18</b>	<b>2.86</b>

**Table C1.1-42. Summary of Mitigated Daily On-Site Emissions of On-Road Trucks at Site Construction and Sepulveda Bridge**

Year	Construction Sub-Element	Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Mobilization (Site)	0.00	0.01	0.02	0.00	0.13	0.01
	Demolition (Site)	1.09	3.41	5.20	0.01	78.89	7.97
	Utility Relocation (Site)	0.02	0.03	0.08	0.00	0.68	0.07
	Rough Grade (Site)	0.46	1.44	2.19	0.00	33.29	3.36
	New Utility (Site)	0.01	0.02	0.02	0.00	0.37	0.04
	Building (Site)	0.06	0.24	0.38	0.00	3.50	0.35
	Site (Site)	0.11	0.17	0.45	0.00	4.09	0.42
	Mobilization (Sep)	0.00	0.01	0.01	0.00	0.13	0.01
	Demolition (Sep)	0.01	0.03	0.06	0.00	0.66	0.07
	Preparatory (Sep)	0.00	0.01	0.02	0.00	0.27	0.03
	Foundation (Sep)	0.02	0.06	0.10	0.00	1.16	0.12
	East Track (Sep)	0.03	0.11	0.18	0.00	1.71	0.17
	Pile Prep (Sep)	0.05	0.15	0.24	0.00	3.09	0.31
	North End Prep (Sep)	0.02	0.07	0.11	0.00	1.41	0.14
	Site (Sep)	0.04	0.06	0.15	0.00	1.36	0.14
<b>Total</b>		<b>1.92</b>	<b>5.81</b>	<b>9.20</b>	<b>0.01</b>	<b>130.76</b>	<b>13.23</b>
2014	New Utility (Site)	0.00	0.01	0.02	0.00	0.37	0.04
	Building (Site)	0.24	0.88	1.53	0.00	18.53	1.87
	Final Grade (Site)	0.10	0.39	0.69	0.00	6.94	0.70
	Track Work (Site)	1.42	4.67	8.11	0.01	131.90	13.32
	Cranepads (Site)	0.25	0.97	1.70	0.00	17.18	1.73
	Asphalt (Site)	0.96	3.17	5.51	0.01	89.61	9.05
	Delination (Site)	0.00	0.00	0.01	0.00	0.00	0.00
	Commissioning (Site)	0.00	0.00	0.01	0.00	0.00	0.00
	Demobilization (Site)	0.00	0.00	0.01	0.00	0.00	0.00
	Site (Site)	0.09	0.14	0.41	0.00	4.08	0.42
	North End Prep (Sep)	0.02	0.06	0.10	0.00	1.41	0.14
	Wing wall (Sep)	0.00	0.01	0.02	0.00	0.32	0.03
	Bridge Widening (Sep)	0.00	0.00	0.00	0.00	0.00	0.00
	Commissioning (Sep)	0.00	0.00	0.00	0.00	0.00	0.00
	Demobilization (Sep)	0.01	0.02	0.03	0.00	0.00	0.00
Site (Sep)	0.03	0.05	0.14	0.00	1.36	0.14	
<b>Total</b>		<b>3.14</b>	<b>10.39</b>	<b>18.29</b>	<b>0.03</b>	<b>271.70</b>	<b>27.43</b>

**Table C1.1-43. Summary of Mitigated Daily On-Site Emissions of On-Road Trucks at Lead & Storage Track and Dominguez Channel**

Year	Construction Sub-Element	Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Mobilization (Lead)	0.00	0.01	0.01	0.00	0.22	0.02
	Utility Relocation (Lead)	0.07	0.11	0.32	0.00	2.73	0.28
	Demolition (Lead)	0.02	0.06	0.09	0.00	1.39	0.14
	Rough Grading (Lead)	0.16	0.51	0.78	0.00	11.78	1.19
	Civil Construction (Lead)	0.19	0.61	0.92	0.00	14.04	1.42
	Track Work Materials (Lead)	0.07	0.23	0.35	0.00	5.31	0.54
	Track Work Assembly (Lead)	0.03	0.11	0.16	0.00	2.47	0.25
	Site (Lead)	0.07	0.11	0.30	0.00	2.72	0.28
	Mobilization (Dom)	0.00	0.00	0.00	0.00	0.04	0.00
	Demolition (Dom)	0.00	0.00	0.01	0.00	0.10	0.01
	Excavation (Dom)	0.01	0.02	0.04	0.00	0.53	0.05
	CISS Piles (Dom)	0.02	0.05	0.08	0.00	1.01	0.10
	Concrete (Dom)	0.00	0.01	0.02	0.00	0.21	0.02
	Backfill Cofferdam Piling (Dom)	0.00	0.01	0.01	0.00	0.18	0.02
	Bearing & Structural Steel Beams (Dom)	0.00	0.01	0.01	0.00	0.13	0.01
	Bridge Deck Plate, Waterproofing, Misc. Steel (Dom)	0.00	0.00	0.01	0.00	0.09	0.01
	Bridge Deck Ballast (Dom)	0.00	0.01	0.02	0.00	0.31	0.03
	Concrete Ties & Track (Dom)	0.00	0.00	0.00	0.00	0.04	0.00
	Painting & Repairs (Dom)	0.00	0.00	0.00	0.00	0.02	0.00
	Site (Dom)	0.01	0.01	0.03	0.00	0.31	0.03
Demobilization (Dom)	0.00	0.01	0.01	0.00	0.00	0.00	
<b>Total</b>		<b>0.68</b>	<b>1.90</b>	<b>3.18</b>	<b>0.00</b>	<b>43.66</b>	<b>4.43</b>
2014	Track Work Assembly (Lead)	0.03	0.09	0.15	0.00	2.47	0.25
	Demobilization (Lead)	0.00	0.01	0.01	0.00	0.00	0.00
	Site (Lead)	0.03	0.05	0.14	0.00	1.36	0.14
<b>Total</b>		<b>0.06</b>	<b>0.14</b>	<b>0.30</b>	<b>0.00</b>	<b>3.83</b>	<b>0.39</b>



**Table C1.1-44. Summary of Mitigated Daily On-Site Emissions of On-Road Trucks at PCH Grade Separation**

Year	Construction Sub-Element	Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Demolition - North Side	0.05	0.14	0.25	0.00	3.18	0.32
	North Bridge	0.31	1.00	1.55	0.00	21.27	2.15
	Site	0.09	0.14	0.37	0.00	3.41	0.35
<b>Total</b>		<b>0.46</b>	<b>1.27</b>	<b>2.18</b>	<b>0.00</b>	<b>27.85</b>	<b>2.83</b>
2014	Demolition - South Side	0.13	0.39	0.71	0.00	11.00	1.11
	South Bridge	0.16	0.54	0.96	0.00	13.76	1.39
	Demobilization	0.00	0.02	0.03	0.00	0.00	0.00
	Site	0.07	0.12	0.34	0.00	3.40	0.35
<b>Total</b>		<b>0.37</b>	<b>1.06</b>	<b>2.03</b>	<b>0.00</b>	<b>28.16</b>	<b>2.85</b>

**Table C1.1-45. Summary of Unmitigated Daily Off-Site Emissions of On-Road Trucks at Site Construction and Sepulveda Bridge**

Year	Construction Sub-Element	Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Mobilization (Site)	0.01	0.04	0.23	0.00	0.03	0.01
	Demolition (Site)	8.70	30.43	129.62	0.20	9.75	4.85
	Utility Relocation (Site)	0.08	0.22	1.19	0.00	0.14	0.07
	Rough Grade (Site)	3.67	12.84	54.70	0.09	4.11	2.05
	New Utility (Site)	0.04	0.14	0.61	0.00	0.05	0.02
	Building (Site)	0.14	0.51	2.16	0.00	0.16	0.08
	Site (Site)	0.15	0.43	2.31	0.00	0.27	0.13
	Mobilization (Sep)	0.01	0.05	0.22	0.00	0.02	0.01
	Demolition (Sep)	0.06	0.20	0.86	0.00	0.07	0.03
	Preparatory (Sep)	0.03	0.10	0.45	0.00	0.04	0.02
	Foundation (Sep)	0.10	0.34	1.49	0.00	0.12	0.06
	East Track (Sep)	0.09	0.29	1.29	0.00	0.10	0.05
	Pile Prep (Sep)	0.29	1.00	4.31	0.01	0.33	0.17
	North End Prep (Sep)	0.13	0.44	1.93	0.00	0.15	0.07
	Site (Sep)	0.05	0.14	0.77	0.00	0.09	0.04
<b>Total</b>		<b>13.55</b>	<b>47.20</b>	<b>202.12</b>	<b>0.31</b>	<b>15.44</b>	<b>7.66</b>
2014	New Utility (Site)	0.03	0.11	0.53	0.00	0.04	0.02
	Building (Site)	0.98	3.45	17.31	0.03	1.27	0.54
	Final Grade (Site)	0.21	0.75	3.75	0.01	0.27	0.12
	Track Work (Site)	10.76	37.83	189.80	0.34	13.90	5.90
	Cranepads (Site)	0.53	1.85	9.28	0.02	0.68	0.29
	Asphalt (Site)	7.31	25.70	128.95	0.23	9.44	4.01
	Delination (Site)	0.01	0.03	0.13	0.00	0.01	0.00
	Commissioning (Site)	0.01	0.03	0.20	0.00	0.03	0.01
	Demobilization (Site)	0.01	0.03	0.20	0.00	0.03	0.01
	Site (Site)	0.12	0.35	2.06	0.00	0.26	0.11
	North End Prep (Sep)	0.10	0.33	1.69	0.00	0.13	0.06
	Wing wall (Sep)	0.02	0.07	0.34	0.00	0.03	0.01
	Bridge Widening (Sep)	0.00	0.00	0.00	0.00	0.00	0.00
	Commissioning (Sep)	0.00	0.00	0.00	0.00	0.00	0.00
	Demobilization (Sep)	0.04	0.15	0.77	0.00	0.06	0.02
Site (Sep)	0.04	0.12	0.69	0.00	0.09	0.04	
<b>Total</b>		<b>20.18</b>	<b>70.81</b>	<b>355.69</b>	<b>0.63</b>	<b>26.21</b>	<b>11.13</b>

**Table C1.1-46. Summary of Unmitigated Daily Off-Site Emissions of On-Road Trucks at Lead & Storage Track and Dominguez Channel**

Year	Construction Sub-Element	Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Mobilization (Lead)	0.02	0.09	0.37	0.00	0.03	0.01
	Utility Relocation (Lead)	0.30	0.89	4.74	0.01	0.56	0.26
	Demolition (Lead)	0.15	0.54	2.29	0.00	0.17	0.09
	Rough Grading (Lead)	1.30	4.55	19.36	0.03	1.46	0.72
	Civil Construction (Lead)	1.55	5.42	23.07	0.04	1.74	0.86
	Track Work Materials (Lead)	0.59	2.05	8.72	0.01	0.66	0.33
	Track Work Assembly (Lead)	0.27	0.95	4.06	0.01	0.31	0.15
	Site (Lead)	0.10	0.29	1.54	0.00	0.18	0.09
	Mobilization (Dom)	0.00	0.01	0.06	0.00	0.00	0.00
	Demolition (Dom)	0.01	0.04	0.17	0.00	0.02	0.01
	Excavation (Dom)	0.06	0.21	0.88	0.00	0.07	0.03
	CISS Piles (Dom)	0.09	0.31	1.32	0.00	0.10	0.05
	Concrete (Dom)	0.01	0.03	0.15	0.00	0.01	0.01
	Backfill Cofferdam Piling (Dom)	0.02	0.07	0.29	0.00	0.02	0.01
	Bearing & Structural Steel Beams (Dom)	0.01	0.05	0.22	0.00	0.02	0.01
	Bridge Deck Plate, Waterproofing, Misc. Steel (Dom)	0.01	0.03	0.16	0.00	0.01	0.01
	Bridge Deck Ballast (Dom)	0.03	0.12	0.51	0.00	0.04	0.02
	Concrete Ties & Track (Dom)	0.00	0.02	0.07	0.00	0.01	0.00
	Painting & Repairs (Dom)	0.00	0.01	0.04	0.00	0.00	0.00
	Site (Dom)	0.03	0.09	0.38	0.00	0.03	0.02
Demobilization (Dom)	0.02	0.09	0.37	0.00	0.03	0.01	
<b>Total</b>		<b>4.59</b>	<b>15.83</b>	<b>68.77</b>	<b>0.11</b>	<b>5.46</b>	<b>2.69</b>
2014	Track Work Assembly (Lead)	0.20	0.71	3.55	0.01	0.26	0.11
	Demobilization (Lead)	0.02	0.06	0.32	0.00	0.02	0.01
	Site (Lead)	0.04	0.12	0.69	0.00	0.09	0.04
<b>Total</b>		<b>0.26</b>	<b>0.89</b>	<b>4.56</b>	<b>0.01</b>	<b>0.37</b>	<b>0.16</b>

**Table C1.1-47. Summary of Unmitigated Daily Off-Site Emissions of On-Road Trucks at PCH Grade Separation**

Year	Construction Sub-Element	Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Demolition - North Side	0.35	1.18	5.30	0.01	0.46	0.22
	North Bridge	2.13	7.41	31.70	0.05	2.41	1.20
	Site	0.02	0.06	0.30	0.00	0.04	0.02
<b>Total</b>		<b>2.50</b>	<b>8.65</b>	<b>37.29</b>	<b>0.06</b>	<b>2.90</b>	<b>1.44</b>
2014	Demolition - South Side	0.91	3.14	15.92	0.03	1.23	0.52
	South Bridge	1.00	3.48	17.54	0.03	1.31	0.56
	Demobilization	0.04	0.13	0.67	0.00	0.05	0.02
	Site	0.02	0.05	0.26	0.00	0.03	0.01
<b>Total</b>		<b>1.95</b>	<b>6.80</b>	<b>34.39</b>	<b>0.06</b>	<b>2.62</b>	<b>1.12</b>

**Table C1.1-48. Summary of Mitigated Daily Off-Site Emissions of On-Road Trucks at Site Construction and Sepulveda Bridge**

Year	Construction Sub-Element	Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Mobilization (Site)	0.01	0.04	0.13	0.00	0.03	0.01
	Demolition (Site)	8.70	30.43	72.14	0.20	9.46	4.59
	Utility Relocation (Site)	0.08	0.22	0.65	0.00	0.13	0.06
	Rough Grade (Site)	3.67	12.84	30.44	0.09	3.99	1.94
	New Utility (Site)	0.04	0.14	0.34	0.00	0.04	0.02
	Building (Site)	0.14	0.51	0.72	0.00	0.11	0.03
	Site (Site)	0.15	0.43	0.76	0.00	0.20	0.06
	Mobilization (Sep)	0.01	0.05	0.12	0.00	0.02	0.01
	Demolition (Sep)	0.06	0.20	0.44	0.00	0.06	0.03
	Preparatory (Sep)	0.03	0.10	0.25	0.00	0.04	0.02
	Foundation (Sep)	0.10	0.34	0.77	0.00	0.11	0.05
	East Track (Sep)	0.09	0.29	0.51	0.00	0.08	0.03
	Pile Prep (Sep)	0.29	1.00	2.30	0.01	0.31	0.15
	North End Prep (Sep)	0.13	0.44	1.02	0.00	0.14	0.07
	Site (Sep)	0.05	0.14	0.25	0.00	0.07	0.02
<b>Total</b>		<b>13.55</b>	<b>47.20</b>	<b>110.84</b>	<b>0.31</b>	<b>14.81</b>	<b>7.08</b>
2014	New Utility (Site)	0.03	0.11	0.34	0.00	0.04	0.02
	Building (Site)	0.98	3.45	9.57	0.03	1.19	0.46
	Final Grade (Site)	0.21	0.75	1.43	0.01	0.22	0.07
	Track Work (Site)	10.76	37.83	120.61	0.34	13.86	5.86
	Cranepads (Site)	0.53	1.85	3.54	0.02	0.55	0.17
	Asphalt (Site)	7.31	25.70	81.94	0.23	9.41	3.98
	Delination (Site)	0.01	0.03	0.08	0.00	0.01	0.00
	Commissioning (Site)	0.01	0.03	0.13	0.00	0.02	0.01
	Demobilization (Site)	0.01	0.03	0.13	0.00	0.02	0.01
	Site (Site)	0.12	0.35	0.76	0.00	0.20	0.06
	North End Prep (Sep)	0.10	0.33	1.02	0.00	0.13	0.05
	Wing wall (Sep)	0.02	0.07	0.20	0.00	0.03	0.01
	Bridge Widening (Sep)	0.00	0.00	0.00	0.00	0.00	0.00
	Commissioning (Sep)	0.00	0.00	0.00	0.00	0.00	0.00
	Demobilization (Sep)	0.04	0.15	0.49	0.00	0.06	0.02
Site (Sep)	0.04	0.12	0.25	0.00	0.07	0.02	
<b>Total</b>		<b>20.18</b>	<b>70.81</b>	<b>220.49</b>	<b>0.63</b>	<b>25.80</b>	<b>10.75</b>

**Table C1.1-49. Summary of Mitigated Daily Off-Site Emissions of On-Road Trucks at Lead & Storage Track and Dominguez Channel**

Year	Construction Sub-Element	Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Mobilization (Lead)	0.02	0.09	0.20	0.00	0.03	0.01
	Utility Relocation (Lead)	0.30	0.89	2.61	0.01	0.54	0.24
	Demolition (Lead)	0.15	0.54	1.27	0.00	0.17	0.08
	Rough Grading (Lead)	1.30	4.55	10.78	0.03	1.41	0.69
	Civil Construction (Lead)	1.55	5.42	12.84	0.04	1.68	0.82
	Track Work Materials (Lead)	0.59	2.05	4.85	0.01	0.64	0.31
	Track Work Assembly (Lead)	0.27	0.95	2.26	0.01	0.30	0.14
	Site (Lead)	0.10	0.29	0.51	0.00	0.14	0.04
	Mobilization (Dom)	0.00	0.01	0.03	0.00	0.00	0.00
	Demolition (Dom)	0.01	0.04	0.09	0.00	0.01	0.01
	Excavation (Dom)	0.06	0.21	0.49	0.00	0.06	0.03
	CISS Piles (Dom)	0.09	0.31	0.69	0.00	0.09	0.04
	Concrete (Dom)	0.01	0.03	0.06	0.00	0.01	0.00
	Backfill Cofferdam Piling (Dom)	0.02	0.07	0.16	0.00	0.02	0.01
	Bearing & Structural Steel Beams (Dom)	0.01	0.05	0.12	0.00	0.02	0.01
	Bridge Deck Plate, Waterproofing, Misc. Steel (Dom)	0.01	0.03	0.09	0.00	0.01	0.01
	Bridge Deck Ballast (Dom)	0.03	0.12	0.28	0.00	0.04	0.02
	Concrete Ties & Track (Dom)	0.00	0.02	0.04	0.00	0.01	0.00
	Painting & Repairs (Dom)	0.00	0.01	0.02	0.00	0.00	0.00
	Site (Dom)	0.03	0.09	0.20	0.00	0.03	0.01
Demobilization (Dom)	0.02	0.09	0.20	0.00	0.03	0.01	
<b>Total</b>		<b>4.59</b>	<b>15.83</b>	<b>37.81</b>	<b>0.11</b>	<b>5.24</b>	<b>2.49</b>
2014	Track Work Assembly (Lead)	0.20	0.71	2.26	0.01	0.26	0.11
	Demobilization (Lead)	0.02	0.06	0.20	0.00	0.02	0.01
	Site (Lead)	0.04	0.12	0.25	0.00	0.07	0.02
<b>Total</b>		<b>0.26</b>	<b>0.89</b>	<b>2.72</b>	<b>0.01</b>	<b>0.35</b>	<b>0.14</b>

**Table C1.1-50. Summary of Mitigated Daily Off-Site Emissions of On-Road Trucks at PCH Grade Separation**

Year	Construction Sub-Element	Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Demolition - North Side	0.35	1.18	2.94	0.01	0.44	0.21
	North Bridge	2.13	7.41	17.20	0.05	2.30	1.09
	Site	0.02	0.06	0.10	0.00	0.03	0.01
<b>Total</b>		<b>2.50</b>	<b>8.65</b>	<b>20.24</b>	<b>0.06</b>	<b>2.77</b>	<b>1.31</b>
2014	Demolition - South Side	0.91	3.14	10.10	0.03	1.22	0.52
	South Bridge	1.00	3.48	10.79	0.03	1.29	0.53
	Demobilization	0.04	0.13	0.42	0.00	0.05	0.02
	Site	0.02	0.05	0.10	0.00	0.03	0.01
<b>Total</b>		<b>1.95</b>	<b>6.80</b>	<b>21.41</b>	<b>0.06</b>	<b>2.58</b>	<b>1.08</b>

**Table C1.1-51. Equipment Type, Size and Activity for Sound Wall Construction**

Construction Sub-Element	Equipment / Off-road Source	No.	Size-hp	Fuel	Ave. Load Factor (%)	Daily Hours	Days Per Unit	Acre Disturbed per Day <sup>(1)</sup>
<b>2013 Sound Wall Construction</b>								
Foundation	Dozer	1	250	D	59%	8	212	
	Backhoe	1	100	D	55%	8	212	
	Fugitive Dust						212	0.36
Raise Wall	Man lift (cherry picker)	1	34	D	46%	8	148	

Note: Emissions from ground disturbing activities were based upon the assumption that from 5 to 20 percent of the total activity area would be disturbed at any one time during construction



**Table C1.1-52. Unmitigated Emission Factors of Equipment Used at Sound Wall Construction**

Construction Sub-Element	Equipment / Off-road Source	Size-hp	Fuel	EF Unit	Emission Factors					
					VOC	CO	NOX	SO2	PM10	PM2.5
<b>2013 Sound Wall Construction</b>										
Foundation	Dozer	250	D	g/bhp-hr	0.75	2.12	4.90	0.01	0.16	0.15
	Backhoe	100	D	g/bhp-hr	0.76	3.88	5.01	0.01	0.26	0.24
	Fugitive Dust			lb/acre-day					4.17	0.87
Raise Wall	Man lift (cherry picker)	34	D	g/bhp-hr	1.71	5.09	5.10	0.01	0.39	0.36

Notes:

- (1) Emission factors modeled using OFFROAD2007; NOx and PM emissions factors were adjusted for compliance with ARB In-Use Off-road rule.
- (2) Fugitive dust emission factors obtained from TraPac EIR, 2007.

**Table C1.1-53. Mitigated Emission Factors of Equipment Used at Sound Wall Construction**

Construction Sub-Element	Equipment / Off-road Source	Size-hp	Fuel	EF Unit	Emission Factors					
					VOC	CO	NOX	SO2	PM10	PM2.5
<b>2013 Sound Wall Construction</b>										
Foundation	Dozer	250	D	g/bhp-hr	0.58	2.12	4.24	0.01	0.05	0.04
	Backhoe	100	D	g/bhp-hr	0.27	3.88	4.19	0.01	0.08	0.07
	Fugitive Dust			lb/acre-day					0.42	0.09
Raise Wall	Man lift (cherry picker)	34	D	g/bhp-hr	0.28	4.10	5.10	0.01	0.09	0.08

Notes:

(1) Emission factors modeled using OFFROAD2007; NOx and PM emissions factors were adjusted for compliance with ARB In-Use Off-road rule.

(2) NOx and PM emissions factors were adjusted for compliance with ARB In-Use Off-road Rule and the Port's Construction Guidelines, where construction equipment shall meet 50% Tier 3 Level 3, 20% Tier 2 Level 3, 10% Tier 1 Level 3, 10% Tier 2 Level 2, and 10% Tier 1 Level 2. The mitigation also includes a 90% reduction in fugitive dust per Port's Construction Guidelines,

**Table C1.1-54. Summary of Unmitigated Daily Emissions of Equipment Used at Sound Wall Construction**

Construction Sub-Element	Equipment / Off-road Source	No.	Size-hp	Fuel	Emissions (lb/day)					
					VOC	CO	NOX	SO2	PM10	PM2.5
<b>2013 Sound Wall Construction</b>										
Foundation	Dozer	1	250	D	1.96	5.51	12.75	0.02	0.42	0.38
	Backhoe	1	100	D	0.74	3.76	4.86	0.01	0.25	0.23
	Fugitive Dust								1.52	0.32
Raise Wall	Man lift (cherry picker)	1	34	D	0.47	1.40	1.41	0.00	0.11	0.10
<b>Total Emissions</b>					<b>3.17</b>	<b>10.67</b>	<b>19.02</b>	<b>0.03</b>	<b>2.30</b>	<b>1.03</b>

**Table C1.1-55. Summary of Mitigated Daily Emissions of Equipment Used at Sound Wall Construction**

Construction Sub-Element	Equipment / Off-road Source	No.	Size-hp	Fuel	Emissions (lb/day)					
					VOC	CO	NOX	SO2	PM10	PM2.5
<b>2013 Sound Wall Construction</b>										
Foundation	Dozer	1	250	D	1.51	5.51	11.03	0.02	0.12	0.11
	Backhoe	1	100	D	0.26	3.76	4.07	0.01	0.07	0.07
	Fugitive Dust								0.15	0.03
Raise Wall	Man lift (cherry picker)	1	34	D	0.08	1.13	1.41	0.00	0.03	0.02
<b>Total Emissions</b>					<b>1.85</b>	<b>10.40</b>	<b>16.51</b>	<b>0.03</b>	<b>0.38</b>	<b>0.24</b>

**Table C1.1-56. On-road Trucks Activities for Construction of Sound Wall**

Truck Type	Vehicle Class	Idling Time [hr/Trip]	Round Trip Distance On-site [mi/trip]	Average Off-site Round Trip Distance [mi/trip]	Number of days of operation	Total Number of Trips	Max Number of truck trips per day
<b>2013 Sound Wall Construction</b>							
Trucks Carrying Wall and Dirt	HHDT	0.17	0.80	12.40	360	720	2
Light-Duty Gasoline Trucks	LDGT	0.07	0.80	12.40	360	360	1

**Table C1.1-57. Unmitigated Emission Factors for On-road Trucks for Sound Wall Construction**

Truck Type	Vehicle Class	Speed <sup>(1)</sup>	Emission Factors (grams/mile or grams/hr)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust) <sup>(2)</sup>	Total PM2.5 (incl. paved road dust) <sup>(2)</sup>	Total PM10 (incl. unpaved road dust) <sup>(3)</sup>	Total PM2.5 (incl. unpaved road dust) <sup>(3)</sup>
<b>2013 Sound Wall Construction</b>										
Trucks Carrying Wall and Dirt	HHDT	Idle	7.16	37.86	76.47	0.07	N/A	N/A	0.53	0.49
		On-site	3.20	6.65	21.10	0.02	N/A	N/A	346.86	35.15
		Off-site <sup>(4)</sup>	0.36	1.80	8.87	0.02	0.74	0.34	N/A	N/A
Light-Duty Gasoline Trucks	LDGT	Idle	1.62	22.13	2.41	0.03	N/A	N/A	0.07	0.07
		On-site	0.15	3.30	0.36	0.01	N/A	N/A	142.47	14.27
		Off-site <sup>(4)</sup>	0.05	2.06	0.25	0.01	0.48	0.13	N/A	N/A

Notes:

- (1) On-site operation assumes a speed of 10 mph for HHDT and 15 mph for LDGT; Off-site travel speed based on traffic modeling.
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors obtained from USEPA AP-42.
- (3) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors obtained from USEPA AP-42.
- (4) Emission factors for off-site travel assumes a composite speed weighted by the distance of each truck route link.
- (5) Emission factors modeled using EMFAC2011 with default SCAB fleet distribution.

**Table C1.1-58. Mitigated Emission Factors for On-road Trucks for Sound Wall Construction**

Truck Type	Vehicle Class	Speed <sup>(1)</sup>	Emission Factors (grams/mile or grams/hr)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust) <sup>(2)</sup>	Total PM2.5 (incl. paved road dust) <sup>(2)</sup>	Total PM10 (incl. unpaved road dust) <sup>(3)</sup>	Total PM2.5 (incl. unpaved road dust) <sup>(3)</sup>
<b>2013 Sound Wall Construction</b>										
Trucks Carrying Wall <sup>(5)</sup>	HHDT	Idle	7.16	37.86	76.47	0.07	N/A	N/A	0.53	0.49
		On-site	3.20	6.65	3.60	0.02	N/A	N/A	346.36	34.69
		Off-site <sup>(4)</sup>	0.36	1.80	3.60	0.02	0.56	0.17	N/A	N/A
Earth Mover <sup>(5)</sup>	HHDT	Idle	7.16	37.86	76.47	0.07	N/A	N/A	0.53	0.49
		On-site	3.20	6.65	6.00	0.02	N/A	N/A	346.63	34.93
		Off-site <sup>(4)</sup>	0.36	1.80	6.00	0.02	0.74	0.34	N/A	N/A
Light-Duty Gasoline Trucks	LDGT	Idle	1.62	22.13	2.41	0.03	N/A	N/A	0.07	0.07
		On-site	0.15	3.30	0.36	0.01	N/A	N/A	142.47	14.27
		Off-site <sup>(4)</sup>	0.05	2.06	0.25	0.01	0.48	0.13	N/A	N/A

Notes:

- (1) On-site operation assumes a speed of 10 mph for HHDT and 15 mph for LDGT; Off-site travel speed based on traffic modeling.
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors obtained from USEPA AP-42.
- (3) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and unpaved road dust. Road dust emission factors obtained from USEPA AP-42.
- (4) Emission factors for off-site travel assumes a composite speed weighted by the distance of each truck route link.
- (5) Emission factors modeled using EMFAC2011 with default SCAB fleet distribution.
- (6) Trucks carrying wall and earth mover trucks are listed separately in the Mitigated Case because they are subject to different requirements in the Port's Construction Guidelines

**Table C1.1-59. Summary of Unmitigated Daily Emissions of On-Road Trucks at Sound Wall Construction**

Truck Type	Vehicle Class	On-site / Off-site	Emissions (lb/day)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust)	Total PM2.5 (incl. paved road dust)	Total PM10 (incl. unpaved road dust)	Total PM2.5 (incl. unpaved road dust)
<b>2013 Sound Wall Construction</b>										
Trucks Carrying Wall and Dirt	HHDT	On-site	0.02	0.05	0.13	0.00	N/A	N/A	1.23	0.12
		Off-site	0.02	0.11	0.52	0.00	0.04	0.02	N/A	N/A
Light-Duty Gasoline Trucks	LDGT	On-site	0.00	0.01	0.00	0.00	N/A	N/A	0.25	0.03
		Off-site	0.00	0.06	0.01	0.00	0.01	0.00	N/A	N/A



**Table C1.1-60. Summary of Mitigated Daily Emissions of On-Road Trucks at Sound Wall Construction**

Truck Type	Vehicle Class	On-site / Off-site	Emissions (lb/day)							
			VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust)	Total PM2.5 (incl. paved road dust)	Total PM10 (incl. unpaved road dust)	Total PM2.5 (incl. unpaved road dust)
<b>2013 Sound Wall Construction</b>										
Trucks Carrying Wall <sup>(1)</sup>	HHDT	On-site	0.01	0.03	0.04	0.00	N/A	N/A	0.61	0.06
		Off-site	0.01	0.06	0.10	0.00	0.02	0.00	N/A	N/A
Earth Mover <sup>(1)</sup>	HHDT	On-site	0.01	0.03	0.04	0.00	N/A	N/A	0.61	0.06
		Off-site	0.01	0.06	0.16	0.00	0.02	0.01	N/A	N/A
Light-Duty Gasoline Trucks	LDGT	On-site	0.00	0.01	0.00	0.00	N/A	N/A	0.25	0.03
		Off-site	0.00	0.01	0.00	0.00	0.00	0.00	N/A	N/A

Note: Trucks carrying wall and earth mover trucks are listed separately in the Mitigated Case because they are subject to different requirements in the Port's Construction Guidelines

**Table C1.1-61. Truck and Ship Activities for Crane Delivery and Assembly**

<b>Construction Sub-Element</b>	<b>Vehicle / Equipment Type</b>	<b>Setting</b>	<b>Fuel</b>	<b>Time on Site [hr/Trip]</b>	<b>Round Trip Distance of Route</b>	<b>Number of days of operation</b>	<b>Total Number of Trips</b>	<b>Max Number of trips/day</b>
<b>2015 Crane Delivery</b>								
Crane Delivery	Heavy-Duty Diesel Truck	Idle	D	0.07	N/A	30	320	11
		On-site	D	N/A	3.9	30	320	11
		Off-site	D	N/A	9.9	30	320	11
Deliver Steel via Ship	Container Ship	Composite	D	N/A	N/A	1	1	1
<b>2015 Crane Assembly</b>								
Crane Assembly	Light-Duty Gasoline Trucks	Idle	G	0.07	N/A		64	32
		On-site	G	N/A	3.9		64	32
		Off-site	G	N/A	9.9		64	32

**Table C1.1-62. Rail Activities for Crane Delivery**

Construction Sub-Element	Train Type	Quantity	Number of Engines per Train	NotchSetting	Fuel	Time on Site [hr/Trip]	Round Trip Distance of Route [mi/trip] <sup>(2)</sup>	Max Number of trips/day
<b>2015 Crane Delivery</b>								
Deliver Small Parts of Crane via Rail <sup>(1)</sup>	Line-Haul Train	1	2.5	DB	D	0.00	202	1
				Low Idle		0.00		
				Idle		0.70		
				1		0.05		
				2		0.11		
				3		0.08		
				4		0.06		
				5		0.01		
				6		0.01		
				7		0.00		
8	0.00							

Notes:

(1) Assumed one rail train is used to carry small parts for the cranes, and the delivery occurs in the first month of 2015.

(2) Roundtrip distance from primary Project site to South Coast Air Basin boundary.

**Table C1.1-63. Off-road Equipment Type, Size, and Activities for Crane Assembly**

Construction Sub-Element	Vehicle / Equipment Type	Quantity	Fuel	Size-HP	Load Factor (%)	Operating hours/day	Number of days of operation
<b>2015 Crane Assembly</b>							
Unload Cranes Parts	150T crane	4	D	150	70%	24	3
Assemble Crane components	150T crane	1	D	150	60%	10	45
	Air compressor	2	D	54	60%	10	45
	Welder	2	D	46	60%	10	45
	Generator (single-phase)	1	D	229	70%	10	45
	Generator (double-phase)	1	D	229	70%	10	45
Erect Columns	150T crane	2	D	150	70%	10	5
	Air compressor	2	D	54	60%	10	4
	Welder	2	D	46	60%	10	4
	Generator (single-phase)	1	D	229	70%	10	4
	Generator (double-phase)	1	D	229	70%	10	4
Erect Lifting beams on columns	500T crane	2	D	500	70%	10	4
	150T crane	2	D	150	70%	10	4
	Air compressor	2	D	54	60%	10	4
	Welder	2	D	46	60%	10	4
	Generator (single-phase)	1	D	229	70%	10	4
	Generator (double-phase)	1	D	229	70%	10	4
Complete assembly	Air compressor	2	D	54	60%	10	45
	Welder	2	D	46	60%	10	45
	Generator (single-phase)	1	D	229	70%	10	45
	Generator (double-phase)	1	D	229	70%	10	45
	Man lift	3	D	34	80%	10	45

Note: The activities and off-road equipment listed here are for assembly of two cranes.

**Table C1.1-64. Unmitigated Emission Factors for Crane Delivery and Assembly Activities**

Construction Sub-Element	Vehicle / Equipment Type	Size-hp	Fuel	Setting	EF Unit	Emission Factors					
						VOC	CO	NOx	SO2	PM10	PM2.5
<b>2015 Crane Delivery</b>											
Crane Delivery	Heavy-Duty Diesel Truck	N/A	D	Idle	g/hr	7.40	41.72	38.41	0.07	0.11	0.10
		N/A	D	On-site	g/mile	1.39	3.37	11.40	0.02	1.73	0.50
		N/A	D	Off-site	g/mile	0.44	1.65	6.87	0.02	0.60	0.21
Deliver Steel via Ship	Container Ship	N/A	D	N/A	lb/call	127.80	305.77	2812.89	54.44	36.89	29.82
Deliver Small Parts of Crane via Rail	Line-Haul Train	N/A	D	DB	g/hr	102.84	179.23	873.52	0.62	39.76	36.58
		N/A	D	Low Idle		35.07	39.77	377.58	0.28	9.05	8.33
		N/A	D	Idle		35.07	39.77	377.58	0.28	9.05	8.33
		N/A	D	1		87.21	156.94	1278.84	1.32	55.07	50.66
		N/A	D	2		151.07	266.00	3115.42	2.77	116.80	107.45
		N/A	D	3		298.77	673.47	7241.03	5.86	205.52	189.08
		N/A	D	4		307.45	1044.59	9330.07	8.06	259.73	238.95
		N/A	D	5		405.41	908.26	10297.48	11.00	309.73	284.95
		N/A	D	6		511.57	955.97	14380.37	14.13	306.09	281.60
		N/A	D	7		591.72	1293.62	17021.33	17.46	309.68	284.91
N/A	D	8	730.86	1604.84	19874.82	21.44	364.94	335.75			
<b>2015 Crane Assembly</b>											
Crane Assembly	Light-Duty Gasoline Trucks	N/A	G	Idle	g/hr	1.60	17.57	1.91	0.03	0.06	0.06
		N/A	G	On-site	g/mile	0.14	2.67	0.29	0.01	1.60	0.41
		N/A	G	Off-site	g/mile	0.06	1.94	0.22	0.01	0.48	0.13
Unload Cranes Parts	150T crane	150	D	N/A	g/bhp-hr	0.65	3.39	4.30	0.01	0.18	0.17
Assemble Crane components	150T crane	150	D	N/A	g/bhp-hr	0.65	3.39	4.30	0.01	0.18	0.17
	Air compressor	54	D	N/A	g/bhp-hr	0.82	3.84	5.22	0.01	0.30	0.28
	Welder	46	D	N/A	g/bhp-hr	1.75	5.61	5.14	0.01	0.44	0.40
	Generator (single-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.87	0.01	0.13	0.12
	Generator (double-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.87	0.01	0.13	0.12
Erect Columns	150T crane	150	D	N/A	g/bhp-hr	0.65	3.39	4.30	0.01	0.18	0.17
	Air compressor	54	D	N/A	g/bhp-hr	0.82	3.84	5.22	0.01	0.30	0.28
	Welder	46	D	N/A	g/bhp-hr	1.75	5.61	5.14	0.01	0.44	0.40
	Generator (single-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.87	0.01	0.13	0.12
	Generator (double-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.87	0.01	0.13	0.12
Erect Lifting beams on columns	500T crane	500	D	N/A	g/bhp-hr	0.44	1.47	2.70	0.01	0.11	0.10
	150T crane	150	D	N/A	g/bhp-hr	0.65	3.39	4.30	0.01	0.18	0.17
	Air compressor	54	D	N/A	g/bhp-hr	0.82	3.84	5.22	0.01	0.30	0.28
	Welder	46	D	N/A	g/bhp-hr	1.75	5.61	5.14	0.01	0.44	0.40
	Generator (single-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.87	0.01	0.13	0.12
Complete assembly	Generator (double-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.87	0.01	0.13	0.12
	Air compressor	54	D	N/A	g/bhp-hr	0.82	3.84	5.22	0.01	0.30	0.28
	Welder	46	D	N/A	g/bhp-hr	1.75	5.61	5.14	0.01	0.44	0.40
	Generator (single-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.87	0.01	0.13	0.12
	Generator (double-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.87	0.01	0.13	0.12
Man lift	34	D	N/A	g/bhp-hr	1.39	4.75	4.60	0.01	0.29	0.27	

Notes:

- (1) On-road truck emission factors generated from EMFAC2011. On-site speed is assumed to be 15 mph and off-site speed averages to be 30.8 mph.
- (2) Container ship emissions per call were based on Port of Los Angeles Inventory of Air Emissions 2007
- (3) Off-road equipment emission factors were based on OFFROAD2007. NOx and PM emissions factors were adjusted for compliance with ARB In-Use Off-road rule to NOx and PM exhaust emission factors as well as the ARB Air Toxic Control Measure (ATCM) for Portable Equipment.
- (4) PM emissions for onroad trucks include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (5) SO2 emission factor used for rail delivery is calculated based on the fuel consumption rate (in lb/hr), using 15ppm Sulfur fuel.

**Table C1.1-65. Mitigated Emission Factors for Crane Delivery and Assembly Activities**

Construction Sub-Element	Vehicle / Equipment Type	Size-hp	Fuel	Setting	EF Unit	Emission Factors					
						VOC	CO	NOx	SO2	PM10	PM2.5
<b>2015 Crane Delivery</b>											
Crane Delivery	Heavy-Duty Diesel Truck	N/A	D	Idle	g/hr	7.40	41.72	38.41	0.07	0.11	0.10
		N/A	D	On-site	g/mile	1.39	3.37	3.60	0.02	1.68	0.45
		N/A	D	Off-site	g/mile	0.44	1.65	3.60	0.02	0.56	0.17
Deliver Steel via Ship	Container Ship	N/A	D	N/A	lb/call	127.80	305.77	2812.89	54.44	36.89	29.82
Deliver Small Parts of Crane via Rail	Line-Haul Train	N/A	D	DB	g/hr	102.84	179.23	873.52	0.62	39.76	36.58
		N/A	D	Low Idle		35.07	39.77	377.58	0.28	9.05	8.33
		N/A	D	Idle		35.07	39.77	377.58	0.28	9.05	8.33
		N/A	D	1		87.21	156.94	1278.84	1.32	55.07	50.66
		N/A	D	2		151.07	266.00	3115.42	2.77	116.80	107.45
		N/A	D	3		298.77	673.47	7241.03	5.86	205.52	189.08
		N/A	D	4		307.45	1044.59	9330.07	8.06	259.73	238.95
		N/A	D	5		405.41	908.26	10297.48	11.00	309.73	284.95
		N/A	D	6		511.57	955.97	14380.37	14.13	306.09	281.60
		N/A	D	7		591.72	1293.62	17021.33	17.46	309.68	284.91
N/A	D	8	730.86	1604.84	19874.82	21.44	364.94	335.75			
<b>2015 Crane Assembly</b>											
Crane Assembly	Light-Duty Gasoline Trucks	N/A	G	Idle	g/hr	1.60	17.57	1.91	0.03	0.06	0.06
		N/A	G	On-site	g/mile	0.14	2.67	0.29	0.01	1.60	0.41
		N/A	G	Off-site	g/mile	0.06	1.94	0.22	0.01	0.48	0.13
Unload Cranes Parts	150T crane	150	D	N/A	g/bhp-hr	0.27	3.39	3.56	0.01	0.07	0.06
Assemble Crane components	150T crane	150	D	N/A	g/bhp-hr	0.27	3.39	3.56	0.01	0.07	0.06
	Air compressor	54	D	N/A	g/bhp-hr	0.35	3.73	4.63	0.01	0.07	0.06
	Welder	46	D	N/A	g/bhp-hr	0.28	4.10	5.14	0.01	0.09	0.08
	Generator (single-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.59	0.01	0.05	0.04
	Generator (double-phase)	229	D	N/A	g/bhp-hr	0.42	1.27	3.59	0.01	0.05	0.04
Erect Columns	150T crane	150	D	N/A	g/bhp-hr	0.27	3.39	3.56	0.01	0.07	0.06
	Air compressor	54	D	N/A	g/bhp-hr	0.35	3.73	4.63	0.01	0.07	0.06
	Welder	46	D	N/A	g/bhp-hr	0.28	4.10	5.14	0.01	0.09	0.08
	Generator (single-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.59	0.01	0.05	0.04
	Generator (double-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.59	0.01	0.05	0.04
Erect Lifting beams on columns	500T crane	500	D	N/A	g/bhp-hr	0.44	1.47	2.70	0.01	0.05	0.04
	150T crane	150	D	N/A	g/bhp-hr	0.27	3.39	3.56	0.01	0.07	0.06
	Air compressor	54	D	N/A	g/bhp-hr	0.35	3.73	4.63	0.01	0.07	0.06
	Welder	46	D	N/A	g/bhp-hr	0.28	4.10	5.14	0.01	0.09	0.08
	Generator (single-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.59	0.01	0.05	0.04
Complete assembly	Generator (double-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.59	0.01	0.05	0.04
	Air compressor	54	D	N/A	g/bhp-hr	0.35	3.73	4.63	0.01	0.07	0.06
	Welder	46	D	N/A	g/bhp-hr	0.28	4.10	5.14	0.01	0.09	0.08
	Generator (single-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.59	0.01	0.05	0.04
	Generator (double-phase)	229	D	N/A	g/bhp-hr	0.44	1.27	3.59	0.01	0.05	0.04
Man lift	34	D	N/A	g/bhp-hr	0.28	4.10	4.60	0.01	0.09	0.08	

Notes:

- (1) On-road truck emission factors generated from EMFAC2011. On-site speed is assumed to be 15 mph and off-site speed averages to be 30.8 mph. NOx and PM emission factors for HDDT are adjusted to comply with the Port's Construction Guidelines.
- (2) Container ship emissions per call were based on Port of Los Angeles Inventory of Air Emissions 2007
- (3) Off-road equipment emission factors were based on OFFROAD2007. NOx and PM emissions factors were adjusted for compliance with ARB In-Use Off-road rule to NOx and PM exhaust emission factors as well as the ARB Air Toxic Control Measure (ATCM) for Portable Equipment.
- (4) PM emissions for onroad trucks include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (5) SO2 emission factor used for rail delivery is calculated based on the fuel consumption rate (in lb/hr), using 15ppm Sulfur fuel.

**Table C1.1-66. Summary of Unmitigated Peak Daily Emissions for Crane Delivery and Assembly Activities**

Construction Sub-Element	Vehicle / Equipment Type	Quantity	Size-hp	Fuel	Emission [lb/day]					
					VOC	CO	NOx	SO2	PM10	PM2.5
<b>2015 Crane Delivery (Peak Month: January 2015)</b>										
Crane Delivery	Heavy-Duty Diesel Truck (On-site)			D	0.14	0.37	1.10	0.00	0.16	0.05
	Heavy-Duty Diesel Truck (Off-site)			D	0.10	0.39	1.61	0.00	0.14	0.05
Deliver Steel via Ship	Container Ship	1		D	127.80	305.77	2812.89	54.44	36.89	29.82
Deliver Small Parts of Crane via Rail	Line-Haul Train (On-site)	1		D	0.55	1.13	11.64	0.01	0.34	0.31
	Line-Haul Train (Off-site)			D	73.08	110.56	971.32	0.81	27.82	25.59
<b>2015 Crane Assembly (Peak Month: April 2015)</b>										
Crane Assembly	Light-Duty Gasoline Trucks (On-site)			G	0.04	0.81	0.09	0.00	0.44	0.11
	Light-Duty Gasoline Trucks (Off-site)			G	0.03	1.36	0.15	0.00	0.34	0.09
Assemble Crane components	150T crane	1	150	D	1.29	6.73	8.53	0.01	0.36	0.33
	Air compressor	2	54	D	1.17	5.49	7.45	0.01	0.43	0.39
	Welder	2	46	D	2.13	6.83	6.25	0.01	0.53	0.49
	Generator (single-phase)	1	229	D	1.57	4.50	13.69	0.02	0.46	0.42
	Generator (double-phase)	1	229	D	1.57	4.50	13.69	0.02	0.46	0.42
Erect Lifting beams on columns	500T crane	2	500	D	6.83	22.68	41.67	0.09	1.70	1.56
	150T crane	2	150	D	3.01	15.70	19.91	0.03	0.83	0.77
	Air compressor	2	54	D	1.17	5.49	7.45	0.01	0.43	0.39
	Welder	2	46	D	2.13	6.83	6.25	0.01	0.53	0.49
	Generator (single-phase)	1	229	D	1.57	4.50	13.69	0.02	0.46	0.42
Complete assembly	Generator (double-phase)	1	229	D	1.57	4.50	13.69	0.02	0.46	0.42
	Air compressor	2	54	D	2.33	10.98	14.90	0.02	0.86	0.79
	Welder	2	46	D	4.27	13.67	12.50	0.02	1.06	0.98
	Generator (single-phase)	1	229	D	3.14	8.99	27.37	0.05	0.91	0.84
	Generator (double-phase)	1	229	D	3.14	8.99	27.37	0.05	0.91	0.84
	Man lift	3	34	D	5.01	17.11	16.55	0.03	1.04	0.96

Notes:

- (1) Container ship emissions per call were based on Port of Los Angeles Inventory of Air Emissions 2007
- (2) PM emissions for onroad trucks include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust EFs were obtained from USEPA AP-42.
- (3) Offsite linehaul locomotive emissions were based on travel distance to South Coast Air Basin.
- (4) Assume truck deliveries happen in 30 days, and rail delivery in one day.
- (5) Peak daily activities include 2 "Complete Assemblies", 1 "Erect Lifting beams on columns" and 1 "Assemble Crane components"
- (6) Peak month for crane delivery is January 2015, and peak month for crane assembly is April 2015

**Table C1.1-67. Summary of Mitigated Daily Emissions for Crane Delivery and Assembly Activities**

Construction Sub-Element	Vehicle / Equipment Type	Quantity	Size-hp	Fuel	Emission [lb/day]					
					VOC	CO	NOx	SO2	PM10	PM2.5
<b>2015 Crane Delivery (Peak Month: January 2015)</b>										
Crane Delivery	Heavy-Duty Diesel Truck (On-site)			D	0.14	0.37	0.39	0.00	0.15	0.04
	Heavy-Duty Diesel Truck (Off-site)			D	0.10	0.39	0.84	0.00	0.13	0.04
Deliver Steel via Ship	Container Ship	1		D	127.80	305.77	2812.89	54.44	36.89	29.82
Deliver Small Parts of Crane via Rail	Line-Haul Train (On-site)	1		D	0.55	1.13	11.64	0.01	0.34	0.31
	Line-Haul Train (Off-site)			D	73.08	110.56	971.32	0.81	27.82	25.59
<b>2015 Crane Assembly (Peak Month: April 2015)</b>										
Crane Assembly	Light-Duty Gasoline Trucks (On-site)			G	0.04	0.81	0.09	0.00	0.44	0.11
	Light-Duty Gasoline Trucks (Off-site)			G	0.03	1.36	0.15	0.00	0.34	0.09
Assemble Crane components	150T crane	1	150	D	0.54	6.73	7.07	0.01	0.14	0.12
	Air compressor	2	54	D	0.49	5.33	6.62	0.01	0.10	0.09
	Welder	2	46	D	0.34	5.00	6.25	0.01	0.11	0.10
	Generator (single-phase)	1	229	D	1.57	4.50	12.69	0.02	0.16	0.15
	Generator (double-phase)	1	229	D	1.49	4.50	12.69	0.02	0.16	0.15
Erect Lifting beams on columns	500T crane	2	500	D	6.83	22.68	41.67	0.09	0.70	0.65
	150T crane	2	150	D	1.25	15.70	16.49	0.03	0.32	0.29
	Air compressor	2	54	D	0.49	5.33	6.62	0.01	0.10	0.09
	Welder	2	46	D	0.34	5.00	6.25	0.01	0.11	0.10
	Generator (single-phase)	1	229	D	1.57	4.50	12.69	0.02	0.16	0.15
Complete assembly	Generator (double-phase)	1	229	D	1.57	4.50	12.69	0.02	0.16	0.15
	Air compressor	2	54	D	0.99	10.66	13.24	0.02	0.20	0.18
	Welder	2	46	D	0.68	9.99	12.50	0.02	0.22	0.20
	Generator (single-phase)	1	229	D	3.14	8.99	25.38	0.05	0.32	0.30
	Generator (double-phase)	1	229	D	3.14	8.99	25.38	0.05	0.32	0.30
	Man lift	3	34	D	1.01	14.77	16.55	0.03	0.33	0.30

Notes:

- (1) Container ship emissions per call were based on Port of Los Angeles Inventory of Air Emissions 2007
- (2) PM emissions for onroad trucks include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust. Road dust emission factors were obtained from USEPA AP-42.
- (3) Offsite linehaul locomotive emissions were based on travel distance to South Coast Air Basin.
- (4) Assume truck deliveries happen in 30 days, and rail delivery in one day.
- (5) Peak daily activities include 2 "Complete Assemblies", 1 "Erect Lifting beams on columns" and 1 "Assemble Crane components"
- (6) Peak month for crane delivery is January 2015, and peak month for crane assembly is April 2015
- (7) NOx and PM emission factors for HDDT are adjusted to comply with the Port's Construction Guidelines.
- (8) Off-road equipment emissions factors were adjusted for compliance with ARB In-Use Off-road rule, ARB Air Toxic Control Measure (ATCM) for Portable Equipment, and the Port's Construction Guidelines.



**Table C1.1-68. Equipment Type, Size and Activity for SCE Tower Relocation**

Construction Sub-Element	Equipment / Off-road Source	Quantity	Size-hp	Fuel	Daily Hours	Days Per Unit
<b>2013 SCE Tower Relocation</b>						
Civil Contract for Foundations	Boom/Crane Truck	1	300	D	4	12
	Auger Truck	1	79	D	6	12
	Backhoe/Front Loader	1	79	D	3	12
	Concrete Pump	1	175	D	6	12
	Arrow Board	1	15	D	8	35
Install New Above-Grade Structures	Boom/Crane Truck	1	300	D	4	9
	Heavy Line Truck	1	250	D	2	9
	265-Ton Crane	1	350	D	6	9
	Flatbed Trucks	5	250	D	6	25
	90-Ton Crane	1	125	D	6	9
	Oiler's Support Truck	1	125	D	2	25
	Arrow Board	2	15	D	8	25
Install New Overhead Conductors	Bucket Truck	2	350	D	4	20
	Boom/Crane Truck	1	300	D	4	20
	Heavy Line Truck	1	250	D	2	20
	3 Drum Line Puller	1	170	D	6	20
	Bull Wheel Puller	1	125	D	6	20
	Static Truck/Tensioner	1	125	D	6	20
	Backhoe/Front Loader	1	79	D	2	20
	Arrow Board	2	15	D	8	20
Remove Old Overhead Conductors	Bucket Truck	2	350	D	4	10
	Boom/Crane Truck	1	300	D	4	10
	Heavy Line Truck	1	250	D	2	10
	3 Drum Line Puller	1	120	D	6	10
	Bull Wheel Puller	1	120	D	6	10
	Static Truck/Tensioner	1	120	D	6	10
	Backhoe/Front Loader	1	79	D	2	10
	Arrow Board	2	15	D	8	10
Remove Old Above-Grade Structures	Boom/Crane Truck	1	300	D	4	5
	Heavy Line Truck	1	250	D	2	5
	265-Ton Crane	1	350	D	6	5
	Flatbed Trucks	5	250	D	6	15
	90-Ton Crane	1	125	D	6	5
	Oiler's Support Truck	1	125	D	2	15
	Arrow Board	2	15	D	8	15

Source: BNSF

**Table C1.1-69. Emission Factors of Equipment Used at SCE Tower Relocation**

Construction Sub-Element	Equipment / Source	Size-hp	Fuel	EF Unit	Emission Factors					
					VOC	CO	NOX	SO2	PM10	PM2.5
<b>2013 SCE Tower Relocation</b>										
Civil Contract for Foundations	Boom/Crane Truck	300	D	lb/hr	0.16	0.53	1.42	0.00	0.05	0.05
	Auger Truck	79	D	lb/hr	0.04	0.47	0.46	0.00	0.03	0.02
	Backhoe/Front Loader	79	D	lb/hr	0.07	0.35	0.46	0.00	0.04	0.04
	Concrete Pump	175	D	lb/hr	0.14	0.74	1.23	0.00	0.06	0.06
	Arrow Board	15	D	lb/hr	0.01	0.04	0.04	0.00	0.00	0.00
	Earthwork Fugitive Dust	N/A	N/A	lb/cu. yd	N/A	N/A	N/A	N/A	0.003	0.001
Install New Above-Grade Structures	Boom/Crane Truck	300	D	lb/hr	0.16	0.53	1.42	0.00	0.05	0.05
	Heavy Line Truck	250	D	lb/hr	0.14	0.38	1.24	0.00	0.04	0.04
	265-Ton Crane	350	D	lb/hr	0.16	0.53	1.42	0.00	0.05	0.05
	Flatbed Trucks	250	D	lb/hr	0.14	0.38	1.24	0.00	0.04	0.04
	90-Ton Crane	125	D	lb/hr	0.14	0.76	1.03	0.00	0.06	0.06
	Oiler's Support Truck	125	D	lb/hr	0.14	0.76	1.03	0.00	0.06	0.06
	Arrow Board	15	D	lb/hr	0.01	0.04	0.04	0.00	0.00	0.00
Install New Overhead Conductors	Bucket Truck	350	D	lb/hr	0.16	0.53	1.42	0.00	0.05	0.05
	Boom/Crane Truck	300	D	lb/hr	0.16	0.53	1.42	0.00	0.05	0.05
	Heavy Line Truck	250	D	lb/hr	0.14	0.38	1.24	0.00	0.04	0.04
	3 Drum Line Puller	170	D	lb/hr	0.11	0.51	0.84	0.00	0.05	0.04
	Bull Wheel Puller	125	D	lb/hr	0.11	0.51	0.84	0.00	0.05	0.04
	Static Truck/Tensioner	125	D	lb/hr	0.11	0.51	0.84	0.00	0.05	0.04
	Backhoe/Front Loader	79	D	lb/hr	0.07	0.35	0.46	0.00	0.04	0.04
Arrow Board	15	D	lb/hr	0.01	0.04	0.04	0.00	0.00	0.00	
Remove Old Overhead Conductors	Bucket Truck	350	D	lb/hr	0.16	0.53	1.42	0.00	0.05	0.05
	Boom/Crane Truck	300	D	lb/hr	0.16	0.53	1.42	0.00	0.05	0.05
	Heavy Line Truck	250	D	lb/hr	0.14	0.38	1.24	0.00	0.04	0.04
	3 Drum Line Puller	120	D	lb/hr	0.11	0.49	0.76	0.00	0.06	0.05
	Bull Wheel Puller	120	D	lb/hr	0.11	0.49	0.76	0.00	0.06	0.05
	Static Truck/Tensioner	120	D	lb/hr	0.11	0.49	0.76	0.00	0.06	0.05
	Backhoe/Front Loader	79	D	lb/hr	0.07	0.35	0.46	0.00	0.04	0.04
Arrow Board	15	D	lb/hr	0.01	0.04	0.04	0.00	0.00	0.00	
Remove Old Above-Grade Structures	Boom/Crane Truck	300	D	lb/hr	0.16	0.53	1.42	0.00	0.05	0.05
	Heavy Line Truck	250	D	lb/hr	0.14	0.38	1.24	0.00	0.04	0.04
	265-Ton Crane	350	D	lb/hr	0.16	0.53	1.42	0.00	0.05	0.05
	Flatbed Trucks	250	D	lb/hr	0.14	0.38	1.24	0.00	0.04	0.04
	90-Ton Crane	125	D	lb/hr	0.14	0.76	1.03	0.00	0.06	0.06
	Oiler's Support Truck	125	D	lb/hr	0.14	0.76	1.03	0.00	0.06	0.06
	Arrow Board	15	D	lb/hr	0.01	0.04	0.04	0.00	0.00	0.00

Note: Offroad equipment emission factors generated from OFFROAD2007.  
 Source: BNSF

**Table C1.1-70. Summary of Daily Emissions of Equipment Used at SCE Tower Relocation**

Construction Sub-Element	Equipment	No.	Size-hp	Fuel	Emissions (lb/day)					
					VOC	CO	NOX	SO2	PM10	PM2.5
<b>2013 SCE Tower Relocation</b>										
Civil Contract for Foundations	Boom/Crane Truck	1	300	D	0.62	2.12	5.69	0.01	0.21	0.19
	Auger Truck	1	79	D	0.27	2.82	2.75	0.01	0.15	0.14
	Backhoe/Front Loader	1	79	D	0.21	1.06	1.37	0.00	0.11	0.11
	Concrete Pump	1	175	D	0.83	4.44	7.41	0.01	0.37	0.34
	Arrow Board	1	15	D	0.06	0.30	0.36	0.00	0.01	0.01
	Earthwork Fugitive Dust								0.13	0.03
Install New Above-Grade Structures	Boom/Crane Truck	1	300	D	0.62	2.12	5.69	0.01	0.21	0.19
	Heavy Line Truck	1	250	D	0.28	0.77	2.47	0.00	0.08	0.08
	265-Ton Crane	1	350	D	0.93	3.18	8.54	0.01	0.31	0.29
	Flatbed Trucks	5	250	D	4.20	11.51	37.12	0.06	1.24	1.14
	90-Ton Crane	1	125	D	0.86	4.55	6.18	0.01	0.36	0.33
	Oiler's Support Truck	1	125	D	0.29	1.52	2.06	0.00	0.12	0.11
	Arrow Board	2	15	D	0.11	0.60	0.72	0.00	0.03	0.03
Install New Overhead Conductors	Bucket Truck	2	350	D	1.24	4.23	11.38	0.01	0.41	0.38
	Boom/Crane Truck	1	300	D	0.62	2.12	5.69	0.01	0.21	0.19
	Heavy Line Truck	1	250	D	0.28	0.77	2.47	0.00	0.08	0.08
	3 Drum Line Puller	1	170	D	0.64	3.03	5.03	0.01	0.28	0.26
	Bull Wheel Puller	1	125	D	0.64	3.03	5.03	0.01	0.28	0.26
	Static Truck/Tensioner	1	125	D	0.64	3.03	5.03	0.01	0.28	0.26
	Backhoe/Front Loader	1	79	D	0.14	0.71	0.91	0.00	0.08	0.07
Arrow Board	2	15	D	0.11	0.60	0.72	0.00	0.03	0.03	
Remove Old Overhead Conductors	Bucket Truck	2	350	D	1.24	4.23	11.38	0.01	0.41	0.38
	Boom/Crane Truck	1	300	D	0.62	2.12	5.69	0.01	0.21	0.19
	Heavy Line Truck	1	250	D	0.28	0.77	2.47	0.00	0.08	0.08
	3 Drum Line Puller	1	120	D	0.66	2.94	4.55	0.01	0.35	0.33
	Bull Wheel Puller	1	120	D	0.66	2.94	4.55	0.01	0.35	0.33
	Static Truck/Tensioner	1	120	D	0.66	2.94	4.55	0.01	0.35	0.33
	Backhoe/Front Loader	1	79	D	0.14	0.71	0.91	0.00	0.08	0.07
Arrow Board	2	15	D	0.11	0.60	0.72	0.00	0.03	0.03	
Remove Old Above-Grade Structures	Boom/Crane Truck	1	300	D	0.62	2.12	5.69	0.01	0.21	0.19
	Heavy Line Truck	1	250	D	0.28	0.77	2.47	0.00	0.08	0.08
	265-Ton Crane	1	350	D	0.93	3.18	8.54	0.01	0.31	0.29
	Flatbed Trucks	5	250	D	4.20	11.51	37.12	0.06	1.24	1.14
	90-Ton Crane	1	125	D	0.86	4.55	6.18	0.01	0.36	0.33
	Oiler's Support Truck	1	125	D	0.29	1.52	2.06	0.00	0.12	0.11
	Arrow Board	2	15	D	0.11	0.60	0.72	0.00	0.03	0.03

Source: BNSF

**Table C1.1-71. On-road Trucks Activities for SCE Tower Relocation**

Construction Sub-Element	Vehicle	Vehicle Class	Quantity	Days Used	On-Site Miles/ Day/ Veh.	Off-Site Miles/ Day/ Veh.
<b>2013 SCE Tower Relocation</b>						
Civil Contract for Foundations	Dump Truck	HHDT	1	35	1	30
	3/4 Ton Pick-up, 4x4	Passenger	2	35	1	60
	1-Ton Crew Cab, 4x4	Passenger	1	35	1	60
	Concrete Truck	HHDT	1	35	1	30
	Vacuum Truck	HHDT	1	35	1	30
	Worker Commute	Passenger	8	35	0	60
Install New Above-Grade Structures	3/4 Ton Pick-up, 4x4	Passenger	2	25	1	10
	1-Ton Crew Cab, 4x4	Passenger	1	25	1	10
	Worker Commute	Passenger	10	25	0	60
Install New Overhead Conductors	3/4 Ton Pick-up, 4x4	Passenger	2	20	1	10
	1-Ton Crew Cab, 4x4	Passenger	1	20	1	10
	Lowboy Truck/Trailer	HHDT	2	20	1	10
	Worker Commute	Passenger	10	20	0	60
Remove Old Overhead Conductors	3/4 Ton Pick-up, 4x4	Passenger	2	10	1	10
	1-Ton Crew Cab, 4x4	Passenger	1	10	1	10
	Lowboy Truck/Trailer	HHDT	2	10	1	10
	Worker Commute	Passenger	10	10	0	60
Remove Old Above-Grade Structures	3/4 Ton Pick-up, 4x4	Passenger	2	15	1	10
	1-Ton Crew Cab, 4x4	Passenger	1	15	1	10
	Worker Commute	Passenger	10	15	0	60

Source: BNSF

Table C1.1-72. Emission Factors for On-road Trucks for SCE Tower Relocation

Truck Type	Vehicle Class	Emission Factors (lbs/mile)							
		VOC	CO	NOx	SOx	Total PM10 (incl. paved road dust)	Total PM2.5 (incl. paved road dust)	Total PM10 (incl. unpaved road dust)	Total PM2.5 (incl. unpaved road dust)
<b>2013 SCE Tower Relocation</b>									
<b>Onsite</b>									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	N/A	N/A	9.24E-01	9.34E-02
3/4-Ton Pick-up Truck, 4x4	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	N/A	N/A	4.47E-01	4.48E-02
1-Ton Crew Cab, 4x4	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	N/A	N/A	5.32E-01	5.32E-02
Concrete Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	N/A	N/A	9.24E-01	9.34E-02
Vacuum Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	N/A	N/A	9.24E-01	9.36E-02
Lowboy Truck/Trailer	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	N/A	N/A	9.24E-01	9.34E-02
<b>Offsite</b>									
Dump Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	2.26E-03	1.15E-03	N/A	N/A
3/4-Ton Pick-up Truck, 4x4	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	1.01E-03	5.83E-05	N/A	N/A
1-Ton Crew Cab, 4x4	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	1.01E-03	5.83E-05	N/A	N/A
Concrete Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	2.26E-03	1.15E-03	N/A	N/A
Vacuum Truck	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	9.24E-01	9.34E-02	N/A	N/A
Worker Commute	Passenger	7.46E-04	7.09E-03	7.12E-04	1.07E-05	1.01E-03	5.83E-05	N/A	N/A
Lowboy Truck/Trailer	HHDT	2.26E-03	9.32E-03	2.74E-02	4.09E-05	2.26E-03	1.15E-03	N/A	N/A

Source: SCAQMD

**Table C1.1-73. Summary of Daily Emissions of On-road Vehicles for SCE Tower Relocation**

Construction Sub-Element	Vehicle	Emissions (lb/day)					
		VOC	CO	NOX	SO2	PM10	PM2.5
<b>2013 SCE Tower Relocation</b>							
Civil Contract for Foundations	Dump Truck	0.07	0.29	0.85	0.00	0.99	0.13
	3/4 Ton Pick-up, 4x4	0.09	0.87	0.09	0.00	1.02	0.10
	1-Ton Crew Cab, 4x4	0.05	0.43	0.04	0.00	0.59	0.06
	Concrete Truck	0.07	0.29	0.85	0.00	0.99	0.13
	Vacuum Truck	0.07	0.29	0.85	0.00	0.99	0.13
	Worker Commute	0.36	3.40	0.34	0.01	0.49	0.03
Install New Above-Grade Structures	3/4 Ton Pick-up, 4x4	0.02	0.16	0.02	0.00	0.02	0.00
	1-Ton Crew Cab, 4x4	0.01	0.08	0.01	0.00	0.01	0.00
	Worker Commute	0.45	4.26	0.43	0.01	0.61	0.04
Install New Overhead Conductors	3/4 Ton Pick-up, 4x4	0.02	0.16	0.02	0.00	0.02	0.00
	1-Ton Crew Cab, 4x4	0.01	0.08	0.01	0.00	0.01	0.00
	Lowboy Truck/Trailer	0.05	0.20	0.60	0.00	0.05	0.03
	Worker Commute	0.45	4.26	0.43	0.01	0.61	0.04
Remove Old Overhead Conductors	3/4 Ton Pick-up, 4x4	0.02	0.16	0.02	0.00	0.02	0.00
	1-Ton Crew Cab, 4x4	0.01	0.08	0.01	0.00	0.01	0.00
	Lowboy Truck/Trailer	0.05	0.20	0.60	0.00	0.05	0.03
	Worker Commute	0.45	4.26	0.43	0.01	0.61	0.04
Remove Old Above-Grade Structures	3/4 Ton Pick-up, 4x4	0.02	0.16	0.02	0.00	0.02	0.00
	1-Ton Crew Cab, 4x4	0.01	0.08	0.01	0.00	0.01	0.00
	Worker Commute	0.45	4.26	0.43	0.01	0.61	0.04

Notes:

- (1) Emissions include on-site and off-site sources.
- (2) PM10 and PM2.5 emissions include exhaust and unpaved and paved road dust.

**Table C1.1-74. Total Daily Criteria Pollutant Construction Emissions by Phase**

Phase	Emissions (lb/day)					
	VOC	CO	NOX	SOX	PM10	PM2.5
<b>2013 SCE Tower Relocation</b>						
<b>On-site</b>						
Civil Contract for Foundations	1.99	10.79	17.66	0.02	5.18	1.24
Install New Above-Grade Structures	7.30	24.26	62.79	0.09	2.35	2.16
Install New Overhead Conductors	4.31	17.56	36.33	0.05	1.67	1.53
Remove Old Overhead Conductors	4.39	17.30	34.90	0.04	1.88	1.72
Remove Old Above-Grade Structures	7.30	24.26	62.79	0.09	2.35	2.16
<b>Off-site</b>						
Civil Contract for Foundations	0.70	5.52	2.94	0.01	0.87	0.14
Install New Above-Grade Structures	0.47	4.47	0.45	0.01	0.64	0.04
Install New Overhead Conductors	0.52	4.65	1.00	0.01	0.68	0.06
Remove Old Overhead Conductors	0.52	4.65	1.00	0.01	0.68	0.06
Remove Old Above-Grade Structures	0.47	4.47	0.45	0.01	0.64	0.04

**Table C1.1-75. Equipment Type, Size, and Activities for Alternate Business Locations Construction**

Phase	Equipment Type	Quantity	HP	Load Factor	Avg Hrs/Day
Building Construction	Cranes	4	399	0.43	6
	Forklifts	8	145	0.3	6
	Generator Sets	3	49	0.74	8
	Tractors/Loaders/Backhoes	4	108	0.55	8
	Welders	9	45	0.45	8
Demolition	Concrete/Industrial Saws	4	10	0.73	8
	Rubber Tired Dozers	4	357	0.59	1
	Tractors/Loaders/Backhoes	8	108	0.55	6
Fine Site Grading	Graders	4	174	0.61	6
	Rubber Tired Dozers	4	357	0.59	6
	Tractors/Loaders/Backhoes	4	108	0.55	7
	Water Trucks	4	189	0.5	8
Mass Site Grading	Graders	4	174	0.61	6
	Rubber Tired Dozers	4	357	0.59	6
	Tractors/Loaders/Backhoes	4	108	0.55	7
	Water Trucks	4	189	0.5	8
Paving	Cement and Mortar Mixers	16	10	0.56	6
	Pavers	4	100	0.62	7
	Paving Equipment	4	104	0.53	7
	Rollers	4	95	0.56	7
	Tractors/Loaders/Backhoes	4	108	0.55	7



**Table C1.1-76. On-road Vehicle Activities for Alternate Business Locations Construction**

<b>Phase</b>	<b>Vehicle Type</b>	<b>Miles/Trip</b>	<b>Trips/Day</b>
Building Construction	Building Construction Vendor Trucks (HHDT)	17.8	621
	Worker Commute (LDA / LDT)	25.4	686
Demolition	On-road Trucks (HDDT)	20.0	52
	Worker Commute (LDA / LDT)	25.4	20
Fine Site Grading	Worker Commute (LDA / LDT)	25.4	20
Mass Site Grading	On-road Trucks (HDDT)	20.0	61
	Worker Commute (LDA / LDT)	25.4	20
Paving	On-road Trucks (HDDT)	20.0	17
	Worker Commute (LDA / LDT)	25.4	40

**Table C1.1-77. Unmitigated Annual Emissions for Alternate Business Locations  
Construction**

Category	Annual Emissions (tons/year)					
	VOC	CO	NOx	SO2	PM10	PM2.5
On-site	0.63	2.44	3.85	0.00	1.99	0.58
Off-site	0.55	5.41	10.30	0.03	0.33	0.28
<b>Total</b>	<b>1.18</b>	<b>7.85</b>	<b>14.15</b>	<b>0.03</b>	<b>2.32</b>	<b>0.86</b>

Notes:

- (1) On-site emissions include emissions from construction equipment and fugitive dusts.
- (2) Off-site emissions include emissions from worker commute and on-road trucks
- (3) Source: Urbemis 2007 version 9.2.4.
- (4) Alternate Business Locations construction occurs in 2013.

**Table C1.1-78. Mitigated Annual Emissions for Alternate Business Locations  
Construction**

Category	Annual Emissions (tons/year)					
	VOC	CO	NOx	SO2	PM10	PM2.5
On-site	0.53	2.44	3.85	0.00	1.49	0.43
Off-site	0.55	5.41	10.21	0.03	0.33	0.28
<b>Total</b>	<b>1.08</b>	<b>7.85</b>	<b>14.06</b>	<b>0.03</b>	<b>1.83</b>	<b>0.71</b>

Notes:

- (1) On-site emissions include emissions from construction equipment and fugitive dusts.
- (2) Off-site emissions include emissions from worker commute and on-road trucks
- (3) Source: Urbemis 2007 version 9.2.4. Emissions were adjusted to comply to Port's Construction Guidelines.
- (4) Alternate business locations construction occurs in 2013.

**Table C1.1-79. Unmitigated Peak Daily Emissions for SCIG, Alternate Business Locations, and Sound Wall Constructions, and SCE Tower Relocation**

Year	Category	Peak Daily Emissions (lbs/day)					
		VOC	CO	NOx	SO2	PM10	PM2.5
2013	On-site	157.12	614.15	1138.02	1.60	443.33	109.85
	Off-site	93.44	263.04	1297.62	1.53	50.00	39.35
2014	On-site	65.56	277.80	490.00	0.74	555.47	97.66
	Off-site	21.18	87.14	367.42	0.69	30.99	12.52
2015	On-site	41.94	148.29	251.06	0.41	11.86	10.62
	Off-site	201.35	429.54	3787.20	55.29	68.87	56.53

Notes:

- (1) Construction activities in 2013 include constructions of the SCIG primary site, alternate business locations, and sound wall and SCE tower relocation.
- (2) Construction activities in 2014 are SCIG primary site construction.
- (3) Construction activities in 2015 includes crane delivery and assembly.
- (4) Peak daily emissions are the total daily emissions in the peak month estimated by overlapping construction activities occur in the same month based on the construction schedule.
- (5) Offsite emissions were estimated to South Coast Air Basin boundary.

**Table C1.1-80. Mitigated Peak Daily Emissions for SCIG, Alternate Business Locations, and Sound Wall Constructions, and SCE Tower Relocation**

Year	Category	Peak Daily Emissions (lbs/day)					
		VOC	CO	NOx	SO2	PM10	PM2.5
2013	On-site	125.20	605.55	1055.58	1.60	217.16	42.84
	Off-site	93.44	263.04	1234.02	1.53	49.48	38.87
2014	On-site	44.63	275.68	445.70	0.74	311.47	38.89
	Off-site	21.18	87.14	229.12	0.69	30.61	12.17
2015	On-site	25.49	137.97	234.86	0.41	4.05	3.44
	Off-site	201.35	429.54	3786.43	55.29	68.86	56.53

Notes:

- (1) Construction activities in 2013 include constructions of the SCIG primary site, alternate business locations, and sound wall and SCE tower relocation.
- (2) Construction activities in 2014 are SCIG primary site construction.
- (3) Construction activities in 2015 includes crane delivery and assembly.
- (4) Peak daily emissions are the total daily emissions in the peak month estimated by overlapping construction activities occur in the same month based on the construction schedule.
- (5) Emissions were adjusted to comply with construction mitigation measures.

## **Appendix C1.2**

# **Operational Emission Calculations**

<b>TABLE</b>	<b>DESCRIPTION</b>
Table C1.2-1	Annual SCIG TEU Throughput by Project Scenario
Table C1.2-2	Annual Truck and Employee Commute Trips
Table C1.2-3	Truck Trip Distances between Port Terminals and SCIG
Table C1.2-4	Train Capacity for SCIG Project
Table C1.2-5	Train Trips Generated by SCIG
Table C1.2-6	Peak Day Train Trips Generated by SCIG
Table C1.2-7	Truck Trips and Mileage for SCIG Project
Table C1.2-8	On-Road Truck Operational Data for SCIG Proposed Project
Table C1.2-9a	On-Road Truck Emission Factors - SCIG Drayage Truck Fleet - Proposed Project
Table C1.2-9b	On-Road Truck Emission Factors - SCIG Drayage Truck Fleet - Proposed Project - with Low Emission Trucks & On-Site Sweeping Mitigations
Table C1.2-10a	Annual Truck Emissions for SCIG - Proposed Project
Table C1.2-10b	Annual Truck Emissions for SCIG - Proposed Project - with Low Emission Trucks & On-Site Sweeping Mitigations
Table C1.2-11a	Peak Daily Truck Emissions for SCIG - Proposed Project
Table C1.2-11b	Peak Daily Truck Emissions for SCIG - Proposed Project - with Low Emission Trucks & On-Site Sweeping Mitigations
Table C1.2-12a	Summary of Annual Truck Emissions for SCIG - Proposed Project
Table C1.2-12b	Summary of Annual Truck Emissions for SCIG - Proposed Project - with Low Emission Trucks & On-Site Sweeping Mitigations
Table C1.2-13a	Summary of Peak Daily Truck Emissions for SCIG - Proposed Project
Table C1.2-13b	Summary of Peak Daily Truck Emissions for SCIG - Proposed Project - with Low Emission Trucks & On-Site Sweeping Mitigations
Table C1.2-14a	Worker Commute Operational Data for SCIG - Proposed Project
Table C1.2-14b	Worker Commute Emission Factors for SCIG - Proposed Project
Table C1.2-14c	Worker Commute Emission Factors for SCIG - Proposed Project - with On-Site Sweeping Mitigation
Table C1.2-15a	Annual Worker Commute Emissions for SCIG - Proposed Project
Table C1.2-15b	Annual Worker Commute Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation
Table C1.2-16a	Peak Daily Worker Commute Emissions for SCIG - Proposed Project
Table C1.2-16b	Peak Daily Worker Commute Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation
Table C1.2-17a	Summary of Annual Worker Commute Emissions for SCIG - Proposed Project
Table C1.2-17b	Summary of Annual Worker Commute Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation
Table C1.2-18a	Summary of Peak Daily Worker Commute Emissions for SCIG - Proposed Project
Table C1.2-18b	Summary of Peak Daily Worker Commute Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation
Table C1.2-19	SCIG Train Trips - Proposed Project
Table C1.2-20	Emission Factors for SCIG Switcher Locomotives - Proposed Project
Table C1.2-21	Emission Factors for SCIG Linehaul Locomotives – Proposed Project
Table C1.2-22	Peak Emission Factors for SCIG Linehaul Locomotives – Proposed Project
Table C1.2-23	Annual Locomotive Emissions for SCIG - Proposed Project
Table C1.2-24	Peak Daily Locomotive Emissions for SCIG - Proposed Project
Table C1.2-25	Summary of Annual Locomotive Emissions for SCIG - Proposed Project
Table C1.2-26	Summary of Peak Daily Locomotive Emissions for SCIG - Proposed Project
Table C1.2-27	Equipment Usage for SCIG Cargo Handling Equipment – Proposed Project
Table C1.2-28	Emission Factors for SCIG Cargo Handling Equipment – Proposed Project
Table C1.2-29	Annual Emissions for SCIG Cargo Handling Equipment – Proposed Project
Table C1.2-30	Peak Daily Emissions for SCIG Cargo Handling Equipment – Proposed Project
Table C1.2-31	Annual Activity Data for SCIG Maintenance Equipment – Proposed Project
Table C1.2-32	Emission Factors for SCIG Maintenance Equipment – Proposed Project
Table C1.2-33	Annual Emissions for SCIG Maintenance Equipment – Proposed Project
Table C1.2-34	Peak Daily Emissions for SCIG Maintenance Equipment – Proposed Project
Table C1.2-35	Activity Data for SCIG Emergency Generator – Proposed Project
Table C1.2-36	Emission Factors for SCIG Emergency Generator – Proposed Project
Table C1.2-37	Summary of Annual Emissions for SCIG Emergency Generator – Proposed Project
Table C1.2-38	Summary of Peak Daily Emissions for SCIG Emergency Generator – Proposed Project
Table C1.2-39	Activity Data for SCIG Gasoline Service Trucks - Proposed Project
Table C1.2-40a	Emission Factors for SCIG Gasoline Service Trucks - Proposed Project
Table C1.2-40b	Emission Factors for SCIG Gasoline Service Trucks - Proposed Project - with On-Site Sweeping Mitigation
Table C1.2-41a	Annual Gasoline Service Truck Emissions for SCIG - Proposed Project
Table C1.2-41b	Annual Gasoline Service Truck Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation

Table C1.2-42a	Summary of Annual Gasoline Service Truck On-Site Emissions for SCIG - Proposed Project
Table C1.2-42b	Summary of Annual Gasoline Service Truck On-Site Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation
Table C1.2-43a	Summary of Peak Daily Gasoline Service Truck Emissions for SCIG - Proposed Project
Table C1.2-43b	Summary of Peak Daily Gasoline Service Truck Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation
Table C1.2-44	Activity Data for SCIG Refueling Trucks - Proposed Project
Table C1.2-45a	Emission Factors for SCIG Refueling Trucks – Proposed Project
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**Table C1.2-1. Annual SCIG TEU Throughput by Project Scenario**

Scenario	Analysis Year			
	2016	2023	2035	2046
<b>Proposed Project</b>	570,808	807,597	2,775,000	2,775,000
<b>Alternative 1 - No Project</b>	-	-	-	-
<b>Alternative 2 - Reduced Project</b>	570,808	807,597	1,850,000	1,850,000

Note: The TEU throughput for year 2066 is identical to that for 2046

**Table C1.2-2. Annual Truck and Employee Commute Trips**

Description <sup>(1)</sup>		Employee Commute Trips	Total Truck Trips <sup>(2)</sup> (roundtrips)
2016	Proposed Project	33,480	205,183
	Alternative 1 - No Project	N/A	N/A
	Alternative 2 - Reduced Project	33,480	205,183
2023	Proposed Project	47,160	290,299
	Alternative 1 - No Project	N/A	N/A
	Alternative 2 - Reduced Project	47,160	290,299
2035	Proposed Project	162,000	997,500
	Alternative 1 - No Project	N/A	N/A
	Alternative 2 - Reduced Project	108,000	665,000
2046	Proposed Project	162,000	997,500
	Alternative 1 - No Project	N/A	N/A
	Alternative 2 - Reduced Project	108,000	665,000

Notes:

(1) The truck and commute trips for year 2066 are identical to those for 2046.

(2) Truck trips were based on assumptions of 1.33 truck trips per lift and 1.85 TEUs per intermodal lift.

**Table C1.2-3. Truck Trip Distances between Port Terminals and SCIG**

<b>Terminals</b>	<b>One-way Distance (mi)</b>
WBCT	6.85
Trapac	4.90
GGG	5.01
Pier 400	7.05
Yusen	3.59
Evergreen	5.66
Pier A	2.65
Pier C	3.41
Pier G/J	4.84
Pier J S	6.77
LBCT	5.06
Pier T	4.36

**Table C1.2-4. Train Capacity for SCIG Project**

<b>Description</b>	<b>No. of Containers per Train Visit</b>
Inbound Train	260
Outbound Train	260

**Table C1.2-5. Train Trips Generated by SCIG**

Analysis Year	Annual TEU Distribution to SCIG			Annual Train Roundtrips		
	Proposed Project	Alternative 1 No Project	Alternative 2 Reduced Project	Proposed Project	Alternative 1 No Project	Alternative 2 Reduced Project
2016	570,808	N/A	570,808	720	N/A	720
2023	807,597	N/A	807,597	1,080	N/A	1,080
2035	2,775,000	N/A	1,850,000	2,880	N/A	2,160
2046	2,775,000	N/A	1,850,000	2,880	N/A	2,160

Note: Train trips for year 2066 are identical to those for 2046



**Table C1.2-6. Peak Day Train Trips Generated by SCIG**

Analysis Year (2)	Peak Daily Train Roundtrips (1)		
	Proposed Project	No Project	Reduced Project
2016	2	N/A	2
2023	3	N/A	3
2035	8	N/A	6
2046	8	N/A	6

Notes:

(1) Peak day locomotive trips were assumed to be equivalent to the average daily trips due to the physical constraints on the number of train trips in a single day that the facility can accommodate. Average day train roundtrips were estimated by dividing the annual roundtrips by 360 work days per year and rounding up to the nearest whole number.

(2) Peak day train trips for year 2066 are identical to those for 2046.

**Table C1.2-7. Truck Trips and Mileage for SCIG Project**

<b>Analysis Year</b>	<b>Annual Round Trips</b>	<b>Annual Off-site VMT</b>
2016	205,183	2,194,733
2023	290,299	2,989,490
2035	997,500	9,873,498
2046	997,500	10,669,757

Source: POLA

Note: Trips and mileage for year 2066 are identical to those for 2046.

**Table C1.2-8. On-Road Truck Operational Data for SCIG Proposed Project**

<b>Activity by Year</b>	<b>Idling Time per Round Trip (hrs)</b>	<b>Miles/Trip</b>	<b>Idling Hours / Year</b>	<b>Miles/Year</b>
<b><i>On-site</i></b>				
Year 2016	0.33	1.79	68,394	367,166
Year 2023	0.33	1.79	96,766	519,478
Year 2035	0.33	1.79	332,500	1,784,986
Year 2046	0.33	1.79	332,500	1,784,986
<b><i>Ingress</i></b>				
Year 2016	0.03	0.96	6,839	195,983
Year 2023	0.03	0.96	9,677	277,282
Year 2035	0.03	0.96	33,250	952,774
Year 2046	0.03	0.96	33,250	952,774
<b><i>Egress</i></b>				
Year 2016	0.03	1.12	6,839	230,229
Year 2023	0.03	1.12	9,677	325,736
Year 2035	0.03	1.12	33,250	1,119,266
Year 2046	0.03	1.12	33,250	1,119,266
<b><i>Off-Site</i></b>				
Year 2016	--	--	--	2,194,733
Year 2023	--	--	--	2,989,490
Year 2035	--	--	--	9,873,498
Year 2046	--	--	--	10,669,757

Source: BNSF

Note: Idling time and mileage for year 2066 are identical to those for 2046.

**Table C1.2-9a. On-Road Truck Emission Factors - SCIG Drayage Truck Fleet - Proposed Project**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)									
		VOC	CO	NOx	SOx	On-site		Off-site		DPM10	DPM2.5
						PM10	PM2.5	PM10	PM2.5		
<b>Project Year 2016</b>											
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10	0.11	0.10
On-road Truck Transport	5	4.84	9.62	20.20	0.02	1.75	0.52	0.63	0.24	0.10	0.10
On-road Truck Transport	10	2.81	5.99	15.18	0.02	1.74	0.51	0.62	0.23	0.10	0.09
On-road Truck Transport	15	1.43	3.48	11.42	0.02	1.73	0.50	0.62	0.22	0.09	0.08
On-road Truck Transport	20	0.57	1.75	8.29	0.02	1.72	0.49	0.60	0.21	0.07	0.07
On-road Truck Transport	25	0.54	1.78	7.74	0.02	1.72	0.49	0.60	0.21	0.07	0.07
On-road Truck Transport	30	0.47	1.71	6.98	0.02	1.72	0.49	0.60	0.21	0.07	0.07
On-road Truck Transport	35	0.41	1.66	6.35	0.02	1.72	0.49	0.61	0.21	0.08	0.07
On-road Truck Transport	40	0.36	1.65	5.85	0.02	1.73	0.50	0.61	0.22	0.08	0.08
On-road Truck Transport	45	0.32	1.67	5.49	0.02	1.74	0.51	0.62	0.23	0.09	0.08
On-road Truck Transport	50	0.28	1.73	5.26	0.02	1.75	0.52	0.63	0.24	0.10	0.09
On-road Truck Transport	55	0.26	1.81	5.15	0.02	1.76	0.53	0.65	0.25	0.12	0.11
On-road Truck Transport	60	0.24	1.93	5.19	0.02	1.78	0.55	0.66	0.27	0.14	0.12
On-road Truck Transport	65	0.24	2.08	5.35	0.02	1.80	0.57	0.68	0.29	0.16	0.14
<b>Project Year 2023</b>											
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10	0.11	0.10
On-road Truck Transport	5	3.16	6.30	8.78	0.02	1.74	0.51	0.62	0.23	0.10	0.09
On-road Truck Transport	10	1.84	3.92	6.60	0.02	1.73	0.50	0.62	0.23	0.09	0.08
On-road Truck Transport	15	0.93	2.28	4.97	0.02	1.73	0.50	0.61	0.22	0.08	0.08
On-road Truck Transport	20	0.37	1.13	3.35	0.02	1.71	0.48	0.59	0.20	0.07	0.06
On-road Truck Transport	25	0.35	1.17	3.37	0.02	1.71	0.49	0.60	0.21	0.07	0.06
On-road Truck Transport	30	0.31	1.12	3.03	0.02	1.71	0.49	0.60	0.21	0.07	0.06
On-road Truck Transport	35	0.27	1.09	2.76	0.02	1.72	0.49	0.60	0.21	0.07	0.07
On-road Truck Transport	40	0.23	1.08	2.54	0.02	1.72	0.49	0.60	0.21	0.08	0.07
On-road Truck Transport	45	0.21	1.10	2.39	0.02	1.73	0.50	0.61	0.22	0.09	0.08
On-road Truck Transport	50	0.18	1.13	2.28	0.02	1.74	0.51	0.62	0.23	0.10	0.09
On-road Truck Transport	55	0.17	1.19	2.24	0.02	1.75	0.52	0.64	0.24	0.11	0.10
On-road Truck Transport	60	0.16	1.26	2.25	0.02	1.77	0.54	0.65	0.26	0.13	0.12
On-road Truck Transport	65	0.15	1.36	2.32	0.02	1.79	0.56	0.67	0.28	0.15	0.13
<b>Project Year 2035</b>											
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.83	5.66	7.75	0.02	1.73	0.50	0.61	0.22	0.09	0.08
On-road Truck Transport	10	1.65	3.53	5.83	0.02	1.72	0.50	0.61	0.22	0.08	0.07
On-road Truck Transport	15	0.84	2.05	4.39	0.02	1.72	0.49	0.60	0.21	0.07	0.07
On-road Truck Transport	20	0.34	1.04	3.01	0.02	1.70	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	25	0.31	1.05	2.97	0.02	1.71	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	30	0.27	1.00	2.68	0.02	1.71	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	35	0.24	0.98	2.44	0.02	1.71	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	40	0.21	0.97	2.25	0.02	1.71	0.49	0.60	0.21	0.07	0.06
On-road Truck Transport	45	0.18	0.99	2.11	0.02	1.72	0.49	0.60	0.21	0.08	0.07
On-road Truck Transport	50	0.17	1.02	2.02	0.02	1.73	0.50	0.61	0.22	0.09	0.08
On-road Truck Transport	55	0.15	1.07	1.98	0.02	1.74	0.51	0.63	0.23	0.10	0.09
On-road Truck Transport	60	0.14	1.14	1.99	0.02	1.76	0.53	0.64	0.25	0.11	0.10
On-road Truck Transport	65	0.14	1.22	2.05	0.02	1.77	0.54	0.66	0.26	0.13	0.12
<b>Project Year 2046</b>											
On-road Truck - Idle (g/hr)	0	7.41	41.75	40.38	0.07	0.13	0.12	0.13	0.12	0.13	0.12
On-road Truck Transport	5	2.82	5.62	8.98	0.02	1.73	0.51	0.62	0.23	0.09	0.08
On-road Truck Transport	10	1.64	3.50	6.70	0.02	1.73	0.50	0.61	0.22	0.08	0.08
On-road Truck Transport	15	0.83	2.03	5.01	0.02	1.72	0.49	0.60	0.21	0.07	0.07
On-road Truck Transport	20	0.34	1.04	3.49	0.02	1.70	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	25	0.31	1.04	3.41	0.02	1.71	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	30	0.27	1.00	3.09	0.02	1.71	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	35	0.24	0.97	2.83	0.02	1.71	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	40	0.21	0.97	2.62	0.02	1.71	0.48	0.60	0.21	0.07	0.06
On-road Truck Transport	45	0.18	0.98	2.47	0.02	1.72	0.49	0.60	0.21	0.08	0.07
On-road Truck Transport	50	0.16	1.01	2.37	0.02	1.73	0.50	0.61	0.22	0.09	0.08
On-road Truck Transport	55	0.15	1.06	2.33	0.02	1.74	0.51	0.62	0.23	0.10	0.09
On-road Truck Transport	60	0.14	1.12	2.35	0.02	1.76	0.53	0.64	0.25	0.11	0.10
On-road Truck Transport	65	0.14	1.21	2.42	0.02	1.77	0.54	0.66	0.26	0.13	0.12

Notes:

- (1) EMFAC2011 with modified fleet age distribution based on Port-wide inventory (Starcrest)
- (2) Emission factors incorporated the SPBP Clean Truck Program and California Statewide Bus and Truck Regulation.
- (3) Year 2046 uses 2035 emission factors; EMFAC 2011 only calculates emissions factors to 2035.
- (4) PM emission factors include is a sum of vehicle exhaust, tire wear, brake wear, and paved road dust.
- (5) Emission factors for year 2066 are identical to those for 2046

**Table C1.2-9b. On-Road Truck Emission Factors - SCIG Drayage Truck Fleet - Proposed Project - with Low Emission Trucks & On-Site Sweeping Mitigations**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)									
						On-site		Off-site			
		VOC	CO	NOx	SOx	PM10	PM2.5	PM10	PM2.5	DPM10	DPM2.5
<b>Project Year 2016</b>											
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.10	0.09	0.10	0.09
On-road Truck Transport	5	4.84	9.62	20.20	0.02	1.35	0.42	0.62	0.23	0.09	0.09
On-road Truck Transport	10	2.81	5.99	15.18	0.02	1.34	0.41	0.62	0.22	0.09	0.08
On-road Truck Transport	15	1.43	3.48	11.42	0.02	1.33	0.40	0.61	0.22	0.08	0.07
On-road Truck Transport	20	0.57	1.75	8.29	0.02	1.32	0.39	0.59	0.20	0.07	0.06
On-road Truck Transport	25	0.54	1.78	7.74	0.02	1.32	0.39	0.60	0.21	0.07	0.06
On-road Truck Transport	30	0.47	1.71	6.98	0.02	1.32	0.39	0.60	0.20	0.07	0.06
On-road Truck Transport	35	0.41	1.66	6.35	0.02	1.32	0.39	0.60	0.21	0.07	0.06
On-road Truck Transport	40	0.36	1.65	5.85	0.02	1.33	0.40	0.60	0.21	0.07	0.07
On-road Truck Transport	45	0.32	1.67	5.49	0.02	1.33	0.41	0.61	0.22	0.08	0.08
On-road Truck Transport	50	0.28	1.73	5.26	0.02	1.35	0.42	0.62	0.23	0.09	0.09
On-road Truck Transport	55	0.26	1.81	5.15	0.02	1.36	0.43	0.63	0.24	0.11	0.10
On-road Truck Transport	60	0.24	1.93	5.19	0.02	1.38	0.45	0.65	0.26	0.12	0.11
On-road Truck Transport	65	0.24	2.08	5.35	0.02	1.40	0.47	0.67	0.27	0.14	0.13
<b>Project Year 2023</b>											
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.03	0.03	0.03	0.03
On-road Truck Transport	5	3.16	6.30	8.78	0.02	1.34	0.41	0.56	0.17	0.03	0.03
On-road Truck Transport	10	1.84	3.92	6.60	0.02	1.33	0.40	0.55	0.17	0.03	0.02
On-road Truck Transport	15	0.93	2.28	4.97	0.02	1.32	0.40	0.55	0.16	0.02	0.02
On-road Truck Transport	20	0.37	1.13	3.35	0.02	1.31	0.38	0.55	0.16	0.02	0.02
On-road Truck Transport	25	0.35	1.17	3.37	0.02	1.31	0.39	0.55	0.16	0.02	0.02
On-road Truck Transport	30	0.31	1.12	3.03	0.02	1.31	0.39	0.55	0.16	0.02	0.02
On-road Truck Transport	35	0.27	1.09	2.76	0.02	1.31	0.39	0.55	0.16	0.02	0.02
On-road Truck Transport	40	0.23	1.08	2.54	0.02	1.32	0.39	0.55	0.16	0.02	0.02
On-road Truck Transport	45	0.21	1.10	2.39	0.02	1.33	0.40	0.55	0.17	0.02	0.02
On-road Truck Transport	50	0.18	1.13	2.28	0.02	1.34	0.41	0.55	0.17	0.03	0.03
On-road Truck Transport	55	0.17	1.19	2.24	0.02	1.35	0.42	0.56	0.17	0.03	0.03
On-road Truck Transport	60	0.16	1.26	2.25	0.02	1.37	0.44	0.56	0.18	0.04	0.03
On-road Truck Transport	65	0.15	1.36	2.32	0.02	1.39	0.46	0.57	0.18	0.04	0.04
<b>Project Year 2035</b>											
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.02	0.01	0.02	0.01
On-road Truck Transport	5	2.83	5.66	7.75	0.02	1.33	0.40	0.54	0.15	0.01	0.01
On-road Truck Transport	10	1.65	3.53	5.83	0.02	1.32	0.39	0.54	0.15	0.01	0.01
On-road Truck Transport	15	0.84	2.05	4.39	0.02	1.31	0.39	0.54	0.15	0.01	0.01
On-road Truck Transport	20	0.34	1.04	3.01	0.02	1.30	0.38	0.53	0.15	0.01	0.01
On-road Truck Transport	25	0.31	1.05	2.97	0.02	1.30	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	30	0.27	1.00	2.68	0.02	1.30	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	35	0.24	0.98	2.44	0.02	1.31	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	40	0.21	0.97	2.25	0.02	1.31	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	45	0.18	0.99	2.11	0.02	1.32	0.39	0.54	0.15	0.01	0.01
On-road Truck Transport	50	0.17	1.02	2.02	0.02	1.33	0.40	0.54	0.15	0.01	0.01
On-road Truck Transport	55	0.15	1.07	1.98	0.02	1.34	0.41	0.54	0.16	0.01	0.01
On-road Truck Transport	60	0.14	1.14	1.99	0.02	1.35	0.43	0.54	0.16	0.02	0.02
On-road Truck Transport	65	0.14	1.22	2.05	0.02	1.37	0.44	0.55	0.16	0.02	0.02
<b>Project Year 2046</b>											
On-road Truck - Idle (g/hr)	0	7.41	41.75	40.38	0.07	0.13	0.12	0.02	0.02	0.02	0.02
On-road Truck Transport	5	2.82	5.62	8.98	0.02	1.33	0.40	0.54	0.15	0.01	0.01
On-road Truck Transport	10	1.64	3.50	6.70	0.02	1.32	0.40	0.54	0.15	0.01	0.01
On-road Truck Transport	15	0.83	2.03	5.01	0.02	1.32	0.39	0.54	0.15	0.01	0.01
On-road Truck Transport	20	0.34	1.04	3.49	0.02	1.30	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	25	0.31	1.04	3.41	0.02	1.30	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	30	0.27	1.00	3.09	0.02	1.30	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	35	0.24	0.97	2.83	0.02	1.31	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	40	0.21	0.97	2.62	0.02	1.31	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	45	0.18	0.98	2.47	0.02	1.32	0.39	0.54	0.15	0.01	0.01
On-road Truck Transport	50	0.16	1.01	2.37	0.02	1.33	0.40	0.54	0.15	0.01	0.01
On-road Truck Transport	55	0.15	1.06	2.33	0.02	1.34	0.41	0.54	0.16	0.01	0.01
On-road Truck Transport	60	0.14	1.12	2.35	0.02	1.35	0.42	0.54	0.16	0.02	0.02
On-road Truck Transport	65	0.14	1.21	2.42	0.02	1.37	0.44	0.55	0.16	0.02	0.02

Notes:

- (1) EMFAC2011 with modified fleet age distribution based on Port-wide inventory (Starcrest)
- (2) Emission factors incorporated the SPBP Clean Truck Program and California Statewide Bus and Truck Regulation.
- (3) Year 2046 uses 2035 emission factors; EMFAC 2011 only calculates emissions factors to 2035.
- (4) PM emission factors include is a sum of vehicle exhaust, tire wear, brake wear, and paved road dust.
- (5) Low emission trucks mitigation assumes 10% LNG truck penetration in 2016, 75%in 2023, and 90% in 2026 and remain constant for the years after.
- (6) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (7) Emission factors for year 2066 are identical to those for 2046

**Table C1.2-10a. Annual Truck Emissions for SCIG - Proposed Project**

Project Year <sup>(1)</sup> - Mode		Emissions (tons/year)							
		VOC	CO	NOx	SOx	PM10 <sup>(2)</sup>	PM2.5 <sup>(2)</sup>	DPM10	DPM2.5
<b>On-Site <sup>(3)</sup></b>									
<b>2016</b>	Idling	0.67	3.77	3.47	0.01	0.01	0.01	0.01	0.01
	Driving	1.25	3.04	9.99	0.01	1.52	0.44	0.08	0.07
	<b>Subtotal</b>	<b>1.92</b>	<b>6.82</b>	<b>13.47</b>	<b>0.02</b>	<b>1.53</b>	<b>0.45</b>	<b>0.09</b>	<b>0.08</b>
<b>2023</b>	Idling	0.95	5.34	4.92	0.01	0.01	0.01	0.01	0.01
	Driving	1.16	2.82	6.14	0.02	2.14	0.62	0.10	0.09
	<b>Subtotal</b>	<b>2.10</b>	<b>8.16</b>	<b>11.06</b>	<b>0.03</b>	<b>2.15</b>	<b>0.63</b>	<b>0.12</b>	<b>0.11</b>
<b>2035</b>	Idling	3.25	18.35	16.89	0.03	0.05	0.04	0.05	0.04
	Driving	3.56	8.70	18.65	0.07	7.30	2.08	0.31	0.29
	<b>Subtotal</b>	<b>6.81</b>	<b>27.05</b>	<b>35.54</b>	<b>0.10</b>	<b>7.35</b>	<b>2.12</b>	<b>0.36</b>	<b>0.33</b>
<b>2046</b>	Idling	3.26	18.36	17.76	0.03	0.06	0.05	0.06	0.05
	Driving	3.54	8.65	21.31	0.07	7.30	2.08	0.32	0.29
	<b>Subtotal</b>	<b>6.80</b>	<b>27.01</b>	<b>39.07</b>	<b>0.10</b>	<b>7.36</b>	<b>2.14</b>	<b>0.37</b>	<b>0.34</b>
<b>Off-Site</b>									
<b>2016</b>	Driving	1.16	4.32	16.85	0.04	1.48	0.53	0.20	0.18
<b>2023</b>	Driving	1.04	3.89	9.88	0.05	1.99	0.70	0.25	0.23
<b>2035</b>	Driving	3.23	11.80	29.40	0.18	6.48	2.24	0.75	0.69
<b>2046</b>	Driving	3.18	11.69	33.85	0.18	6.48	2.24	0.75	0.69

Notes:

- (1) Emissions for year 2066 are identical to those for 2046.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) On-site driving emissions are calculated with 15 mph emission factors.

**Table C1.2-10b. Annual Truck Emissions for SCIG - Proposed Project - with Low Emission Trucks & On-Site Sweeping Mitigations**

Project Year <sup>(1)</sup> - Mode		Emissions (tons/year)							
		VOC	CO	NOx	SOx	PM10 <sup>(2)</sup>	PM2.5 <sup>(2)</sup>	DPM10	DPM2.5
<b>On-Site <sup>(3)</sup></b>									
<b>2016</b>	Idling	0.67	3.77	3.47	0.01	0.01	0.01	0.01	0.01
	Driving	1.25	3.04	9.99	0.01	1.16	0.35	0.07	0.06
	<b>Subtotal</b>	<b>1.92</b>	<b>6.82</b>	<b>13.47</b>	<b>0.02</b>	<b>1.17</b>	<b>0.36</b>	<b>0.08</b>	<b>0.07</b>
<b>2023</b>	Idling	0.95	5.34	4.92	0.01	0.01	0.01	0.00	0.00
	Driving	1.16	2.82	6.14	0.02	1.64	0.49	0.03	0.03
	<b>Subtotal</b>	<b>2.10</b>	<b>8.16</b>	<b>11.06</b>	<b>0.03</b>	<b>1.65</b>	<b>0.50</b>	<b>0.03</b>	<b>0.03</b>
<b>2035</b>	Idling	3.25	18.35	16.89	0.03	0.05	0.04	0.01	0.01
	Driving	3.56	8.70	18.65	0.07	5.59	1.65	0.05	0.04
	<b>Subtotal</b>	<b>6.81</b>	<b>27.05</b>	<b>35.54</b>	<b>0.10</b>	<b>5.63</b>	<b>1.70</b>	<b>0.05</b>	<b>0.05</b>
<b>2046</b>	Idling	3.26	18.36	17.76	0.03	0.06	0.05	0.01	0.01
	Driving	3.54	8.65	21.31	0.07	5.59	1.65	0.05	0.04
	<b>Subtotal</b>	<b>6.80</b>	<b>27.01</b>	<b>39.07</b>	<b>0.10</b>	<b>5.65</b>	<b>1.71</b>	<b>0.05</b>	<b>0.05</b>
<b>Off-Site</b>									
<b>2016</b>	Driving	1.16	4.32	16.85	0.04	1.48	0.53	0.18	0.16
<b>2023</b>	Driving	1.04	3.89	9.88	0.05	1.99	0.70	0.07	0.07
<b>2035</b>	Driving	3.23	11.80	29.40	0.18	6.48	2.24	0.11	0.10
<b>2046</b>	Driving	3.18	11.69	33.85	0.18	6.48	2.24	0.11	0.10

Notes:

- (1) Emissions for year 2066 are identical to those for 2046.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) On-site driving emissions are calculated with 15 mph emission factors.

**Table C1.2-11a. Peak Daily Truck Emissions for SCIG - Proposed Project**

Project Year <sup>(1)</sup> - Mode		Emissions (lbs/day)							
		VOC	CO	NOx	SOx	PM10 <sup>(2)</sup>	PM2.5 <sup>(2)</sup>	DPM10	DPM2.5
<b>On-Site <sup>(3)</sup></b>									
<b>2016</b>	Idling	4.16	23.48	21.61	0.04	0.06	0.06	0.06	0.06
	Driving	7.78	18.92	62.14	0.09	9.43	2.73	0.48	0.44
	<b>Subtotal</b>	<b>11.94</b>	<b>42.40</b>	<b>83.76</b>	<b>0.13</b>	<b>9.49</b>	<b>2.79</b>	<b>0.54</b>	<b>0.49</b>
<b>2023</b>	Idling	5.89	33.22	30.58	0.05	0.09	0.08	0.09	0.08
	Driving	7.19	17.52	38.22	0.13	13.29	3.83	0.63	0.58
	<b>Subtotal</b>	<b>13.08</b>	<b>50.74</b>	<b>68.80</b>	<b>0.18</b>	<b>13.37</b>	<b>3.91</b>	<b>0.72</b>	<b>0.66</b>
<b>2035</b>	Idling	20.23	114.15	105.08	0.18	0.29	0.27	0.29	0.27
	Driving	22.15	54.14	116.00	0.44	45.41	12.94	1.95	1.79
	<b>Subtotal</b>	<b>42.38</b>	<b>168.28</b>	<b>221.07</b>	<b>0.62</b>	<b>45.70</b>	<b>13.21</b>	<b>2.24</b>	<b>2.06</b>
<b>2046</b>	Idling	20.27	114.21	110.46	0.18	0.36	0.33	0.36	0.33
	Driving	22.01	53.81	132.57	0.44	45.43	12.95	1.96	1.81
	<b>Subtotal</b>	<b>42.28</b>	<b>168.02</b>	<b>243.04</b>	<b>0.62</b>	<b>45.79</b>	<b>13.28</b>	<b>2.32</b>	<b>2.13</b>
<b>Off-Site</b>									
<b>2016</b>	Driving	7.19	26.86	104.81	0.25	9.18	3.28	1.23	1.13
<b>2023</b>	Driving	6.44	24.20	61.45	0.34	12.37	4.37	1.57	1.45
<b>2035</b>	Driving	20.12	73.39	182.84	1.12	40.28	13.92	4.67	4.30
<b>2046</b>	Driving	19.78	72.70	210.55	1.12	40.28	13.91	4.65	4.28

Notes:

- (1) Emissions for year 2066 are identical to those for 2046.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) On-site driving emissions are calculated with 15 mph emission factors.



**Table C1.2-11b. Peak Daily Truck Emissions for SCIG - Proposed Project - with Low Emission Trucks & On-Site Sweeping Mitigations**

Project Year <sup>(1)</sup> - Mode		Emissions (lbs/day)							
		VOC	CO	NOx	SOx	PM10 <sup>(2)</sup>	PM2.5 <sup>(2)</sup>	DPM10	DPM2.5
<b>On-Site <sup>(3)</sup></b>									
<b>2016</b>	Idling	4.16	23.48	21.61	0.04	0.06	0.06	0.05	0.05
	Driving	7.78	18.92	62.14	0.09	7.24	2.19	0.43	0.40
	<b>Subtotal</b>	<b>11.94</b>	<b>42.40</b>	<b>83.76</b>	<b>0.13</b>	<b>7.30</b>	<b>2.24</b>	<b>0.49</b>	<b>0.45</b>
<b>2023</b>	Idling	5.89	33.22	30.58	0.05	0.09	0.08	0.02	0.02
	Driving	7.19	17.52	38.22	0.13	10.19	3.05	0.18	0.17
	<b>Subtotal</b>	<b>13.08</b>	<b>50.74</b>	<b>68.80</b>	<b>0.18</b>	<b>10.27</b>	<b>3.13</b>	<b>0.21</b>	<b>0.19</b>
<b>2035</b>	Idling	20.23	114.15	105.08	0.18	0.29	0.27	0.04	0.04
	Driving	22.15	54.14	116.00	0.44	34.75	10.27	0.28	0.26
	<b>Subtotal</b>	<b>42.38</b>	<b>168.28</b>	<b>221.07</b>	<b>0.62</b>	<b>35.05</b>	<b>10.54</b>	<b>0.33</b>	<b>0.30</b>
<b>2046</b>	Idling	20.27	114.21	110.46	0.18	0.36	0.33	0.05	0.05
	Driving	22.01	53.81	132.57	0.44	34.78	10.29	0.28	0.26
	<b>Subtotal</b>	<b>42.28</b>	<b>168.02</b>	<b>243.04</b>	<b>0.62</b>	<b>35.13</b>	<b>10.62</b>	<b>0.34</b>	<b>0.31</b>
<b>Off-Site</b>									
<b>2016</b>	Driving	7.19	26.86	104.81	0.25	9.18	3.28	1.11	1.02
<b>2023</b>	Driving	6.44	24.20	61.45	0.34	12.37	4.37	0.45	0.42
<b>2035</b>	Driving	20.12	73.39	182.84	1.12	40.28	13.92	0.68	0.62
<b>2046</b>	Driving	19.78	72.70	210.55	1.12	40.28	13.91	0.67	0.62

Notes:

- (1) Emissions for year 2066 are identical to those for 2046.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) On-site driving emissions are calculated with 15 mph emission factors.

**Table C1.2-12a. Summary of Annual Truck Emissions for SCIG - Proposed Project**

Analysis Year	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
2016	3.1	11.1	30.3	0.1	3.0	1.0	0.3	0.3
2023	3.1	12.0	20.9	0.1	4.1	1.3	0.4	0.3
2035	10.0	38.9	64.9	0.3	13.8	4.4	1.1	1.0
2046	10.0	38.7	72.9	0.3	13.8	4.4	1.1	1.0

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-12b. Summary of Annual Truck Emissions for SCIG - Proposed Project - with Low Emission & On-Site Sweeping Mitigations**

Analysis Year	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
2016	3.1	11.1	30.3	0.1	2.6	0.9	0.3	0.2
2023	3.1	12.0	20.9	0.1	3.6	1.2	0.1	0.1
2035	10.0	38.9	64.9	0.3	12.1	3.9	0.2	0.1
2046	10.0	38.7	72.9	0.3	12.1	3.9	0.2	0.1

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-13a. Summary of Peak Daily Truck Emissions for SCIG - Proposed Project**

Analysis Year	Emissions (lb/day)							
	VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
2016	19.1	69.3	188.6	0.4	18.7	6.1	1.8	1.6
2023	19.5	74.9	130.2	0.5	25.7	8.3	2.3	2.1
2035	62.5	241.7	403.9	1.7	86.0	27.1	6.9	6.4
2046	62.1	240.7	453.6	1.7	86.1	27.2	7.0	6.4

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-13b. Summary of Peak Daily Truck Emissions for SCIG - Proposed Project - with Low Emission Trucks & On-Site Sweeping Mitigations**

Analysis Year	Emissions (lb/day)							
	VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
2016	19.1	69.3	188.6	0.4	16.5	5.5	1.6	1.5
2023	19.5	74.9	130.2	0.5	22.6	7.5	0.7	0.6
2035	62.5	241.7	403.9	1.7	75.3	24.5	1.0	0.9
2046	62.1	240.7	453.6	1.7	75.4	24.5	1.0	0.9

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-14a. Worker Commute Operational Data for SCIG - Proposed Project**

<b>Activity by Year</b>	<b>Idling Time per Round Trip (hrs)</b>	<b>Miles/Round Trip</b>	<b>Idling Hours / Year</b>	<b>Miles/Year</b>
<b>On-site</b>				
Year 2016	0.07	0.42	2,232	14,062
Year 2023	0.07	0.42	3,144	19,807
Year 2035	0.07	0.42	10,800	68,040
Year 2046	0.07	0.42	10,800	68,040
<b>Off-Site</b>				
Year 2016	--	25.40	--	850,392
Year 2023	--	25.40	--	1,197,864
Year 2035	--	25.40	--	4,114,800
Year 2046	--	25.40	--	4,114,800

Note: Activity data for year 2066 are identical to those for 2046.

**Table C1.2-14b. Worker Commute Emission Factors for SCIG - Proposed Project**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
						On-site		Off-site	
		VOC	CO	NOx	SOx	PM10	PM2.5	PM10	PM2.5
<b>Project Year 2016</b>									
On-road Truck - Idle (g/hr)	0	0.78	11.04	0.83	0.02	0.05	0.05	0.05	0.05
On-road Travel	5	0.16	2.21	0.17	0.00	1.60	0.41	0.49	0.14
On-road Travel	10	0.10	1.89	0.14	0.00	1.60	0.41	0.48	0.13
On-road Travel	15	0.07	1.65	0.13	0.00	1.60	0.41	0.48	0.13
On-road Travel	20	0.05	1.47	0.12	0.00	1.60	0.41	0.48	0.13
On-road Travel	25	0.04	1.33	0.11	0.00	1.60	0.41	0.48	0.13
On-road Travel	30	0.03	1.21	0.10	0.00	1.60	0.41	0.48	0.13
On-road Travel	35	0.03	1.11	0.10	0.00	1.60	0.41	0.48	0.13
On-road Travel	40	0.02	1.04	0.09	0.00	1.60	0.41	0.48	0.13
On-road Travel	45	0.02	0.98	0.09	0.00	1.60	0.41	0.48	0.13
On-road Travel	50	0.02	0.94	0.09	0.00	1.60	0.41	0.48	0.13
On-road Travel	55	0.02	0.90	0.09	0.00	1.60	0.41	0.48	0.13
On-road Travel	60	0.02	0.88	0.10	0.00	1.60	0.41	0.48	0.13
On-road Travel	65	0.03	0.90	0.10	0.00	1.60	0.41	0.48	0.13
<b>Project Year 2023</b>									
On-road Truck - Idle (g/hr)	0	0.39	6.14	0.57	0.02	0.06	0.06	0.06	0.06
On-road Travel	5	0.08	1.23	0.11	0.00	1.61	0.42	0.49	0.14
On-road Travel	10	0.05	1.10	0.10	0.00	1.60	0.41	0.48	0.13
On-road Travel	15	0.03	1.00	0.09	0.00	1.60	0.41	0.48	0.13
On-road Travel	20	0.02	0.91	0.08	0.00	1.60	0.41	0.48	0.13
On-road Travel	25	0.02	0.83	0.07	0.00	1.60	0.41	0.48	0.13
On-road Travel	30	0.01	0.76	0.07	0.00	1.60	0.41	0.48	0.13
On-road Travel	35	0.01	0.70	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	40	0.01	0.65	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	45	0.01	0.61	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	50	0.01	0.57	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	55	0.01	0.53	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	60	0.01	0.49	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	65	0.01	0.46	0.06	0.00	1.60	0.41	0.48	0.13
<b>Project Year 2035</b>									
On-road Truck - Idle (g/hr)	0	0.30	4.97	0.47	0.02	0.07	0.06	0.07	0.06
On-road Travel	5	0.06	0.99	0.09	0.00	1.61	0.42	0.49	0.14
On-road Travel	10	0.04	0.91	0.08	0.00	1.60	0.41	0.49	0.13
On-road Travel	15	0.03	0.83	0.07	0.00	1.60	0.41	0.48	0.13
On-road Travel	20	0.02	0.76	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	25	0.01	0.69	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	30	0.01	0.64	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	35	0.01	0.59	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	40	0.01	0.55	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	45	0.01	0.51	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	50	0.01	0.48	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	55	0.01	0.44	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	60	0.01	0.40	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	65	0.01	0.37	0.05	0.00	1.60	0.41	0.48	0.13
<b>Project Year 2046</b>									
On-road Truck - Idle (g/hr)	0	0.30	4.97	0.47	0.02	0.07	0.06	0.07	0.06
On-road Travel	5	0.06	0.99	0.09	0.00	1.61	0.42	0.49	0.14
On-road Travel	10	0.04	0.91	0.08	0.00	1.60	0.41	0.49	0.13
On-road Travel	15	0.03	0.83	0.07	0.00	1.60	0.41	0.48	0.13
On-road Travel	20	0.02	0.76	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	25	0.01	0.69	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	30	0.01	0.64	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	35	0.01	0.59	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	40	0.01	0.55	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	45	0.01	0.51	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	50	0.01	0.48	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	55	0.01	0.44	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	60	0.01	0.40	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	65	0.01	0.37	0.05	0.00	1.60	0.41	0.48	0.13

Notes:

- (1) EMFAC2011 with SCAQMD default age distributions.
- (2) Year 2046 uses 2035 emission factors; EMFAC 2011 only calculates emissions factors to 2035.
- (3) PM emissions factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (4) Emission factors for year 2066 are identical to those for 2046

**Table C1.2-14c. Worker Commute Emission Factors for SCIG - Proposed Project - with On-Site Sweeping Mitigation**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
						On-site		Off-site	
		VOC	CO	NOx	SOx	PM10	PM2.5	PM10	PM2.5
<b>Project Year 2016</b>									
On-road Truck - Idle (g/hr)	0	0.78	11.04	0.83	0.02	0.05	0.05	0.05	0.05
On-road Travel	5	0.16	2.21	0.17	0.00	1.20	0.31	0.49	0.14
On-road Travel	10	0.10	1.89	0.14	0.00	1.20	0.31	0.48	0.13
On-road Travel	15	0.07	1.65	0.13	0.00	1.20	0.31	0.48	0.13
On-road Travel	20	0.05	1.47	0.12	0.00	1.19	0.31	0.48	0.13
On-road Travel	25	0.04	1.33	0.11	0.00	1.19	0.31	0.48	0.13
On-road Travel	30	0.03	1.21	0.10	0.00	1.19	0.31	0.48	0.13
On-road Travel	35	0.03	1.11	0.10	0.00	1.19	0.31	0.48	0.13
On-road Travel	40	0.02	1.04	0.09	0.00	1.19	0.31	0.48	0.13
On-road Travel	45	0.02	0.98	0.09	0.00	1.19	0.31	0.48	0.13
On-road Travel	50	0.02	0.94	0.09	0.00	1.19	0.31	0.48	0.13
On-road Travel	55	0.02	0.90	0.09	0.00	1.19	0.31	0.48	0.13
On-road Travel	60	0.02	0.88	0.10	0.00	1.19	0.31	0.48	0.13
On-road Travel	65	0.03	0.90	0.10	0.00	1.19	0.31	0.48	0.13
<b>Project Year 2023</b>									
On-road Truck - Idle (g/hr)	0	0.39	6.14	0.57	0.02	0.06	0.06	0.06	0.06
On-road Travel	5	0.08	1.23	0.11	0.00	1.20	0.32	0.49	0.14
On-road Travel	10	0.05	1.10	0.10	0.00	1.20	0.31	0.48	0.13
On-road Travel	15	0.03	1.00	0.09	0.00	1.20	0.31	0.48	0.13
On-road Travel	20	0.02	0.91	0.08	0.00	1.19	0.31	0.48	0.13
On-road Travel	25	0.02	0.83	0.07	0.00	1.19	0.31	0.48	0.13
On-road Travel	30	0.01	0.76	0.07	0.00	1.19	0.31	0.48	0.13
On-road Travel	35	0.01	0.70	0.06	0.00	1.19	0.31	0.48	0.13
On-road Travel	40	0.01	0.65	0.06	0.00	1.19	0.31	0.48	0.13
On-road Travel	45	0.01	0.61	0.06	0.00	1.19	0.31	0.48	0.13
On-road Travel	50	0.01	0.57	0.06	0.00	1.19	0.31	0.48	0.13
On-road Travel	55	0.01	0.53	0.06	0.00	1.19	0.31	0.48	0.13
On-road Travel	60	0.01	0.49	0.06	0.00	1.19	0.31	0.48	0.13
On-road Travel	65	0.01	0.46	0.06	0.00	1.19	0.31	0.48	0.13
<b>Project Year 2035</b>									
On-road Truck - Idle (g/hr)	0	0.30	4.97	0.47	0.02	0.07	0.06	0.07	0.06
On-road Travel	5	0.06	0.99	0.09	0.00	1.20	0.32	0.49	0.14
On-road Travel	10	0.04	0.91	0.08	0.00	1.20	0.31	0.49	0.13
On-road Travel	15	0.03	0.83	0.07	0.00	1.20	0.31	0.48	0.13
On-road Travel	20	0.02	0.76	0.06	0.00	1.20	0.31	0.48	0.13
On-road Travel	25	0.01	0.69	0.06	0.00	1.19	0.31	0.48	0.13
On-road Travel	30	0.01	0.64	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	35	0.01	0.59	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	40	0.01	0.55	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	45	0.01	0.51	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	50	0.01	0.48	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	55	0.01	0.44	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	60	0.01	0.40	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	65	0.01	0.37	0.05	0.00	1.19	0.31	0.48	0.13
<b>Project Year 2046</b>									
On-road Truck - Idle (g/hr)	0	0.30	4.97	0.47	0.02	0.07	0.06	0.07	0.06
On-road Travel	5	0.06	0.99	0.09	0.00	1.20	0.32	0.49	0.14
On-road Travel	10	0.04	0.91	0.08	0.00	1.20	0.31	0.49	0.13
On-road Travel	15	0.03	0.83	0.07	0.00	1.20	0.31	0.48	0.13
On-road Travel	20	0.02	0.76	0.06	0.00	1.20	0.31	0.48	0.13
On-road Travel	25	0.01	0.69	0.06	0.00	1.19	0.31	0.48	0.13
On-road Travel	30	0.01	0.64	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	35	0.01	0.59	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	40	0.01	0.55	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	45	0.01	0.51	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	50	0.01	0.48	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	55	0.01	0.44	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	60	0.01	0.40	0.05	0.00	1.19	0.31	0.48	0.13
On-road Travel	65	0.01	0.37	0.05	0.00	1.19	0.31	0.48	0.13

Notes:

(1) EMFAC2011 with SCAQMD default age distributions.

(2) Year 2046 uses 2035 emission factors; EMFAC 2011 only calculates emissions factors to 2035.

(3) PM emissions factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.

(4) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility

(5) Emission factors for year 2066 are identical to those for 2046



**Table C1.2-15a. Annual Worker Commute Emissions for SCIG - Proposed Project**

Project Scenario - Mode	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>On-Site</b>						
<b>Project Year 2016</b>						
Year 2016 - Idling	0.00	0.03	0.00	0.00	0.00	0.00
Year 2016 - Driving	0.00	0.03	0.00	0.00	0.02	0.01
<b>Subtotal</b>	<b>0.00</b>	<b>0.06</b>	<b>0.00</b>	<b>0.00</b>	<b>0.02</b>	<b>0.01</b>
<b>Project Year 2023</b>						
Year 2023 - Idling	0.00	0.02	0.00	0.00	0.00	0.00
Year 2023 - Driving	0.00	0.02	0.00	0.00	0.03	0.01
<b>Subtotal</b>	<b>0.00</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.04</b>	<b>0.01</b>
<b>Project Year 2035</b>						
Year 2035 - Idling	0.00	0.06	0.01	0.00	0.00	0.00
Year 2035 - Driving	0.00	0.07	0.01	0.00	0.12	0.03
<b>Subtotal</b>	<b>0.01</b>	<b>0.13</b>	<b>0.01</b>	<b>0.00</b>	<b>0.12</b>	<b>0.03</b>
<b>Project Year 2046</b>						
Year 2046 - Idling	0.00	0.06	0.01	0.00	0.00	0.00
Year 2046 - Driving	0.00	0.07	0.01	0.00	0.12	0.03
<b>Subtotal</b>	<b>0.01</b>	<b>0.13</b>	<b>0.01</b>	<b>0.00</b>	<b>0.12</b>	<b>0.03</b>
<b>Off-Site</b>						
<b>Project Year 2016</b>	0.01	0.64	0.06	0.00	0.45	0.12
<b>Project Year 2023</b>	0.02	0.90	0.08	0.00	0.63	0.17
<b>Project Year 2035</b>	0.05	2.62	0.24	0.02	2.17	0.58
<b>Project Year 2046</b>	0.05	2.61	0.24	0.02	2.17	0.58

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) Paved road dust emissions are included in the PM 10 and PM 2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-15b. Annual Worker Commute Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation**

Project Scenario - Mode	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>On-Site</b>						
<b>Project Year 2016</b>						
Year 2016 - Idling	0.00	0.03	0.00	0.00	0.00	0.00
Year 2016 - Driving	0.00	0.03	0.00	0.00	0.02	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.06</b>	<b>0.00</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>
<b>Project Year 2023</b>						
Year 2023 - Idling	0.00	0.02	0.00	0.00	0.00	0.00
Year 2023 - Driving	0.00	0.02	0.00	0.00	0.03	0.01
<b>Subtotal</b>	<b>0.00</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.03</b>	<b>0.01</b>
<b>Project Year 2035</b>						
Year 2035 - Idling	0.00	0.06	0.01	0.00	0.00	0.00
Year 2035 - Driving	0.00	0.07	0.01	0.00	0.09	0.02
<b>Subtotal</b>	<b>0.01</b>	<b>0.13</b>	<b>0.01</b>	<b>0.00</b>	<b>0.09</b>	<b>0.02</b>
<b>Project Year 2046</b>						
Year 2046 - Idling	0.00	0.06	0.01	0.00	0.00	0.00
Year 2046 - Driving	0.00	0.07	0.01	0.00	0.09	0.02
<b>Subtotal</b>	<b>0.01</b>	<b>0.13</b>	<b>0.01</b>	<b>0.00</b>	<b>0.09</b>	<b>0.02</b>
<b>Off-Site</b>						
<b>Project Year 2016</b>	0.01	0.64	0.06	0.00	0.45	0.12
<b>Project Year 2023</b>	0.02	0.90	0.08	0.00	0.63	0.17
<b>Project Year 2035</b>	0.05	2.62	0.24	0.02	2.17	0.58
<b>Project Year 2046</b>	0.05	2.61	0.24	0.02	2.17	0.58

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) Paved road dust emissions are included in the PM 10 and PM 2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-16a. Peak Daily Worker Commute Emissions for SCIG - Proposed Project**

Project Scenario - Mode	Emissions (lb/day)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>On-Site</b>						
<b>Project Year 2016</b>						
Year 2016 - Idling	0.01	0.15	0.01	0.00	0.00	0.00
Year 2016 - Driving	0.01	0.16	0.01	0.00	0.14	0.04
<b>Subtotal</b>	<b>0.02</b>	<b>0.31</b>	<b>0.02</b>	<b>0.00</b>	<b>0.14</b>	<b>0.04</b>
<b>Project Year 2023</b>						
Year 2023 - Idling	0.01	0.12	0.01	0.00	0.00	0.00
Year 2023 - Driving	0.01	0.13	0.01	0.00	0.19	0.05
<b>Subtotal</b>	<b>0.01</b>	<b>0.25</b>	<b>0.02</b>	<b>0.00</b>	<b>0.20</b>	<b>0.05</b>
<b>Project Year 2035</b>						
Year 2035 - Idling	0.02	0.33	0.03	0.00	0.00	0.00
Year 2035 - Driving	0.02	0.38	0.03	0.00	0.67	0.17
<b>Subtotal</b>	<b>0.04</b>	<b>0.71</b>	<b>0.06</b>	<b>0.00</b>	<b>0.67</b>	<b>0.18</b>
<b>Project Year 2046</b>						
Year 2046 - Idling	0.02	0.33	0.03	0.00	0.00	0.00
Year 2046 - Driving	0.02	0.38	0.03	0.00	0.67	0.17
<b>Subtotal</b>	<b>0.04</b>	<b>0.71</b>	<b>0.06</b>	<b>0.00</b>	<b>0.67</b>	<b>0.18</b>
<b>Off-Site</b>						
<b>Project Year 2016</b>	0.07	3.57	0.33	0.02	2.49	0.66
<b>Project Year 2023</b>	0.10	5.00	0.47	0.03	3.51	0.94
<b>Project Year 2035</b>	0.26	14.58	1.34	0.09	12.07	3.22
<b>Project Year 2046</b>	0.25	14.50	1.33	0.09	12.07	3.22

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) Paved road dust emissions are included in the PM 10 and PM 2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-16b. Peak Daily Worker Commute Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation**

Project Scenario - Mode	Emissions (lb/day)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>On-Site</b>						
<b>Project Year 2016</b>						
Year 2016 - Idling	0.01	0.15	0.01	0.00	0.00	0.00
Year 2016 - Driving	0.01	0.16	0.01	0.00	0.10	0.03
<b>Subtotal</b>	<b>0.02</b>	<b>0.31</b>	<b>0.02</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>
<b>Project Year 2023</b>						
Year 2023 - Idling	0.01	0.12	0.01	0.00	0.00	0.00
Year 2023 - Driving	0.01	0.13	0.01	0.00	0.15	0.04
<b>Subtotal</b>	<b>0.01</b>	<b>0.25</b>	<b>0.02</b>	<b>0.00</b>	<b>0.15</b>	<b>0.04</b>
<b>Project Year 2035</b>						
Year 2035 - Idling	0.02	0.33	0.03	0.00	0.00	0.00
Year 2035 - Driving	0.02	0.38	0.03	0.00	0.50	0.13
<b>Subtotal</b>	<b>0.04</b>	<b>0.71</b>	<b>0.06</b>	<b>0.00</b>	<b>0.50</b>	<b>0.13</b>
<b>Project Year 2046</b>						
Year 2046 - Idling	0.02	0.33	0.03	0.00	0.00	0.00
Year 2046 - Driving	0.02	0.38	0.03	0.00	0.50	0.13
<b>Subtotal</b>	<b>0.04</b>	<b>0.71</b>	<b>0.06</b>	<b>0.00</b>	<b>0.50</b>	<b>0.13</b>
<b>Off-Site</b>						
<b>Project Year 2016</b>	0.07	3.57	0.33	0.02	2.49	0.66
<b>Project Year 2023</b>	0.10	5.00	0.47	0.03	3.51	0.94
<b>Project Year 2035</b>	0.26	14.58	1.34	0.09	12.07	3.22
<b>Project Year 2046</b>	0.25	14.50	1.33	0.09	12.07	3.22

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) Paved road dust emissions are included in the PM 10 and PM 2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-17a. Summary of Annual Worker Commute Emissions for SCIG - Proposed Project**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.02	0.70	0.06	0.00	0.47	0.13
2023	0.02	0.94	0.09	0.01	0.67	0.18
2035	0.05	2.75	0.25	0.02	2.29	0.61
2046	0.05	2.74	0.25	0.02	2.29	0.61

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) PM10 and PM2.5 include emissions from exhaust, tire wear, brake wear, and road dust.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-17b. Summary of Annual Worker Commute Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.02	0.70	0.06	0.00	0.47	0.12
2023	0.02	0.94	0.09	0.01	0.66	0.18
2035	0.05	2.75	0.25	0.02	2.26	0.60
2046	0.05	2.74	0.25	0.02	2.26	0.60

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) PM10 and PM2.5 include emissions from exhaust, tire wear, brake wear, and road dust.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-18a. Summary of Peak Daily Worker Commute Emissions for SCIG - Proposed Project**

Analysis Year	Emissions (lb/day)					
	VOC	CO	NO <sub>x</sub>	SO <sub>x</sub>	PM10	PM2.5
2016	0.09	3.88	0.36	0.02	2.63	0.70
2023	0.11	5.25	0.49	0.03	3.71	0.99
2035	0.29	15.28	1.40	0.10	12.74	3.40
2046	0.29	15.21	1.39	0.10	12.74	3.40

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) PM10 and PM2.5 include emissions from exhaust, tire wear, brake wear, and road dust.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-18b. Summary of Peak Daily Worker Commute Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.09	3.88	0.36	0.02	2.60	0.69
2023	0.11	5.25	0.49	0.03	3.66	0.97
2035	0.29	15.28	1.40	0.10	12.57	3.36
2046	0.29	15.21	1.39	0.10	12.57	3.36

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) PM10 and PM2.5 include emissions from exahust, tire wear, brake wear, and road dust.
- (3) Emissions for year 2066 are identical to those for 2046.



**Table C1.2-19. SCIG Train Trips - Proposed Project**

Year	Round Trips	
	Annual	Peak Day
2016	720	2
2023	1,080	3
2035	2,880	8
2046	2,880	8

Note: Train trips for year 2066 are identical to those for 2046.

**Table C1.2-20. Emission Factors for SCIG Switcher Locomotives - Proposed Project**

Notch Setting	Emission Factors (g/hr)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>All Years</b>						
Idle	10.25	51.70	157.90	0.01	6.30	5.80
Moving	90.80	1,474.40	2,423.70	0.30	52.90	48.67

Notes:

- (1) Assume notch setting of 4 for all switcher movement.
- (2) Assume sulfur content of 15ppm for PM emission factors estimates.
- (3) Emission factors provided by Southwest Research Institute.

**Table C1.2-21. Emission Factors for SCIG Linehaul Locomotives – Proposed Project**

Notch Setting	Emission Factors (g/hr)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>						
DB	68.5	179.1	863.9	0.6	36.4	33.5
Idle	23.4	39.7	371.6	0.3	8.3	7.6
1	58.2	156.8	1260.2	1.3	50.5	46.4
2	100.9	265.8	3073.9	2.8	107.0	98.5
3	199.3	672.9	7147.8	5.8	188.3	173.3
4	205.1	1043.8	9203.5	8.0	238.0	219.0
5	270.6	907.8	10160.3	11.0	283.6	260.9
6	341.6	955.4	14182.9	14.1	280.3	257.9
7	395.4	1292.8	16786.5	17.4	283.7	261.0
8	488.6	1603.8	19596.7	21.4	334.3	307.5
<b>Year 2023</b>						
DB	47.8	163.0	574.1	0.6	18.6	17.1
Idle	21.3	45.3	310.7	0.3	6.8	6.2
1	40.5	149.3	969.8	1.3	22.8	20.9
2	67.3	264.1	2193.7	2.8	48.3	44.4
3	147.7	676.1	5472.7	5.8	83.6	76.9
4	141.8	1135.1	7147.0	8.1	104.7	96.3
5	193.0	1061.0	6947.4	11.1	155.7	143.3
6	237.7	1058.8	9964.8	14.2	148.5	136.6
7	272.9	1383.3	11805.5	17.5	143.2	131.7
8	336.1	1673.8	14028.8	21.5	157.7	145.1
<b>Year 2035</b>						
DB	17.3	128.3	239.5	0.6	7.2	6.7
Idle	6.4	32.0	114.5	0.3	1.6	1.5
1	15.6	143.7	388.4	1.4	10.6	9.8
2	28.3	243.2	932.9	2.8	22.5	20.7
3	54.6	617.1	1988.2	6.0	39.5	36.3
4	55.4	845.0	2641.7	8.3	49.8	45.8
5	75.2	549.1	3182.1	11.2	59.0	54.3
6	96.4	603.6	4460.2	14.4	57.9	53.2
7	113.4	868.3	5294.7	17.7	59.1	54.4
8	142.0	1121.1	6169.0	21.7	69.0	63.5
<b>Year 2046</b>						
DB	10.2	120.6	136.6	0.6	4.0	3.7
Idle	3.8	30.4	68.0	0.3	0.7	0.7
1	9.8	141.9	234.6	1.4	6.6	6.1
2	18.8	239.5	565.2	2.8	13.9	12.8
3	34.5	607.5	1103.2	6.1	24.5	22.5
4	35.2	806.4	1502.8	8.3	30.8	28.3
5	48.7	480.2	1987.9	11.2	34.4	31.7
6	63.8	538.5	2781.7	14.4	33.6	30.9
7	76.2	791.5	3308.6	17.8	35.3	32.5
8	96.8	1035.6	3837.7	21.7	41.4	38.1

Notes:

- (1) Assume sulfur content of 15ppm for PM EF estimates.
- (2) Line-haul locomotive fleets for future years based on projections from 2005 CARB Railroad Statewide Agreement and EPA Regulatory Impact Analysis for the Locomotive Emissions Rulemaking.
- (3) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-22. Peak Emission Factors for SCIG Linehaul Locomotives – Proposed Project**

Notch Setting	Emission Factors (g/hr)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>						
DB	97.2	246.8	1139.4	0.6	40.4	37.2
Idle	30.6	47.3	408.9	0.3	10.1	9.2
1	77.6	178.4	1408.9	1.3	45.9	42.2
2	126.0	297.1	3572.0	2.7	98.8	90.9
3	258.3	746.3	9354.9	5.6	174.8	160.8
4	270.4	1264.9	11554.9	7.7	223.0	205.2
5	342.9	1322.8	11226.3	10.6	274.7	252.7
6	422.2	1368.2	15481.2	13.7	279.5	257.1
7	475.1	1800.7	18212.8	16.9	271.6	249.9
8	571.5	2191.2	21278.1	20.9	329.8	303.4
<b>Year 2023</b>						
DB	63.4	224.6	757.2	0.6	20.6	18.9
Idle	26.1	53.9	341.9	0.3	8.2	7.6
1	50.5	169.9	1084.3	1.2	20.7	19.1
2	78.6	295.3	2549.1	2.7	44.6	41.0
3	178.9	749.9	7162.6	5.5	77.6	71.4
4	174.7	1375.6	8973.1	7.7	98.1	90.3
5	228.6	1546.0	7676.2	10.7	150.8	138.7
6	274.6	1516.2	10877.0	13.7	148.0	136.2
7	306.4	1926.7	12808.6	17.0	137.1	126.2
8	367.4	2286.9	15232.5	21.0	155.6	143.1
<b>Year 2035</b>						
DB	23.0	176.8	315.8	0.6	8.0	7.4
Idle	7.8	38.1	126.0	0.3	2.0	1.8
1	19.4	163.5	434.2	1.3	9.7	8.9
2	33.0	271.9	1084.1	2.7	20.7	19.1
3	66.1	684.5	2602.2	5.8	36.6	33.7
4	68.3	1024.0	3316.7	7.9	46.6	42.9
5	89.0	800.2	3515.9	10.8	57.2	52.6
6	111.4	864.4	4868.5	13.9	57.7	53.1
7	127.3	1209.3	5744.6	17.2	56.6	52.1
8	155.3	1531.8	6698.3	21.2	68.1	62.7
<b>Year 2046</b>						
DB	13.5	166.1	180.2	0.6	4.5	4.1
Idle	4.6	36.2	74.8	0.3	0.9	0.8
1	12.2	161.4	262.3	1.3	6.0	5.5
2	21.9	267.8	656.8	2.7	12.8	11.8
3	41.8	673.8	1443.9	5.8	22.7	20.9
4	43.3	977.2	1886.8	7.9	28.9	26.6
5	57.7	699.7	2196.5	10.8	33.3	30.7
6	73.7	771.1	3036.4	14.0	33.5	30.9
7	85.6	1102.4	3589.7	17.3	33.8	31.1
8	105.8	1415.0	4167.0	21.2	40.8	37.6

Notes:

- (1) Assume sulfur content of 15ppm for PM EF estimates.
- (2) Peak day locomotive emission factors derived by using a ratio of the peak day locomotive fleet mix average emissions factor in 2010, to the average day locomotive fleet mix average emissions factor in 2010 and then applied the ratio to all future year average day locomotive emission factors.
- (3) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-23. Annual Locomotive Emissions for SCIG - Proposed Project**

Analysis Year	Source Activity	Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>On-Site</b>							
2016	Line Haul Locomotive	0.16	0.39	3.78	0.00	0.10	0.09
	Switcher	0.03	0.41	0.70	0.00	0.02	0.01
	<b>Subtotal</b>	<b>0.19</b>	<b>0.80</b>	<b>4.48</b>	<b>0.00</b>	<b>0.12</b>	<b>0.11</b>
2023	Line Haul Locomotive	0.19	0.63	4.29	0.01	0.08	0.08
	Switcher	0.03	0.41	0.70	0.00	0.02	0.01
	<b>Subtotal</b>	<b>0.22</b>	<b>1.04</b>	<b>4.99</b>	<b>0.01</b>	<b>0.10</b>	<b>0.09</b>
2035	Line Haul Locomotive	0.17	1.23	4.57	0.01	0.08	0.07
	Switcher	0.03	0.41	0.70	0.00	0.02	0.01
	<b>Subtotal</b>	<b>0.20</b>	<b>1.65</b>	<b>5.26</b>	<b>0.01</b>	<b>0.10</b>	<b>0.09</b>
2046	Line Haul Locomotive	0.11	1.17	2.72	0.01	0.05	0.04
	Switcher	0.03	0.41	0.70	0.00	0.02	0.01
	<b>Subtotal</b>	<b>0.14</b>	<b>1.58</b>	<b>3.42</b>	<b>0.01</b>	<b>0.06</b>	<b>0.06</b>
<b>Off-Site</b>							
2016	East Alameda Corridor	0.28	0.87	10.11	0.01	0.20	0.18
	West Alameda Corridor	0.52	1.29	11.95	0.01	0.35	0.33
	Alameda Corridor to SCAB	2.80	8.34	95.67	0.10	1.98	1.82
	<b>Subtotal</b>	<b>3.60</b>	<b>10.49</b>	<b>117.73</b>	<b>0.12</b>	<b>2.53</b>	<b>2.33</b>
2023	East Alameda Corridor	0.28	1.36	10.86	0.02	0.15	0.13
	West Alameda Corridor	0.55	1.98	13.47	0.02	0.27	0.25
	Alameda Corridor to SCAB	2.76	13.12	103.14	0.15	1.45	1.33
	<b>Subtotal</b>	<b>3.59</b>	<b>16.47</b>	<b>127.46</b>	<b>0.18</b>	<b>1.86</b>	<b>1.72</b>
2035	East Alameda Corridor	0.30	2.44	12.36	0.04	0.16	0.15
	West Alameda Corridor	0.52	4.21	13.99	0.04	0.29	0.27
	Alameda Corridor to SCAB	2.91	23.82	116.46	0.39	1.61	1.48
	<b>Subtotal</b>	<b>3.72</b>	<b>30.46</b>	<b>142.80</b>	<b>0.48</b>	<b>2.06</b>	<b>1.90</b>
2046	East Alameda Corridor	0.20	2.26	7.58	0.04	0.10	0.09
	West Alameda Corridor	0.32	4.04	8.24	0.04	0.17	0.16
	Alameda Corridor to SCAB	1.92	22.15	71.23	0.39	0.96	0.88
	<b>Subtotal</b>	<b>2.43</b>	<b>28.44</b>	<b>87.05</b>	<b>0.48</b>	<b>1.23</b>	<b>1.13</b>

Notes:

- (1) Emissions for year 2066 are identical to those for 2046
- (2) Off-site emissions tracks activities along the Alameda Corridor and to the boundary of the South Coast Air Basin (SCAB).

**Table C1.2-24. Peak Daily Locomotive Emissions for SCIG - Proposed Project**

Analysis Year	Source Activity	Emissions (lb/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
	<b>On-Site</b>						
2016	Line Haul Locomotive	1.16	2.73	24.30	0.02	0.57	0.52
	Switcher	0.14	2.29	3.88	0.00	0.09	0.08
	<b>Subtotal</b>	<b>1.30</b>	<b>5.02</b>	<b>28.18</b>	<b>0.02</b>	<b>0.66</b>	<b>0.61</b>
2023	Line Haul Locomotive	1.29	4.35	27.56	0.03	0.50	0.46
	Switcher	0.15	2.29	3.88	0.00	0.09	0.08
	<b>Subtotal</b>	<b>1.45</b>	<b>6.63</b>	<b>31.44</b>	<b>0.03</b>	<b>0.59</b>	<b>0.54</b>
2035	Line Haul Locomotive	1.18	8.48	29.26	0.07	0.46	0.43
	Switcher	0.15	2.29	3.88	0.00	0.09	0.08
	<b>Subtotal</b>	<b>1.33</b>	<b>10.77</b>	<b>33.14</b>	<b>0.07</b>	<b>0.55</b>	<b>0.51</b>
2046	Line Haul Locomotive	0.73	8.03	17.42	0.07	0.26	0.24
	Switcher	0.15	2.29	3.88	0.00	0.09	0.08
	<b>Subtotal</b>	<b>0.88</b>	<b>10.32</b>	<b>21.30</b>	<b>0.07</b>	<b>0.35</b>	<b>0.32</b>
	<b>Off-Site</b>						
2016	East Alameda Corridor	1.83	6.63	64.25	0.06	1.12	1.03
	West Alameda Corridor	3.65	8.95	81.05	0.06	2.00	1.84
	Alameda Corridor to SCAB	18.30	63.28	611.77	0.54	11.06	10.18
	<b>Subtotal</b>	<b>23.79</b>	<b>78.86</b>	<b>757.06</b>	<b>0.66</b>	<b>14.18</b>	<b>13.05</b>
2023	East Alameda Corridor	1.79	10.46	69.08	0.09	0.81	0.75
	West Alameda Corridor	3.87	13.70	91.17	0.09	1.57	1.44
	Alameda Corridor to SCAB	18.08	99.76	660.36	0.82	8.14	7.49
	<b>Subtotal</b>	<b>23.74</b>	<b>123.92</b>	<b>820.61</b>	<b>0.99</b>	<b>10.52</b>	<b>9.68</b>
2035	East Alameda Corridor	1.92	18.54	78.36	0.23	0.91	0.84
	West Alameda Corridor	3.63	28.84	94.58	0.23	1.62	1.49
	Alameda Corridor to SCAB	19.00	179.23	742.99	2.18	9.01	8.29
	<b>Subtotal</b>	<b>24.55</b>	<b>226.61</b>	<b>915.93</b>	<b>2.65</b>	<b>11.55</b>	<b>10.62</b>
2046	East Alameda Corridor	1.27	17.14	48.01	0.23	0.54	0.50
	West Alameda Corridor	2.25	27.64	55.55	0.23	0.94	0.87
	Alameda Corridor to SCAB	12.49	166.24	453.56	2.18	5.35	4.92
	<b>Subtotal</b>	<b>16.01</b>	<b>211.03</b>	<b>557.12</b>	<b>2.65</b>	<b>6.83</b>	<b>6.29</b>

Note:

- (1) Peak day locomotive emission factors derived by using a ratio of the peak day locomotive fleet mix average emissions factor in 2010, to the average day locomotive fleet mix average emissions factor in 2010 and then applied the ratio to all future year average day locomotive emission factors.
- (2) Emissions for year 2066 are identical to those for 2046
- (3) Off-site emissions tracks activities along the Alameda Corridor and to the boundary of the South Coast Air Basin (SCAB).

**Table C1.2-25. Summary of Annual Locomotive Emissions for SCIG - Proposed Project**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	3.78	11.30	122.21	0.12	2.65	2.44
2023	3.80	17.50	132.46	0.18	1.97	1.81
2035	3.92	32.11	148.07	0.49	2.16	1.99
2046	2.57	30.03	90.48	0.49	1.29	1.18

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-26. Summary of Peak Daily Locomotive Emissions for SCIG - Proposed Project**

Analysis Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	25.09	83.88	785.25	0.68	14.84	13.65
2023	25.19	130.56	852.05	1.02	11.11	10.22
2035	25.87	237.37	949.07	2.72	12.10	11.13
2046	16.89	221.34	578.42	2.72	7.18	6.61

Note: Emissions for year 2066 are identical to those for 2046.



**Table C1.2-27. Equipment Usage for SCIG Cargo Handling Equipment – Proposed Project**

Equipment	HP	LF	Fuel	Hours/Unit	Quantity	Total hp-hr
<b>Year 2016</b>						
Rail Car Wheel Change Machine	160	0.43	D	1,632	2	522,240
TRU	34	0.53	D	0.3	1420	14,484
<b>Year 2023</b>						
Rail Car Wheel Change Machine	160	0.43	D	1,632	2	522,240
TRU	34	0.53	D	0.3	1950	19,890
<b>Year 2035</b>						
Rail Car Wheel Change Machine	160	0.43	D	1,632	2	522,240
TRU	34	0.53	D	0.3	1950	19,890
<b>Year 2046</b>						
Rail Car Wheel Change Machine	160	0.43	D	1,632	2	522,240
TRU	34	0.53	D	0.3	1950	19,890

Notes:

- (1) Crane emissions are estimated using the ARB CHE Calculator; TRU emissions are estimated using CARB OFFROAD2007 Model.
- (2) All TRUs will be electrified on the SCIG site; emissions estimates assume 30 minutes running on diesel fuel between arrival on-site and plugging in to electrical outlets with a cycle percentage of 60%.
- (3) 0.13% of the container throughput at SCIG are TRUs
- (4) Equipment usage for 2066 is identical to that for 2046.

**Table C1.2-28. Emission Factors for SCIG Cargo Handling Equipment – Proposed Project**

Equipment	Emission Factors (g/hp-hr)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>						
Rail Car Wheel Change Machine	0.05	2.70	0.27	0.06	0.01	0.01
TRU	0.65	5.17	4.68	0.01	0.15	0.14
<b>Year 2023</b>						
Rail Car Wheel Change Machine	0.05	2.70	0.27	0.06	0.01	0.01
TRU	0.58	5.13	3.62	0.01	0.02	0.02
<b>Year 2035</b>						
Rail Car Wheel Change Machine	0.05	2.70	0.27	0.06	0.01	0.01
TRU	0.58	5.13	3.57	0.01	0.02	0.02
<b>Year 2046</b>						
Rail Car Wheel Change Machine	0.05	2.70	0.27	0.06	0.01	0.01
TRU	0.58	5.13	3.57	0.01	0.02	0.02

Notes:

- (1) Crane emission factors were estimated using the ARB CHE calculator
- (2) TRU emission factors modeled using OFFROAD 2007; year 2046 uses 2040 emission factors
- (3) Emission factors for 2066 are identical to those for 2046

**Table C1.2-29. Annual Emissions for SCIG Cargo Handling Equipment – Proposed Project**

Equipment	HP	Emission (tons/year)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>							
Rail Car Wheel Change Machine	160	0.01	0.67	0.06	0.00	0.00	0.00
TRU	34	0.01	0.04	0.04	0.00	0.00	0.00
<b>Total</b>		<b>0.02</b>	<b>0.72</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Year 2023</b>							
Rail Car Wheel Change Machine	160	0.01	0.72	0.07	0.00	0.00	0.00
TRU	34	0.01	0.06	0.04	0.00	0.00	0.00
<b>Total</b>		<b>0.02</b>	<b>0.77</b>	<b>0.11</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Year 2035</b>							
Rail Car Wheel Change Machine	160	0.01	0.67	0.06	0.00	0.00	0.00
TRU	34	0.01	0.06	0.04	0.00	0.00	0.00
<b>Total</b>		<b>0.02</b>	<b>0.73</b>	<b>0.11</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Year 2046</b>							
Rail Car Wheel Change Machine	160	0.01	0.74	0.07	0.00	0.00	0.00
TRU	34	0.01	0.06	0.04	0.00	0.00	0.00
<b>Total</b>		<b>0.02</b>	<b>0.80</b>	<b>0.11</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Notes:

- (1) Crane emissions are estimated using the ARB CHE Calculator; TRU emissions are estimated using CARB OFFROAD2007 Model.
- (2) Emissions for 2066 are identical to those for 2046.

**Table C1.2-30. Peak Daily Emissions for SCIG Cargo Handling Equipment – Proposed Project**

Equipment	HP	Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>							
Rail Car Wheel Change Machine	160	0.06	3.74	0.35	0.01	0.01	0.01
TRU	34	1.46	11.67	10.57	0.02	0.34	0.31
<b>Total</b>		<b>1.52</b>	<b>15.41</b>	<b>10.93</b>	<b>0.03</b>	<b>0.35</b>	<b>0.32</b>
<b>Year 2023</b>							
Rail Car Wheel Change Machine	160	0.07	3.97	0.37	0.01	0.01	0.01
TRU	34	1.81	15.91	11.21	0.03	0.07	0.06
<b>Total</b>		<b>1.88</b>	<b>19.88</b>	<b>11.59</b>	<b>0.03</b>	<b>0.08</b>	<b>0.08</b>
<b>Year 2035</b>							
Rail Car Wheel Change Machine	160	0.06	3.74	0.35	0.01	0.01	0.01
TRU	34	1.81	15.91	11.06	0.03	0.05	0.05
<b>Total</b>		<b>1.87</b>	<b>19.65</b>	<b>11.41</b>	<b>0.03</b>	<b>0.06</b>	<b>0.06</b>
<b>Year 2046</b>							
Rail Car Wheel Change Machine	160	0.07	4.11	0.38	0.01	0.01	0.01
TRU	34	1.81	15.91	11.06	0.03	0.05	0.05
<b>Total</b>		<b>1.89</b>	<b>20.01</b>	<b>11.44</b>	<b>0.03</b>	<b>0.07</b>	<b>0.06</b>

Notes:

- (1) Crane emissions are estimated using the ARB CHE Calculator; TRU emissions are estimated using CARB OFFROAD2007 Model.
- (2) Emissions for 2066 are identical to those for 2046.

**Table C1.2-31. Annual Activity Data for SCIG Maintenance Equipment – Proposed Project**

<b>Equipment</b>	<b>Quantity</b>	<b>Model Year</b>	<b>Fuel Type</b>	<b>HP</b>	<b>Activity (hrs/yr)</b>	<b>Load Factor</b>
<b>All Years</b>						
Welder	2	1996	G	20	208	0.51
Air Compressor	1	1989	G	35	484	0.56

Source: BNSF

**Table C1.2-32. Emission Factors for SCIG Maintenance Equipment – Proposed Project**

Equipment	HP	Emission Factors (g/hp-hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>							
Welder	20	6.84	268.19	4.53	0.01	3.60	3.31
Air Compressor	35	2.94	120.21	4.04	0.01	0.06	0.06
<b>Year 2023</b>							
Welder	20	6.74	266.89	4.57	0.01	3.60	3.31
Air Compressor	35	1.91	132.78	2.43	0.01	0.06	0.06
<b>Year 2035</b>							
Welder	20	6.73	266.68	4.56	0.01	3.60	3.31
Air Compressor	35	1.50	141.45	1.86	0.01	0.06	0.06
<b>Year 2046</b>							
Welder	20	6.73	266.59	4.56	0.01	3.60	3.31
Air Compressor	35	1.50	141.36	1.85	0.01	0.06	0.06

Notes:

- (1) Emission factors were estimated with the use of ARB OFFROAD2007 model.
- (2) Year 2046 uses 2040 emission factors
- (3) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-33. Annual Emissions for SCIG Maintenance Equipment – Proposed Project**

Equipment	HP	Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>							
Welder	20	0.03	1.25	0.02	0.00	0.02	0.02
Air Compressor	35	0.03	1.26	0.04	0.00	0.00	0.00
<b>Total</b>		<b>0.06</b>	<b>2.51</b>	<b>0.06</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>
<b>Year 2023</b>							
Welder	20	0.03	1.25	0.02	0.00	0.02	0.02
Air Compressor	35	0.02	1.39	0.03	0.00	0.00	0.00
<b>Total</b>		<b>0.05</b>	<b>2.64</b>	<b>0.05</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>
<b>Year 2035</b>							
Welder	20	0.03	1.25	0.02	0.00	0.02	0.02
Air Compressor	35	0.02	1.48	0.02	0.00	0.00	0.00
<b>Total</b>		<b>0.05</b>	<b>2.73</b>	<b>0.04</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>
<b>Year 2046</b>							
Welder	20	0.03	1.25	0.02	0.00	0.02	0.02
Air Compressor	35	0.02	1.48	0.02	0.00	0.00	0.00
<b>Total</b>		<b>0.05</b>	<b>2.73</b>	<b>0.04</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-34. Peak Daily Emissions for SCIG Maintenance Equipment – Proposed Project**

Equipment	HP	Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>							
Welder	20	0.18	6.97	0.12	0.00	0.09	0.09
Air Compressor	35	0.17	6.98	0.23	0.00	0.00	0.00
<b>Total</b>		<b>0.35</b>	<b>13.95</b>	<b>0.35</b>	<b>0.00</b>	<b>0.10</b>	<b>0.09</b>
<b>Year 2023</b>							
Welder	20	0.18	6.94	0.12	0.00	0.09	0.09
Air Compressor	35	0.11	7.71	0.14	0.00	0.00	0.00
<b>Total</b>		<b>0.29</b>	<b>14.65</b>	<b>0.26</b>	<b>0.00</b>	<b>0.10</b>	<b>0.09</b>
<b>Year 2035</b>							
Welder	20	0.17	6.93	0.12	0.00	0.09	0.09
Air Compressor	35	0.09	8.22	0.11	0.00	0.00	0.00
<b>Total</b>		<b>0.26</b>	<b>15.15</b>	<b>0.23</b>	<b>0.00</b>	<b>0.10</b>	<b>0.09</b>
<b>Year 2046</b>							
Welder	20	0.17	6.93	0.12	0.00	0.09	0.09
Air Compressor	35	0.09	8.21	0.11	0.00	0.00	0.00
<b>Total</b>		<b>0.26</b>	<b>15.14</b>	<b>0.23</b>	<b>0.00</b>	<b>0.10</b>	<b>0.09</b>

Note: Emissions for year 2066 are identical to those for 2046.



**Table C1.2-35. Activity Data for SCIG Emergency Generator – Proposed Project**

<b>Equipment</b>	<b>Quantity</b>	<b>HP</b>	<b>Fuel Type</b>	<b>Annual Usage (hr/yr)</b>	<b>Peak Daily Usage (hr/day)</b>
<b>All Years</b>					
Emergency Generator	1	846	D	199	24

**Table C1.2-36. Emission Factors for SCIG Emergency Generator – Proposed Project**

Equipment	HP	Emission Factor (g/bhp-hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>All Years</b>							
Emergency Generator	846	0.13	2.60	0.50	0.00	0.02	0.02

Notes:

- (1) Emission factors assume Tier 4 generator.
- (2) SOx emission factor from OFFROAD2007

**Table C1.2-37. Summary of Annual Emissions for SCIG Emergency Generator – Proposed Project**

Equipment	HP	Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>All Years</b>							
Emergency Generator	846	0.02	0.48	0.09	0.00	0.00	0.00
<b>Total</b>		<b>0.02</b>	<b>0.48</b>	<b>0.09</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**Table C1.2-38. Summary of Peak Daily Emissions for SCIG Emergency Generator – Proposed Project**

Equipment	HP	Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>All Years</b>							
Emergency Generator	846	5.96	116.38	22.38	0.19	0.98	0.91
<b>Total</b>		<b>5.96</b>	<b>116.38</b>	<b>22.38</b>	<b>0.19</b>	<b>0.98</b>	<b>0.91</b>

**Table C1.2-39. Activity Data for SCIG Gasoline Service Trucks - Proposed Project**

<b>Project Year/Mode</b>	<b>Throughput</b>	<b>On-site Idle / Trip (hrs)</b>	<b>Avg On-site Distance (mi)</b>	<b>Idle Hr / Year</b>	<b>VMT / Year</b>
<b>All Years</b>					
Light Duty Gas Service Trucks	5,040	0.17	0.42	840	2116.8

**Table C1.2-40a. Emission Factors for SCIG Gasoline Service Trucks - Proposed Project**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)					
		VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>Project Year 2016</b>							
On-road Truck - Idle (g/hr)	0	1.08	15.66	1.70	0.03	0.06	0.05
On-road Truck Transport	5	0.22	3.13	0.34	0.01	1.61	0.42
On-road Truck Transport	10	0.14	2.72	0.29	0.01	1.60	0.41
On-road Truck Transport	15	0.10	2.40	0.25	0.01	1.60	0.41
On-road Truck Transport	20	0.07	2.15	0.23	0.01	1.60	0.41
On-road Truck Transport	25	0.05	1.95	0.21	0.01	1.60	0.41
On-road Truck Transport	30	0.04	1.77	0.19	0.01	1.60	0.41
On-road Truck Transport	35	0.04	1.63	0.18	0.01	1.60	0.41
On-road Truck Transport	40	0.03	1.52	0.18	0.01	1.60	0.41
On-road Truck Transport	45	0.03	1.43	0.17	0.01	1.60	0.41
On-road Truck Transport	50	0.03	1.36	0.17	0.01	1.60	0.41
On-road Truck Transport	55	0.03	1.29	0.18	0.01	1.60	0.41
On-road Truck Transport	60	0.03	1.24	0.19	0.01	1.60	0.41
On-road Truck Transport	65	0.03	1.24	0.20	0.01	1.60	0.41
<b>Project Year 2023</b>							
On-road Truck - Idle (g/hr)	0	0.52	8.20	0.90	0.03	0.06	0.06
On-road Truck Transport	5	0.10	1.64	0.18	0.01	1.61	0.42
On-road Truck Transport	10	0.07	1.48	0.15	0.01	1.60	0.41
On-road Truck Transport	15	0.05	1.34	0.13	0.01	1.60	0.41
On-road Truck Transport	20	0.03	1.22	0.12	0.01	1.60	0.41
On-road Truck Transport	25	0.02	1.11	0.11	0.01	1.60	0.41
On-road Truck Transport	30	0.02	1.02	0.10	0.01	1.60	0.41
On-road Truck Transport	35	0.02	0.94	0.10	0.01	1.60	0.41
On-road Truck Transport	40	0.01	0.87	0.09	0.01	1.60	0.41
On-road Truck Transport	45	0.01	0.82	0.09	0.01	1.60	0.41
On-road Truck Transport	50	0.01	0.76	0.09	0.01	1.60	0.41
On-road Truck Transport	55	0.01	0.71	0.09	0.01	1.60	0.41
On-road Truck Transport	60	0.01	0.65	0.10	0.01	1.60	0.41
On-road Truck Transport	65	0.01	0.62	0.10	0.01	1.60	0.41
<b>Project Year 2035</b>							
On-road Truck - Idle (g/hr)	0	0.38	6.04	0.61	0.03	0.07	0.06
On-road Truck Transport	5	0.08	1.21	0.12	0.01	1.61	0.42
On-road Truck Transport	10	0.05	1.10	0.11	0.01	1.60	0.41
On-road Truck Transport	15	0.03	1.00	0.09	0.01	1.60	0.41
On-road Truck Transport	20	0.02	0.92	0.08	0.01	1.60	0.41
On-road Truck Transport	25	0.02	0.84	0.08	0.01	1.60	0.41
On-road Truck Transport	30	0.01	0.77	0.07	0.01	1.60	0.41
On-road Truck Transport	35	0.01	0.71	0.07	0.01	1.60	0.41
On-road Truck Transport	40	0.01	0.66	0.06	0.01	1.60	0.41
On-road Truck Transport	45	0.01	0.62	0.06	0.01	1.60	0.41
On-road Truck Transport	50	0.01	0.58	0.06	0.01	1.60	0.41
On-road Truck Transport	55	0.01	0.53	0.06	0.01	1.60	0.41
On-road Truck Transport	60	0.01	0.49	0.07	0.01	1.60	0.41
On-road Truck Transport	65	0.01	0.45	0.07	0.01	1.60	0.41
<b>Project Year 2046</b>							
On-road Truck - Idle (g/hr)	0	0.38	6.04	0.61	0.03	0.07	0.06
On-road Truck Transport	5	0.08	1.21	0.12	0.01	1.61	0.42
On-road Truck Transport	10	0.05	1.10	0.11	0.01	1.60	0.41
On-road Truck Transport	15	0.03	1.00	0.09	0.01	1.60	0.41
On-road Truck Transport	20	0.02	0.92	0.08	0.01	1.60	0.41
On-road Truck Transport	25	0.02	0.84	0.08	0.01	1.60	0.41
On-road Truck Transport	30	0.01	0.77	0.07	0.01	1.60	0.41
On-road Truck Transport	35	0.01	0.71	0.07	0.01	1.60	0.41
On-road Truck Transport	40	0.01	0.66	0.06	0.01	1.60	0.41
On-road Truck Transport	45	0.01	0.62	0.06	0.01	1.60	0.41
On-road Truck Transport	50	0.01	0.58	0.06	0.01	1.60	0.41
On-road Truck Transport	55	0.01	0.53	0.06	0.01	1.60	0.41
On-road Truck Transport	60	0.01	0.49	0.07	0.01	1.60	0.41
On-road Truck Transport	65	0.01	0.45	0.07	0.01	1.60	0.41

Notes:

- (1) EMFAC2011 with SCAB default age distributions.
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Year 2046 uses 2035 emission factors.
- (4) Emission factors for year 2066 are identical to those of 2046.

**Table C1.2-40b. Emission Factors for SCIG Gasoline Service Trucks - Proposed Project - with On-Site Sweeping Mitigation**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)					
		VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>Project Year 2016</b>							
On-road Truck - Idle (g/hr)	0	1.08	15.66	1.70	0.03	0.06	0.05
On-road Truck Transport	5	0.22	3.13	0.34	0.01	1.20	0.32
On-road Truck Transport	10	0.14	2.72	0.29	0.01	1.20	0.31
On-road Truck Transport	15	0.10	2.40	0.25	0.01	1.20	0.31
On-road Truck Transport	20	0.07	2.15	0.23	0.01	1.19	0.31
On-road Truck Transport	25	0.05	1.95	0.21	0.01	1.19	0.31
On-road Truck Transport	30	0.04	1.77	0.19	0.01	1.19	0.31
On-road Truck Transport	35	0.04	1.63	0.18	0.01	1.19	0.31
On-road Truck Transport	40	0.03	1.52	0.18	0.01	1.19	0.31
On-road Truck Transport	45	0.03	1.43	0.17	0.01	1.19	0.31
On-road Truck Transport	50	0.03	1.36	0.17	0.01	1.19	0.31
On-road Truck Transport	55	0.03	1.29	0.18	0.01	1.19	0.31
On-road Truck Transport	60	0.03	1.24	0.19	0.01	1.19	0.31
On-road Truck Transport	65	0.03	1.24	0.20	0.01	1.19	0.31
<b>Project Year 2023</b>							
On-road Truck - Idle (g/hr)	0	0.52	8.20	0.90	0.03	0.06	0.06
On-road Truck Transport	5	0.10	1.64	0.18	0.01	1.20	0.32
On-road Truck Transport	10	0.07	1.48	0.15	0.01	1.20	0.31
On-road Truck Transport	15	0.05	1.34	0.13	0.01	1.20	0.31
On-road Truck Transport	20	0.03	1.22	0.12	0.01	1.19	0.31
On-road Truck Transport	25	0.02	1.11	0.11	0.01	1.19	0.31
On-road Truck Transport	30	0.02	1.02	0.10	0.01	1.19	0.31
On-road Truck Transport	35	0.02	0.94	0.10	0.01	1.19	0.31
On-road Truck Transport	40	0.01	0.87	0.09	0.01	1.19	0.31
On-road Truck Transport	45	0.01	0.82	0.09	0.01	1.19	0.31
On-road Truck Transport	50	0.01	0.76	0.09	0.01	1.19	0.31
On-road Truck Transport	55	0.01	0.71	0.09	0.01	1.19	0.31
On-road Truck Transport	60	0.01	0.65	0.10	0.01	1.19	0.31
On-road Truck Transport	65	0.01	0.62	0.10	0.01	1.19	0.31
<b>Project Year 2035</b>							
On-road Truck - Idle (g/hr)	0	0.38	6.04	0.61	0.03	0.07	0.06
On-road Truck Transport	5	0.08	1.21	0.12	0.01	1.20	0.32
On-road Truck Transport	10	0.05	1.10	0.11	0.01	1.20	0.31
On-road Truck Transport	15	0.03	1.00	0.09	0.01	1.20	0.31
On-road Truck Transport	20	0.02	0.92	0.08	0.01	1.20	0.31
On-road Truck Transport	25	0.02	0.84	0.08	0.01	1.19	0.31
On-road Truck Transport	30	0.01	0.77	0.07	0.01	1.19	0.31
On-road Truck Transport	35	0.01	0.71	0.07	0.01	1.19	0.31
On-road Truck Transport	40	0.01	0.66	0.06	0.01	1.19	0.31
On-road Truck Transport	45	0.01	0.62	0.06	0.01	1.19	0.31
On-road Truck Transport	50	0.01	0.58	0.06	0.01	1.19	0.31
On-road Truck Transport	55	0.01	0.53	0.06	0.01	1.19	0.31
On-road Truck Transport	60	0.01	0.49	0.07	0.01	1.19	0.31
On-road Truck Transport	65	0.01	0.45	0.07	0.01	1.19	0.31
<b>Project Year 2046</b>							
On-road Truck - Idle (g/hr)	0	0.38	6.04	0.61	0.03	0.07	0.06
On-road Truck Transport	5	0.08	1.21	0.12	0.01	1.20	0.32
On-road Truck Transport	10	0.05	1.10	0.11	0.01	1.20	0.31
On-road Truck Transport	15	0.03	1.00	0.09	0.01	1.20	0.31
On-road Truck Transport	20	0.02	0.92	0.08	0.01	1.20	0.31
On-road Truck Transport	25	0.02	0.84	0.08	0.01	1.19	0.31
On-road Truck Transport	30	0.01	0.77	0.07	0.01	1.19	0.31
On-road Truck Transport	35	0.01	0.71	0.07	0.01	1.19	0.31
On-road Truck Transport	40	0.01	0.66	0.06	0.01	1.19	0.31
On-road Truck Transport	45	0.01	0.62	0.06	0.01	1.19	0.31
On-road Truck Transport	50	0.01	0.58	0.06	0.01	1.19	0.31
On-road Truck Transport	55	0.01	0.53	0.06	0.01	1.19	0.31
On-road Truck Transport	60	0.01	0.49	0.07	0.01	1.19	0.31
On-road Truck Transport	65	0.01	0.45	0.07	0.01	1.19	0.31

Notes:

- (1) EMFAC2011 with SCAB default age distributions.
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Year 2046 uses 2035 emission factors.
- (4) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (5) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-41a. Annual Gasoline Service Truck Emissions for SCIG - Proposed Project**

Project Scenario - Mode	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>Project Year 2016</b>						
Year 2016 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2016 - Driving	0.00	0.01	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Project Year 2023</b>						
Year 2023 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2023 - Driving	0.00	0.00	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Project Year 2035</b>						
Year 2035 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2035 - Driving	0.00	0.00	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Project Year 2046</b>						
Year 2046 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2046 - Driving	0.00	0.00	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.



**Table C1.2-41b. Annual Gasoline Service Truck Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation**

Project Scenario - Mode	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>Project Year 2016</b>						
Year 2016 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2016 - Driving	0.00	0.01	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Project Year 2023</b>						
Year 2023 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2023 - Driving	0.00	0.00	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Project Year 2035</b>						
Year 2035 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2035 - Driving	0.00	0.00	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Project Year 2046</b>						
Year 2046 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2046 - Driving	0.00	0.00	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-42a. Summary of Annual Gasoline Service Truck On-Site Emissions for SCIG - Proposed Project**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.00	0.02	0.00	0.00	0.00	0.00
2023	0.00	0.01	0.00	0.00	0.00	0.00
2035	0.00	0.01	0.00	0.00	0.00	0.00
2046	0.00	0.01	0.00	0.00	0.00	0.00

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-42b. Summary of Annual Gasoline Service Truck On-Site Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.00	0.02	0.00	0.00	0.00	0.00
2023	0.00	0.01	0.00	0.00	0.00	0.00
2035	0.00	0.01	0.00	0.00	0.00	0.00
2046	0.00	0.01	0.00	0.00	0.00	0.00

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-43a. Summary of Peak Daily Gasoline Service Truck Emissions for SCIG - Proposed Project**

Analysis Year	Emissions (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.01	0.12	0.01	0.00	0.02	0.01
2023	0.00	0.06	0.01	0.00	0.02	0.01
2035	0.00	0.05	0.00	0.00	0.02	0.01
2046	0.00	0.05	0.00	0.00	0.02	0.01

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-43b. Summary of Peak Daily Gasoline Service Truck Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.01	0.12	0.01	0.00	0.02	0.00
2023	0.00	0.06	0.01	0.00	0.02	0.00
2035	0.00	0.05	0.00	0.00	0.02	0.00
2046	0.00	0.05	0.00	0.00	0.02	0.00

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-44. Activity Data for SCIG Refueling Trucks - Proposed Project**

Truck Type	Annual Throughput	Idle / Trip (hrs)	Average Distance (mi)	Idle Hr / Year	VMT / Year
<b>Year 2016</b>					
<b>On-Site</b>					
Refueling Trucks for Diesel Fuel	823	0.95	0.25	784	206
Refueling Trucks for LNG Fuel	10	0.17	0.25	2	3
<b>Off-Site</b>					
Refueling Trucks for all fuels	833	--	17.80	--	14,830
<b>Year 2023</b>					
<b>On-Site</b>					
Refueling Trucks for Diesel Fuel	1,235	0.95	0.25	1,176	309
Refueling Trucks for LNG Fuel	15	0.17	0.25	3	4
<b>Off-Site</b>					
Refueling Trucks for all fuels	1250	--	17.80	--	22,254
<b>Year 2035</b>					
<b>On-Site</b>					
Refueling Trucks for Diesel Fuel	3,292	0.95	0.25	3,135	823
Refueling Trucks for LNG Fuel	51	0.17	0.25	8	13
<b>Off-Site</b>					
Refueling Trucks for all fuels	3343	--	17.80	--	59,502
<b>Year 2046</b>					
<b>On-Site</b>					
Refueling Trucks for Diesel Fuel	3,292	0.95	0.25	3,135	823
Refueling Trucks for LNG Fuel	51	0.17	0.25	8	13
<b>Off-Site</b>					
Refueling Trucks for all fuels	3343	--	17.80	--	59,502

Notes:

- (1) The number of fuel delivery truck trips for each analysis year was estimated based on the expected fuel consumption at the facility and tanker truck capacity.
- (2) Trucks were assumed to travel on-site at an average speed of 10 mph;
- (3) Activity data for year 2066 are identical to those for 2046.

**Table C1.2-45a. Emission Factors for SCIG Refueling Trucks – Proposed Project**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
						On-site		Off-site	
		VOC	CO	NOx	SOx	PM 10	PM 2.5	PM 10	PM 2.5
<b>Project Year 2016</b>									
On-road Truck - Idle (g/hr)	0	6.02	33.69	58.40	0.07	0.15	0.14	0.15	0.14
On-road Truck Transport	5	3.24	6.32	19.93	0.02	1.80	0.57	0.69	0.29
On-road Truck Transport	10	1.89	3.99	14.50	0.02	1.77	0.54	0.65	0.26
On-road Truck Transport	15	0.96	2.37	10.60	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	20	0.36	1.18	8.46	0.02	1.72	0.50	0.61	0.22
On-road Truck Transport	25	0.36	1.23	7.33	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	30	0.31	1.16	6.76	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	35	0.27	1.12	6.30	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	40	0.23	1.09	5.94	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	45	0.21	1.09	5.69	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	50	0.19	1.12	5.54	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	55	0.17	1.17	5.50	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	60	0.16	1.24	5.56	0.02	1.76	0.53	0.65	0.25
On-road Truck Transport	65	0.17	1.33	5.72	0.02	1.78	0.55	0.67	0.27
<b>Project Year 2023</b>									
On-road Truck - Idle (g/hr)	0	7.29	41.11	39.72	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.74	5.46	7.74	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	1.59	3.40	5.78	0.02	1.72	0.49	0.61	0.22
On-road Truck Transport	15	0.81	1.98	4.33	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	20	0.32	0.98	2.84	0.02	1.70	0.47	0.58	0.19
On-road Truck Transport	25	0.30	1.01	2.95	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	30	0.27	0.97	2.67	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	35	0.23	0.95	2.44	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	40	0.20	0.94	2.26	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	45	0.18	0.95	2.13	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	50	0.16	0.98	2.05	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	55	0.15	1.03	2.01	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	60	0.14	1.09	2.03	0.02	1.75	0.52	0.64	0.24
On-road Truck Transport	65	0.13	1.18	2.09	0.02	1.77	0.54	0.65	0.26
<b>Project Year 2035</b>									
On-road Truck - Idle (g/hr)	0	7.37	41.56	38.79	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.61	5.22	7.08	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	1.52	3.25	5.31	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	15	0.77	1.89	3.99	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	20	0.31	0.96	2.72	0.02	1.70	0.47	0.58	0.19
On-road Truck Transport	25	0.29	0.97	2.71	0.02	1.70	0.47	0.59	0.20
On-road Truck Transport	30	0.25	0.93	2.44	0.02	1.70	0.47	0.58	0.20
On-road Truck Transport	35	0.22	0.90	2.23	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	40	0.19	0.90	2.05	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	45	0.17	0.91	1.93	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	50	0.15	0.94	1.85	0.02	1.72	0.49	0.61	0.21
On-road Truck Transport	55	0.14	0.98	1.81	0.02	1.73	0.50	0.62	0.23
On-road Truck Transport	60	0.13	1.05	1.82	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	65	0.13	1.13	1.88	0.02	1.76	0.53	0.65	0.25
<b>Project Year 2046</b>									
On-road Truck - Idle (g/hr)	0	7.37	41.56	38.79	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.61	5.22	7.08	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	1.52	3.25	5.31	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	15	0.77	1.89	3.99	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	20	0.31	0.96	2.72	0.02	1.70	0.47	0.58	0.19
On-road Truck Transport	25	0.29	0.97	2.71	0.02	1.70	0.47	0.59	0.20
On-road Truck Transport	30	0.25	0.93	2.44	0.02	1.70	0.47	0.58	0.20
On-road Truck Transport	35	0.22	0.90	2.23	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	40	0.19	0.90	2.05	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	45	0.17	0.91	1.93	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	50	0.15	0.94	1.85	0.02	1.72	0.49	0.61	0.21
On-road Truck Transport	55	0.14	0.98	1.81	0.02	1.73	0.50	0.62	0.23
On-road Truck Transport	60	0.13	1.05	1.82	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	65	0.13	1.13	1.88	0.02	1.76	0.53	0.65	0.25

Notes:

- (1) Emission factors were generated with the use of EMFAC2011 model with SCAB default age distributions.
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Year 2046 uses 2035 emission factors
- (4) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-45b. Emission Factors for SCIG Refueling Trucks – Proposed Project - with On-Site Sweeping Mitigation**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
		On-site				Off-site			
		VOC	CO	NOx	SOx	PM 10	PM 2.5	PM 10	PM 2.5
<b>Project Year 2016</b>									
On-road Truck - Idle (g/hr)	0	6.02	33.69	58.40	0.07	0.15	0.14	0.15	0.14
On-road Truck Transport	5	3.24	6.32	19.93	0.02	1.40	0.47	0.69	0.29
On-road Truck Transport	10	1.89	3.99	14.50	0.02	1.37	0.44	0.65	0.26
On-road Truck Transport	15	0.96	2.37	10.60	0.02	1.34	0.41	0.63	0.24
On-road Truck Transport	20	0.36	1.18	8.46	0.02	1.32	0.39	0.61	0.22
On-road Truck Transport	25	0.36	1.23	7.33	0.02	1.32	0.39	0.60	0.21
On-road Truck Transport	30	0.31	1.16	6.76	0.02	1.31	0.39	0.60	0.21
On-road Truck Transport	35	0.27	1.12	6.30	0.02	1.31	0.39	0.60	0.21
On-road Truck Transport	40	0.23	1.09	5.94	0.02	1.32	0.39	0.60	0.21
On-road Truck Transport	45	0.21	1.09	5.69	0.02	1.32	0.40	0.61	0.22
On-road Truck Transport	50	0.19	1.12	5.54	0.02	1.33	0.40	0.62	0.23
On-road Truck Transport	55	0.17	1.17	5.50	0.02	1.35	0.42	0.63	0.24
On-road Truck Transport	60	0.16	1.24	5.56	0.02	1.36	0.43	0.65	0.25
On-road Truck Transport	65	0.17	1.33	5.72	0.02	1.38	0.45	0.67	0.27
<b>Project Year 2023</b>									
On-road Truck - Idle (g/hr)	0	7.29	41.11	39.72	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.74	5.46	7.74	0.02	1.33	0.40	0.61	0.22
On-road Truck Transport	10	1.59	3.40	5.78	0.02	1.32	0.39	0.61	0.22
On-road Truck Transport	15	0.81	1.98	4.33	0.02	1.31	0.39	0.60	0.21
On-road Truck Transport	20	0.32	0.98	2.84	0.02	1.30	0.37	0.58	0.19
On-road Truck Transport	25	0.30	1.01	2.95	0.02	1.30	0.38	0.59	0.20
On-road Truck Transport	30	0.27	0.97	2.67	0.02	1.30	0.38	0.59	0.20
On-road Truck Transport	35	0.23	0.95	2.44	0.02	1.30	0.38	0.59	0.20
On-road Truck Transport	40	0.20	0.94	2.26	0.02	1.31	0.38	0.59	0.20
On-road Truck Transport	45	0.18	0.95	2.13	0.02	1.32	0.39	0.60	0.21
On-road Truck Transport	50	0.16	0.98	2.05	0.02	1.32	0.40	0.61	0.22
On-road Truck Transport	55	0.15	1.03	2.01	0.02	1.34	0.41	0.62	0.23
On-road Truck Transport	60	0.14	1.09	2.03	0.02	1.35	0.42	0.64	0.24
On-road Truck Transport	65	0.13	1.18	2.09	0.02	1.37	0.44	0.65	0.26
<b>Project Year 2035</b>									
On-road Truck - Idle (g/hr)	0	7.37	41.56	38.79	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.61	5.22	7.08	0.02	1.32	0.40	0.61	0.22
On-road Truck Transport	10	1.52	3.25	5.31	0.02	1.32	0.39	0.60	0.21
On-road Truck Transport	15	0.77	1.89	3.99	0.02	1.31	0.38	0.59	0.20
On-road Truck Transport	20	0.31	0.96	2.72	0.02	1.30	0.37	0.58	0.19
On-road Truck Transport	25	0.29	0.97	2.71	0.02	1.30	0.37	0.59	0.20
On-road Truck Transport	30	0.25	0.93	2.44	0.02	1.30	0.37	0.58	0.20
On-road Truck Transport	35	0.22	0.90	2.23	0.02	1.30	0.38	0.59	0.20
On-road Truck Transport	40	0.19	0.90	2.05	0.02	1.31	0.38	0.59	0.20
On-road Truck Transport	45	0.17	0.91	1.93	0.02	1.31	0.39	0.60	0.21
On-road Truck Transport	50	0.15	0.94	1.85	0.02	1.32	0.39	0.61	0.21
On-road Truck Transport	55	0.14	0.98	1.81	0.02	1.33	0.40	0.62	0.23
On-road Truck Transport	60	0.13	1.05	1.82	0.02	1.35	0.42	0.63	0.24
On-road Truck Transport	65	0.13	1.13	1.88	0.02	1.36	0.43	0.65	0.25
<b>Project Year 2046</b>									
On-road Truck - Idle (g/hr)	0	7.37	41.56	38.79	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.61	5.22	7.08	0.02	1.32	0.40	0.61	0.22
On-road Truck Transport	10	1.52	3.25	5.31	0.02	1.32	0.39	0.60	0.21
On-road Truck Transport	15	0.77	1.89	3.99	0.02	1.31	0.38	0.59	0.20
On-road Truck Transport	20	0.31	0.96	2.72	0.02	1.30	0.37	0.58	0.19
On-road Truck Transport	25	0.29	0.97	2.71	0.02	1.30	0.37	0.59	0.20
On-road Truck Transport	30	0.25	0.93	2.44	0.02	1.30	0.37	0.58	0.20
On-road Truck Transport	35	0.22	0.90	2.23	0.02	1.30	0.38	0.59	0.20
On-road Truck Transport	40	0.19	0.90	2.05	0.02	1.31	0.38	0.59	0.20
On-road Truck Transport	45	0.17	0.91	1.93	0.02	1.31	0.39	0.60	0.21
On-road Truck Transport	50	0.15	0.94	1.85	0.02	1.32	0.39	0.61	0.21
On-road Truck Transport	55	0.14	0.98	1.81	0.02	1.33	0.40	0.62	0.23
On-road Truck Transport	60	0.13	1.05	1.82	0.02	1.35	0.42	0.63	0.24
On-road Truck Transport	65	0.13	1.13	1.88	0.02	1.36	0.43	0.65	0.25

Notes:

- (1) Emission factors were generated with the use of EMFAC2011 model with SCAB default age distributions.
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Year 2046 uses 2035 emission factors
- (4) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (5) Emission factors for year 2066 are identical to those for 2046.



**Table C1.2-46a. Annual Refueling Truck Emissions for SCIG - Proposed Project**

Analysis Year	Refueling Truck Type - Mode	Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM 10	PM 2.5
	<b>On-Site</b>						
<b>2016</b>	Diesel Fuel - Idling	0.01	0.03	0.05	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.01</b>	<b>0.03</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2023</b>	Diesel Fuel - Idling	0.01	0.05	0.05	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.01</b>	<b>0.05</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2035</b>	Diesel Fuel - Idling	0.03	0.14	0.13	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.03</b>	<b>0.15</b>	<b>0.14</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2046</b>	Diesel Fuel - Idling	0.03	0.14	0.13	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.03</b>	<b>0.15</b>	<b>0.14</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
	<b>Off-Site</b>						
<b>2016</b>	Driving	0.00	0.02	0.11	0.00	0.01	0.00
<b>2023</b>	Driving	0.01	0.03	0.06	0.00	0.01	0.01
<b>2035</b>	Driving	0.02	0.07	0.15	0.00	0.04	0.01
<b>2046</b>	Driving	0.02	0.07	0.15	0.00	0.04	0.01

Notes:

- (1) On-site driving emissions assume 10 mph.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-46b. Annual Refueling Truck Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation**

Analysis Year	Refueling Truck Type - Mode	Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM 10	PM 2.5
	<b>On-Site</b>						
2016	Diesel Fuel - Idling	0.01	0.03	0.05	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.01</b>	<b>0.03</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
2023	Diesel Fuel - Idling	0.01	0.05	0.05	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.01</b>	<b>0.05</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
2035	Diesel Fuel - Idling	0.03	0.14	0.13	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.03</b>	<b>0.15</b>	<b>0.14</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
2046	Diesel Fuel - Idling	0.03	0.14	0.13	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.03</b>	<b>0.15</b>	<b>0.14</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
	<b>Off-Site</b>						
2016	Driving	0.00	0.02	0.11	0.00	0.01	0.00
2023	Driving	0.01	0.03	0.06	0.00	0.01	0.01
2035	Driving	0.02	0.07	0.15	0.00	0.04	0.01
2046	Driving	0.02	0.07	0.15	0.00	0.04	0.01

Notes:

- (1) On-site driving emissions assume 10 mph.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (4) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-47a. Peak Daily Refueling Truck Emissions for SCIG - Proposed Project**

Analysis Year	Refueling Truck Type - Mode	Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM 10	PM 2.5
	<b>On-Site</b>						
<b>2016</b>	Diesel Fuel - Idling	0.03	0.16	0.28	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.01	0.02	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.03</b>	<b>0.17</b>	<b>0.30</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2023</b>	Diesel Fuel - Idling	0.05	0.30	0.29	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.01	0.01	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.06</b>	<b>0.30</b>	<b>0.30</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2035</b>	Diesel Fuel - Idling	0.14	0.80	0.74	0.00	0.00	0.00
	Diesel Fuel - Driving	0.01	0.02	0.03	0.00	0.01	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.15</b>	<b>0.82</b>	<b>0.77</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>
<b>2046</b>	Diesel Fuel - Idling	0.14	0.80	0.74	0.00	0.00	0.00
	Diesel Fuel - Driving	0.01	0.02	0.03	0.00	0.01	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.15</b>	<b>0.82</b>	<b>0.77</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>
	<b>Off-Site</b>						
<b>2016</b>	Driving	0.03	0.11	0.60	0.00	0.06	0.02
<b>2023</b>	Driving	0.03	0.14	0.33	0.00	0.08	0.03
<b>2035</b>	Driving	0.09	0.37	0.83	0.01	0.22	0.08
<b>2046</b>	Driving	0.09	0.37	0.82	0.01	0.22	0.08

Notes:

- (1) On-site driving emissions assume 10 mph.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-47b. Peak Daily Refueling Truck Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation**

Analysis Year	Refueling Truck Type - Mode	Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM 10	PM 2.5
	<b>On-Site</b>						
2016	Diesel Fuel - Idling	0.03	0.16	0.28	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.01	0.02	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.03</b>	<b>0.17</b>	<b>0.30</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
2023	Diesel Fuel - Idling	0.05	0.30	0.29	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.01	0.01	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.06</b>	<b>0.30</b>	<b>0.30</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
2035	Diesel Fuel - Idling	0.14	0.80	0.74	0.00	0.00	0.00
	Diesel Fuel - Driving	0.01	0.02	0.03	0.00	0.01	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.15</b>	<b>0.82</b>	<b>0.77</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>
2046	Diesel Fuel - Idling	0.14	0.80	0.74	0.00	0.00	0.00
	Diesel Fuel - Driving	0.01	0.02	0.03	0.00	0.01	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total</b>	<b>0.15</b>	<b>0.82</b>	<b>0.77</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>
	<b>Off-Site</b>						
2016	Driving	0.03	0.11	0.60	0.00	0.06	0.02
2023	Driving	0.03	0.14	0.33	0.00	0.08	0.03
2035	Driving	0.09	0.37	0.83	0.01	0.22	0.08
2046	Driving	0.09	0.37	0.82	0.01	0.22	0.08

Notes:

- (1) On-site driving emissions assume 10 mph.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (4) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-48a. Summary of Annual Refueling Truck Emissions for SCIG - Proposed Project**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.01	0.05	0.16	0.00	0.01	0.00
2023	0.02	0.08	0.11	0.00	0.02	0.01
2035	0.04	0.21	0.29	0.00	0.04	0.01
2046	0.04	0.21	0.29	0.00	0.04	0.01

Note: Emissions for 2066 are identical to those for 2046.

**Table C1.2-48b. Summary of Annual Refueling Truck Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.01	0.05	0.16	0.00	0.01	0.00
2023	0.02	0.08	0.11	0.00	0.02	0.01
2035	0.04	0.21	0.29	0.00	0.04	0.01
2046	0.04	0.21	0.29	0.00	0.04	0.01

Notes:

- (1) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (2) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-49a. Summary of Peak Daily Refueling Truck Emissions for SCIG - Proposed Project**

Analysis Year	Emissions (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.06	0.28	0.90	0.00	0.06	0.02
2023	0.09	0.45	0.63	0.00	0.09	0.03
2035	0.24	1.19	1.61	0.01	0.23	0.08
2046	0.24	1.18	1.60	0.01	0.23	0.08

Note: Emissions for 2066 are identical to those for 2046.

**Table C1.2-49b. Summary of Peak Daily Refueling Truck Emissions for SCIG - Proposed Project - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (lb/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.06	0.28	0.90	0.00	0.06	0.02
2023	0.09	0.45	0.63	0.00	0.09	0.03
2035	0.24	1.19	1.61	0.01	0.23	0.08
2046	0.24	1.18	1.60	0.01	0.23	0.08

Notes:

- (1) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (2) Emissions for year 2066 are identical to those for 2046.



**Table C1.2-50. Activity Data for SCIG LNG Yard Hostlers – Proposed Project**

<b>Analysis Year</b>	<b>Quantity</b>	<b>HP</b>	<b>Load Factor</b>	<b>Daily Activity (hr/day/unit)</b>	<b>Annual Activity (hr/yr/unit)</b>	<b>Round Trip Distance (mi/unit)</b>	<b>Annual VMT (mi/unit)</b>
2016	2	250	0.65	18	6480	0.98	52.92
2023	3	250	0.65	18	6480	0.98	52.92
2035	10	250	0.65	18	6480	0.98	52.92
2046	10	250	0.65	18	6480	0.98	52.92

Note: Activity data for year 2066 are identical to those for 2046.

**Table C1.2-51. Emission Factors for SCIG LNG Yard Hostlers – Proposed Project**

Analysis Year	Emission Factor (g/bhp-hr)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.01	14.20	0.13	0.00	0.00	0.00
2023	0.01	14.20	0.13	0.00	0.00	0.00
2035	0.01	14.20	0.13	0.00	0.00	0.00
2046	0.01	14.20	0.13	0.00	0.00	0.00

Note:

- (1) Emission factors from engine certification data.
- (2) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-52. Summary of Annual Emissions for SCIG LNG Yard Hostlers  
– Proposed Project**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.02	32.96	0.30	0.00	0.00	0.00
2023	0.02	49.45	0.45	0.00	0.01	0.01
2035	0.08	164.82	1.51	0.00	0.02	0.02
2046	0.08	164.82	1.51	0.00	0.02	0.02

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-53. Summary of Peak Daily Emissions for LNG Yard Hostler – Proposed Project**

Analysis Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.10	205.04	1.88	0.00	0.03	0.03
2023	0.14	307.56	2.82	0.00	0.04	0.04
2035	0.48	1025.21	9.39	0.00	0.14	0.13
2046	0.48	1025.21	9.39	0.00	0.14	0.13

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-54. Activity Data for Paints, Oils, Cleaners, and Other Fluids Used for Maintenance – Proposed Project**

<b>Year</b>	<b>Cans Used Per Month</b>
2016	438
2023	613
2035	613
2046	613

Notes:

- (1) Cans include paints, cleaners, oils, lubricants, etc.
- (2) Activity data for year 2066 are identical to those for 2046

**Table C1.2-55. VOC Emissions from Paints, Oils, Cleaners, and Other Fluids Used for Maintenance – Proposed Project**

<b>Year</b>	<b>Annual Emissions (tons/yr)</b>	<b>Peak Daily Emissions (lbs/day)</b>
2016	0.99	5.48
2023	1.35	7.52
2035	1.35	7.52
2046	1.35	7.52

Note: Emissions for year 2066 are identical to those for 2046

**Table C1.2-56a. Average Daily Operational Emissions - Proposed Project**

Source Category	Average Daily Emissions (lb/day) <sup>a, e, f</sup>					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Project Year 2016</b>						
Locomotives On-Site	1	4	25	0	1	1
Locomotives Off-Site <sup>b</sup>	20	58	654	1	14	13
Trucks On-Site	11	38	75	0	8	2
Trucks Off-Site <sup>b</sup>	6	24	94	0	8	3
Railyard Equipment	6	204	3	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	4	0	0	2	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	6	23	46	0	2	1
Trucks Off-Site <sup>b</sup>	6	24	115	0	10	4
CHE	5	400	56	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	1	23	2	0	10	3
Alternate Business Locomotive Activities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	19	1,192	135	1	9	6
<b>Total - Project Year 2016<sup>d</sup></b>	<b>82</b>	<b>1,996</b>	<b>1,207</b>	<b>3</b>	<b>68</b>	<b>35</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline	-58	38	-968	-18	-109	-49
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2023</b>						
Locomotives On-Site	1	6	28	0	1	1
Locomotives Off-Site <sup>b</sup>	20	91	708	1	10	10
Trucks On-Site	12	45	61	0	12	3
Trucks Off-Site <sup>b</sup>	6	22	55	0	11	4
Railyard Equipment	8	296	4	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	5	0	0	4	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	0	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	6	25	27	0	2	1
Trucks Off-Site <sup>b</sup>	5	18	46	0	10	3
CHE	4	234	49	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	14	1	0	10	3
Alternate Business Locomotive Activities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	14	662	73	1	8	5
<b>Total - Project Year 2023<sup>d</sup></b>	<b>76</b>	<b>1,420</b>	<b>1,054</b>	<b>3</b>	<b>71</b>	<b>33</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline	-64	-537	-1,122	-18	-107	-52
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

<b>Project Year 2035</b>						
Locomotives On-Site	1	9	29	0	1	0
Locomotives Off-Site <sup>b</sup>	21	169	793	3	11	11
Trucks On-Site	38	150	197	1	41	12
Trucks Off-Site <sup>b</sup>	18	66	163	1	36	12
Railyard Equipment	8	937	9	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	1	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	0	15	1	0	12	3
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	6	25	26	0	2	1
Trucks Off-Site <sup>b</sup>	5	17	42	0	10	3
CHE	3	231	14	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Locomotive Acitivities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	13	656	58	1	7	4
<b>Total - Project Year 2035 <sup>d</sup></b>	<b>113</b>	<b>2,290</b>	<b>1,337</b>	<b>6</b>	<b>132</b>	<b>50</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline	-27	332	-838	-15	-46	-34
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2046</b>						
Locomotives On-Site	1	9	19	0	0	0
Locomotives Off-Site <sup>b</sup>	14	158	484	3	7	6
Trucks On-Site	38	150	217	1	41	12
Trucks Off-Site <sup>b</sup>	18	65	188	1	36	12
Railyard Equipment	8	938	10	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	1	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	0	14	1	0	12	3
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	6	25	26	0	2	1
Trucks Off-Site <sup>b</sup>	5	17	44	0	10	3
CHE	3	232	14	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Locomotive Acitivities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	13	663	60	1	7	4
<b>Total - Project Year 2046 <sup>d</sup></b>	<b>105</b>	<b>2,286</b>	<b>1,067</b>	<b>6</b>	<b>127</b>	<b>46</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline	-35	328	-1,109	-16	-51	-38
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>



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Notes:

- a) Emissions represent annual emissions divided by 365 days per year of operation.
- b) Truck, train, and worker commute emissions include transport within the South Coast Air Basin.
- c) On-site emissions from businesses displaced by the Project
- d) Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
- e) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
- (f) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-56b. Peak Day Operational Emissions - Proposed Project**

Source Category	Peak Daily Emissions (lb/day) <sup>a, e, f</sup>					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Project Year 2016</b>						
Locomotives On-Site	1	5	28	0	1	1
Locomotives Off-Site <sup>b</sup>	24	79	757	1	14	13
Trucks On-Site	12	42	84	0	9	3
Trucks Off-Site <sup>b</sup>	7	27	105	0	9	3
Railyard Equipment	12	339	25	0	1	1
TRU	1	12	11	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	4	0	0	2	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	7	26	52	0	2	1
Trucks Off-Site <sup>b</sup>	7	26	128	0	11	4
CHE	5	447	63	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	1	23	2	0	10	3
Alternate Business Locomotive Activities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	22	1,334	151	1	10	6
<b>Total - Project Year 2016<sup>d</sup></b>	<b>99</b>	<b>2,367</b>	<b>1,407</b>	<b>3</b>	<b>74</b>	<b>39</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline	-58	187	-1,051	-18	-117	-52
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2023</b>						
Locomotives On-Site	1	7	31	0	1	1
Locomotives Off-Site <sup>b</sup>	24	124	821	1	11	10
Trucks On-Site	13	51	69	0	13	4
Trucks Off-Site <sup>b</sup>	6	24	61	0	12	4
Railyard Equipment	14	443	26	0	1	1
TRU	2	16	11	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	5	0	0	4	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	0	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	7	28	30	0	2	1
Trucks Off-Site <sup>b</sup>	5	20	51	0	11	4
CHE	4	262	55	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	14	1	0	10	3
Alternate Business Locomotive Activities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	15	741	82	1	8	5
<b>Total - Project Year 2023<sup>d</sup></b>	<b>93</b>	<b>1,736</b>	<b>1,240</b>	<b>4</b>	<b>77</b>	<b>36</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline	-65	-444	-1,219	-18	-115	-55
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

<b>Project Year 2035</b>						
Locomotives On-Site	1	11	33	0	1	1
Locomotives Off-Site <sup>b</sup>	25	227	916	3	12	11
Trucks On-Site	42	168	221	1	46	13
Trucks Off-Site <sup>b</sup>	20	73	183	1	40	14
Railyard Equipment	14	1,161	32	0	1	1
TRU	2	16	11	0	0	0
Employee Commute On-Site	0	1	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	0	15	1	0	12	3
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	7	28	29	0	2	1
Trucks Off-Site <sup>b</sup>	5	19	47	0	11	4
CHE	3	258	15	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Locomotive Acitivities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	14	735	65	1	7	4
<b>Total - Project Year 2035<sup>d</sup></b>	<b>134</b>	<b>2,724</b>	<b>1,557</b>	<b>7</b>	<b>144</b>	<b>55</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline	-23	544	-901	-15	-48	-36
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2046</b>						
Locomotives On-Site	1	10	21	0	0	0
Locomotives Off-Site <sup>b</sup>	16	211	557	3	7	6
Trucks On-Site	42	168	243	1	46	13
Trucks Off-Site <sup>b</sup>	20	73	211	1	40	14
Railyard Equipment	14	1,161	32	0	1	1
TRU	2	16	11	0	0	0
Employee Commute On-Site	0	1	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	0	14	1	0	12	3
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	7	28	29	0	2	1
Trucks Off-Site <sup>b</sup>	5	19	50	0	11	4
CHE	3	260	16	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Locomotive Acitivities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	15	742	67	1	7	4
<b>Total - Project Year 2046<sup>d</sup></b>	<b>125</b>	<b>2,717</b>	<b>1,241</b>	<b>6</b>	<b>140</b>	<b>51</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline	-32	537	-1,217	-15	-52	-40
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

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Notes:

- a) Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day operations of the facility.
- b) Truck, train, and worker commute emissions include transport within the South Coast Air Basin.
- c) On-site emissions from businesses displaced by the Project
- d) Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
- e) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
- f) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-57a. Average Daily Operational Emissions - Proposed Project with Low Emission Trucks & On-site Sweeping Mitigations**

Source Category	Average Daily Emissions (lb/day) <sup>a, e, f</sup>					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Project Year 2016</b>						
Locomotives On-Site	1	4	25	0	1	1
Locomotives Off-Site <sup>b</sup>	20	58	654	1	14	13
Trucks On-Site	11	38	75	0	7	2
Trucks Off-Site <sup>b</sup>	6	24	94	0	8	3
Railyard Equipment	6	204	3	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	4	0	0	2	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	6	23	46	0	2	1
Trucks Off-Site <sup>b</sup>	6	24	115	0	10	4
CHE	5	400	56	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	1	23	2	0	10	3
Alternate Business Locomotive Acitivities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	19	1,192	135	1	9	6
<b>Total - Project Year 2016<sup>d</sup></b>	<b>82</b>	<b>1,996</b>	<b>1,207</b>	<b>3</b>	<b>66</b>	<b>35</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline	-58	38	-968	-18	-111	-50
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2023</b>						
Locomotives On-Site	1	6	28	0	1	1
Locomotives Off-Site <sup>b</sup>	20	91	708	1	10	10
Trucks On-Site	12	45	61	0	9	3
Trucks Off-Site <sup>b</sup>	6	22	55	0	11	4
Railyard Equipment	8	296	4	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	5	0	0	4	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	0	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	6	25	27	0	2	1
Trucks Off-Site <sup>b</sup>	5	18	46	0	10	3
CHE	4	234	49	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	14	1	0	10	3
Alternate Business Locomotive Acitivities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	14	662	73	1	8	5
<b>Total - Project Year 2023<sup>d</sup></b>	<b>76</b>	<b>1,420</b>	<b>1,054</b>	<b>3</b>	<b>68</b>	<b>32</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline	-64	-537	-1,122	-18	-110	-52
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

<b>Project Year 2035</b>						
Locomotives On-Site	1	9	29	0	1	0
Locomotives Off-Site <sup>b</sup>	21	169	793	3	11	11
Trucks On-Site	38	150	197	1	31	9
Trucks Off-Site <sup>b</sup>	18	66	163	1	36	12
Railyard Equipment	8	937	9	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	1	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	0	15	1	0	12	3
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	6	25	26	0	2	1
Trucks Off-Site <sup>b</sup>	5	17	42	0	10	3
CHE	3	231	14	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Locomotive Acitivities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	13	656	58	1	7	4
<b>Total - Project Year 2035 <sup>d</sup></b>	<b>113</b>	<b>2,290</b>	<b>1,337</b>	<b>6</b>	<b>122</b>	<b>48</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline	-27	332	-838	-15	-56	-36
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2046</b>						
Locomotives On-Site	1	9	19	0	0	0
Locomotives Off-Site <sup>b</sup>	14	158	484	3	7	6
Trucks On-Site	38	150	217	1	31	9
Trucks Off-Site <sup>b</sup>	18	65	188	1	36	12
Railyard Equipment	8	938	10	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	1	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	0	14	1	0	12	3
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	6	25	26	0	2	1
Trucks Off-Site <sup>b</sup>	5	17	44	0	10	3
CHE	3	232	14	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Locomotive Acitivities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	13	663	60	1	7	4
<b>Total - Project Year 2046 <sup>d</sup></b>	<b>105</b>	<b>2,286</b>	<b>1,067</b>	<b>6</b>	<b>117</b>	<b>44</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline	-35	328	-1,109	-16	-60	-41
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

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Notes:

- a) Emissions represent annual emissions divided by 365 days per year of operation.
- b) Truck, train, and worker commute emissions include transport within the South Coast Air Basin.
- c) On-site emissions from businesses displaced by the Project
- d) Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
- e) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
- f) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-57b. Peak Day Operational Emissions - Proposed Project with Low Emission Trucks & On-site Sweeping Mitigations**

Source Category	Peak Daily Emissions (lb/day) <sup>a, e, f</sup>					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Project Year 2016</b>						
Locomotives On-Site	1	5	28	0	1	1
Locomotives Off-Site <sup>b</sup>	24	79	757	1	14	13
Trucks On-Site	12	42	84	0	7	2
Trucks Off-Site <sup>b</sup>	7	27	105	0	9	3
Railyard Equipment	12	339	25	0	1	1
TRU	1	12	11	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	4	0	0	2	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	7	26	52	0	2	1
Trucks Off-Site <sup>b</sup>	7	26	128	0	11	4
CHE	5	447	63	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	1	23	2	0	10	3
Alternate Business Locomotive Activities	0	0	0	0	0	0
<u>Displaced Businesses<sup>c</sup></u>	22	1,334	151	1	10	6
<b>Total - Project Year 2016<sup>d</sup></b>	<b>99</b>	<b>2,367</b>	<b>1,407</b>	<b>3</b>	<b>72</b>	<b>38</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline	-58	187	-1,051	-18	-120	-53
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2023</b>						
Locomotives On-Site	1	7	31	0	1	1
Locomotives Off-Site <sup>b</sup>	24	124	821	1	11	10
Trucks On-Site	13	51	69	0	10	3
Trucks Off-Site <sup>b</sup>	6	24	61	0	12	4
Railyard Equipment	14	443	26	0	1	1
TRU	2	16	11	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	5	0	0	4	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	0	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	7	28	30	0	2	1
Trucks Off-Site <sup>b</sup>	5	20	51	0	11	4
CHE	4	262	55	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	14	1	0	10	3
Alternate Business Locomotive Activities	0	0	0	0	0	0
<u>Displaced Businesses<sup>c</sup></u>	15	741	82	1	8	5
<b>Total - Project Year 2023<sup>d</sup></b>	<b>93</b>	<b>1,736</b>	<b>1,240</b>	<b>4</b>	<b>74</b>	<b>35</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline	-65	-444	-1,219	-18	-118	-56
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>



<b>Project Year 2035</b>						
Locomotives On-Site	1	11	33	0	1	1
Locomotives Off-Site <sup>b</sup>	25	227	916	3	12	11
Trucks On-Site	42	168	221	1	35	11
Trucks Off-Site <sup>b</sup>	20	73	183	1	40	14
Railyard Equipment	14	1,161	32	0	1	1
TRU	2	16	11	0	0	0
Employee Commute On-Site	0	1	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	0	15	1	0	12	3
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	7	28	29	0	2	1
Trucks Off-Site <sup>b</sup>	5	19	47	0	11	4
CHE	3	258	15	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Locomotive Acitivities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	14	735	65	1	7	4
<b>Total - Project Year 2035<sup>d</sup></b>	<b>134</b>	<b>2,724</b>	<b>1,557</b>	<b>7</b>	<b>133</b>	<b>53</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline	-23	544	-901	-15	-58	-38
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2046</b>						
Locomotives On-Site	1	10	21	0	0	0
Locomotives Off-Site <sup>b</sup>	16	211	557	3	7	6
Trucks On-Site	42	168	243	1	35	11
Trucks Off-Site <sup>b</sup>	20	73	211	1	40	14
Railyard Equipment	14	1,161	32	0	1	1
TRU	2	16	11	0	0	0
Employee Commute On-Site	0	1	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	0	14	1	0	12	3
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Sources</u>						
Trucks On-Site	7	28	29	0	2	1
Trucks Off-Site <sup>b</sup>	5	19	50	0	11	4
CHE	3	260	16	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Locomotive Acitivities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	15	742	67	1	7	4
<b>Total - Project Year 2046<sup>d</sup></b>	<b>125</b>	<b>2,717</b>	<b>1,241</b>	<b>6</b>	<b>129</b>	<b>48</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline	-32	537	-1,217	-15	-63	-43
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

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Notes:

- a) Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day operations of the facility.
- b) Truck, train, and worker commute emissions include transport within the South Coast Air Basin.
- c) On-site emissions from businesses displaced by the Project
- d) Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
- e) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
- f) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-BUS-1. On-Road Vehicles Activity Data for Alternate Business Locations- Proposed Project and Reduced Project**

Project Year - Source	Number of Trips	Average Idling Time per Trip (hr)	Average On-Site Distance per Trip (mi)	Average Off-Site Round-Trip Distance to Port Terminals (mi)	Average Off-Site Round-Trip Distance Outside of Harbor District (mi)
<b>Year 2013 (Businesses Operating at Existing Locations)</b>					
Port Drayage Trucks	227,013	0.44	0.94	9.74	N/A
Vendor Vehicles	249,347	0.31	0.94	N/A	11.51
Employee Commute Vehicles	247,393	0.25	0.21	N/A	12.40
Medium Duty Trucks	520	0.33	0.20	N/A	12.40
<b>Years 2014, 2015, 2016, 2023, 2035, 2046 (Businesses Operating at Alternate Locations)</b>					
Port Drayage Trucks	74,556	0.44	0.94	10.12	N/A
Vendor Vehicles	144,961	0.31	0.94	N/A	12.35
Employee Commute Vehicles	112,393	0.25	0.21	N/A	13.82
Medium Duty Trucks	520	0.33	0.20	N/A	14.39

Notes:

(1) On-road vehicle activity data represent data averaged across all businesses moving to / operating at alternate locations.

(2) Activity data for year 2066 are identical to those for 2046.

**Table C1.2-BUS-2. Emission Factors for Port Drayage Trucks - Proposed Project and Reduced Project**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
						On-site		Off-site	
		VOC	CO	NOx	SOx	PM 10	PM 2.5	PM 10	PM 2.5
<b>Year 2013</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	4.16	8.27	19.14	0.02	1.73	0.50	0.62	0.22
On-road Truck Transport	10	2.42	5.15	14.39	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	15	1.23	2.99	10.83	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	20	0.50	1.53	7.95	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	25	0.46	1.53	7.34	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	30	0.40	1.47	6.61	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	35	0.35	1.43	6.02	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	40	0.31	1.42	5.55	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	45	0.27	1.44	5.20	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	50	0.24	1.49	4.98	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	55	0.22	1.56	4.88	0.02	1.74	0.51	0.63	0.23
On-road Truck Transport	60	0.21	1.66	4.91	0.02	1.76	0.53	0.64	0.25
On-road Truck Transport	65	0.20	1.79	5.07	0.02	1.78	0.54	0.66	0.26
<b>Year 2014</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	4.46	8.87	19.80	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	10	2.59	5.52	14.89	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	15	1.32	3.20	11.20	0.02	1.72	0.49	0.61	0.22
On-road Truck Transport	20	0.53	1.63	8.21	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	25	0.49	1.64	7.59	0.02	1.71	0.48	0.60	0.20
On-road Truck Transport	30	0.43	1.57	6.84	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	35	0.38	1.53	6.23	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	40	0.33	1.52	5.74	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	45	0.29	1.54	5.38	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	50	0.26	1.59	5.15	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	55	0.24	1.67	5.05	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	60	0.22	1.78	5.08	0.02	1.77	0.53	0.65	0.26
On-road Truck Transport	65	0.22	1.91	5.24	0.02	1.79	0.55	0.67	0.27
<b>Year 2015</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	4.69	9.33	20.16	0.02	1.75	0.51	0.63	0.23
On-road Truck Transport	10	2.73	5.81	15.15	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	15	1.39	3.37	11.40	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	20	0.56	1.71	8.32	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	25	0.52	1.73	7.73	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	30	0.45	1.65	6.97	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	35	0.40	1.61	6.34	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	40	0.35	1.60	5.84	0.02	1.72	0.49	0.61	0.22
On-road Truck Transport	45	0.31	1.62	5.48	0.02	1.73	0.50	0.62	0.22
On-road Truck Transport	50	0.27	1.67	5.24	0.02	1.74	0.51	0.63	0.23
On-road Truck Transport	55	0.25	1.76	5.14	0.02	1.76	0.53	0.64	0.25
On-road Truck Transport	60	0.24	1.87	5.17	0.02	1.77	0.54	0.66	0.26
On-road Truck Transport	65	0.23	2.01	5.34	0.02	1.79	0.56	0.68	0.28
<b>Year 2016</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	4.84	9.62	20.20	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	10	2.81	5.99	15.18	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	15	1.43	3.48	11.42	0.02	1.73	0.50	0.62	0.22
On-road Truck Transport	20	0.57	1.75	8.29	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	25	0.54	1.78	7.74	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	30	0.47	1.71	6.98	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	35	0.41	1.66	6.35	0.02	1.72	0.49	0.61	0.21

On-road Truck Transport	40	0.36	1.65	5.85	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	45	0.32	1.67	5.49	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	50	0.28	1.73	5.26	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	55	0.26	1.81	5.15	0.02	1.76	0.53	0.65	0.25
On-road Truck Transport	60	0.24	1.93	5.19	0.02	1.78	0.55	0.66	0.27
On-road Truck Transport	65	0.24	2.08	5.35	0.02	1.80	0.57	0.68	0.29
<b>Year 2023</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	3.16	6.30	8.78	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	10	1.84	3.92	6.60	0.02	1.73	0.50	0.62	0.23
On-road Truck Transport	15	0.93	2.28	4.97	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	20	0.37	1.13	3.35	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	25	0.35	1.17	3.37	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	30	0.31	1.12	3.03	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	35	0.27	1.09	2.76	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	40	0.23	1.08	2.54	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	45	0.21	1.10	2.39	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	50	0.18	1.13	2.28	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	55	0.17	1.19	2.24	0.02	1.75	0.52	0.64	0.24
On-road Truck Transport	60	0.16	1.26	2.25	0.02	1.77	0.54	0.65	0.26
On-road Truck Transport	65	0.15	1.36	2.32	0.02	1.79	0.56	0.67	0.28
<b>Year 2035</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.83	5.66	7.75	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	1.65	3.53	5.83	0.02	1.72	0.50	0.61	0.22
On-road Truck Transport	15	0.84	2.05	4.39	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	20	0.34	1.04	3.01	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	25	0.31	1.05	2.97	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	30	0.27	1.00	2.68	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	35	0.24	0.98	2.44	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	40	0.21	0.97	2.25	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	45	0.18	0.99	2.11	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	50	0.17	1.02	2.02	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	55	0.15	1.07	1.98	0.02	1.74	0.51	0.63	0.23
On-road Truck Transport	60	0.14	1.14	1.99	0.02	1.76	0.53	0.64	0.25
On-road Truck Transport	65	0.14	1.22	2.05	0.02	1.77	0.54	0.66	0.26
<b>Year 2046</b>									
On-road Truck - Idle (g/hr)	0	7.41	41.75	40.38	0.07	0.13	0.12	0.13	0.12
On-road Truck Transport	5	2.82	5.62	8.98	0.02	1.73	0.51	0.62	0.23
On-road Truck Transport	10	1.64	3.50	6.70	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	15	0.83	2.03	5.01	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	20	0.34	1.04	3.49	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	25	0.31	1.04	3.41	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	30	0.27	1.00	3.09	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	35	0.24	0.97	2.83	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	40	0.21	0.97	2.62	0.02	1.71	0.48	0.60	0.21
On-road Truck Transport	45	0.18	0.98	2.47	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	50	0.16	1.01	2.37	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	55	0.15	1.06	2.33	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	60	0.14	1.12	2.35	0.02	1.76	0.53	0.64	0.25
On-road Truck Transport	65	0.14	1.21	2.42	0.02	1.77	0.54	0.66	0.26

Notes:

- (1) On-site travel speed for businesses moving to / operating at alternate locations are assumed at 7.5 mph; emissions factors are interpolated between those for 5 mph and 10 mph.
- (2) Emission factors were derived from EMFAC2011 with modified fleet age distribution based on Port-wide inventory (Starcrest)
- (3) Emission factors incorporated the SPBP Clean Truck Program and California Statewide Bus and Truck Regulation.
- (4) Year 2046 uses 2035 emission factors, EMFAC 2011 only calculates emissions factor to 2035.
- (5) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (6) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-BUS-3. Emission Factors for Vendor Vehicles - Proposed Project and Reduced Project**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
						On-site		Off-site	
		VOC	CO	NOx	SOx	PM 10	PM 2.5	PM 10	PM 2.5
<b>Year 2013</b>									
On-road Truck - Idle (g/hr)	0	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
On-road Truck Transport	5	5.45	9.95	29.32	0.02	2.37	1.09	1.25	0.81
On-road Truck Transport	10	3.20	6.65	21.10	0.02	2.18	0.91	1.06	0.64
On-road Truck Transport	15	1.64	4.28	15.29	0.02	2.03	0.78	0.92	0.50
On-road Truck Transport	20	0.70	2.89	12.07	0.02	1.96	0.72	0.85	0.44
On-road Truck Transport	25	0.58	2.35	10.67	0.02	1.89	0.65	0.77	0.37
On-road Truck Transport	30	0.49	2.12	9.93	0.02	1.87	0.63	0.75	0.35
On-road Truck Transport	35	0.42	1.94	9.33	0.02	1.85	0.62	0.74	0.34
On-road Truck Transport	40	0.36	1.80	8.87	0.02	1.85	0.61	0.74	0.34
On-road Truck Transport	45	0.32	1.73	8.56	0.02	1.86	0.62	0.75	0.34
On-road Truck Transport	50	0.29	1.70	8.38	0.02	1.88	0.64	0.77	0.36
On-road Truck Transport	55	0.29	1.72	8.35	0.02	1.92	0.67	0.80	0.39
On-road Truck Transport	60	0.29	1.80	8.45	0.02	1.96	0.71	0.84	0.43
On-road Truck Transport	65	0.32	1.93	8.70	0.02	2.01	0.76	0.89	0.48
<b>Year 2014</b>									
On-road Truck - Idle (g/hr)	0	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
On-road Truck Transport	5	4.00	7.45	25.66	0.02	2.08	0.82	0.96	0.54
On-road Truck Transport	10	2.35	4.93	18.52	0.02	1.97	0.72	0.85	0.44
On-road Truck Transport	15	1.21	3.13	13.45	0.02	1.88	0.64	0.76	0.36
On-road Truck Transport	20	0.51	2.10	10.83	0.02	1.85	0.61	0.73	0.33
On-road Truck Transport	25	0.43	1.72	9.37	0.02	1.79	0.55	0.67	0.27
On-road Truck Transport	30	0.37	1.56	8.70	0.02	1.77	0.54	0.66	0.26
On-road Truck Transport	35	0.31	1.44	8.16	0.02	1.77	0.53	0.65	0.25
On-road Truck Transport	40	0.27	1.36	7.75	0.02	1.76	0.53	0.65	0.25
On-road Truck Transport	45	0.24	1.31	7.46	0.02	1.77	0.54	0.65	0.26
On-road Truck Transport	50	0.22	1.30	7.30	0.02	1.78	0.55	0.66	0.27
On-road Truck Transport	55	0.21	1.32	7.27	0.02	1.80	0.56	0.68	0.28
On-road Truck Transport	60	0.21	1.38	7.36	0.02	1.82	0.58	0.70	0.30
On-road Truck Transport	65	0.23	1.48	7.57	0.02	1.85	0.61	0.73	0.33
<b>Year 2015</b>									
On-road Truck - Idle (g/hr)	0	6.34	34.46	64.05	0.07	0.27	0.25	0.27	0.25
On-road Truck Transport	5	3.63	6.90	22.59	0.02	1.93	0.69	0.82	0.41
On-road Truck Transport	10	2.12	4.46	16.35	0.02	1.86	0.62	0.74	0.34
On-road Truck Transport	15	1.08	2.73	11.90	0.02	1.80	0.57	0.69	0.29
On-road Truck Transport	20	0.45	1.66	9.57	0.02	1.78	0.55	0.67	0.27
On-road Truck Transport	25	0.39	1.45	8.25	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	30	0.33	1.34	7.64	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	35	0.29	1.26	7.15	0.02	1.74	0.50	0.62	0.23
On-road Truck Transport	40	0.25	1.21	6.77	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	45	0.22	1.19	6.50	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	50	0.20	1.20	6.35	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	55	0.19	1.23	6.31	0.02	1.77	0.53	0.65	0.25
On-road Truck Transport	60	0.19	1.30	6.38	0.02	1.79	0.55	0.67	0.27
On-road Truck Transport	65	0.20	1.40	6.57	0.02	1.81	0.57	0.69	0.29
<b>Year 2016</b>									
On-road Truck - Idle (g/hr)	0	6.02	33.69	58.40	0.07	0.15	0.14	0.15	0.14
On-road Truck Transport	5	3.24	6.32	19.93	0.02	1.80	0.57	0.69	0.29
On-road Truck Transport	10	1.89	3.99	14.50	0.02	1.77	0.54	0.65	0.26
On-road Truck Transport	15	0.96	2.37	10.60	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	20	0.36	1.18	8.46	0.02	1.72	0.50	0.61	0.22
On-road Truck Transport	25	0.36	1.23	7.33	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	30	0.31	1.16	6.76	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	35	0.27	1.12	6.30	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	40	0.23	1.09	5.94	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	45	0.21	1.09	5.69	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	50	0.19	1.12	5.54	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	55	0.17	1.17	5.50	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	60	0.16	1.24	5.56	0.02	1.76	0.53	0.65	0.25
On-road Truck Transport	65	0.17	1.33	5.72	0.02	1.78	0.55	0.67	0.27
<b>Year 2023</b>									
On-road Truck - Idle (g/hr)	0	7.29	41.11	39.72	0.07	0.11	0.10	0.11	0.10

On-road Truck Transport	5	2.74	5.46	7.74	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	1.59	3.40	5.78	0.02	1.72	0.49	0.61	0.22
On-road Truck Transport	15	0.81	1.98	4.33	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	20	0.32	0.98	2.84	0.02	1.70	0.47	0.58	0.19
On-road Truck Transport	25	0.30	1.01	2.95	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	30	0.27	0.97	2.67	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	35	0.23	0.95	2.44	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	40	0.20	0.94	2.26	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	45	0.18	0.95	2.13	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	50	0.16	0.98	2.05	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	55	0.15	1.03	2.01	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	60	0.14	1.09	2.03	0.02	1.75	0.52	0.64	0.24
On-road Truck Transport	65	0.13	1.18	2.09	0.02	1.77	0.54	0.65	0.26
<b>Year 2035</b>									
On-road Truck - Idle (g/hr)	0	7.37	41.56	38.79	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.61	5.22	7.08	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	1.52	3.25	5.31	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	15	0.77	1.89	3.99	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	20	0.31	0.96	2.72	0.02	1.70	0.47	0.58	0.19
On-road Truck Transport	25	0.29	0.97	2.71	0.02	1.70	0.47	0.59	0.20
On-road Truck Transport	30	0.25	0.93	2.44	0.02	1.70	0.47	0.58	0.20
On-road Truck Transport	35	0.22	0.90	2.23	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	40	0.19	0.90	2.05	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	45	0.17	0.91	1.93	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	50	0.15	0.94	1.85	0.02	1.72	0.49	0.61	0.21
On-road Truck Transport	55	0.14	0.98	1.81	0.02	1.73	0.50	0.62	0.23
On-road Truck Transport	60	0.13	1.05	1.82	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	65	0.13	1.13	1.88	0.02	1.76	0.53	0.65	0.25
<b>Year 2046</b>									
On-road Truck - Idle (g/hr)	0	7.37	41.56	38.79	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.61	5.22	7.08	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	1.52	3.25	5.31	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	15	0.77	1.89	3.99	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	20	0.31	0.96	2.72	0.02	1.70	0.47	0.58	0.19
On-road Truck Transport	25	0.29	0.97	2.71	0.02	1.70	0.47	0.59	0.20
On-road Truck Transport	30	0.25	0.93	2.44	0.02	1.70	0.47	0.58	0.20
On-road Truck Transport	35	0.22	0.90	2.23	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	40	0.19	0.90	2.05	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	45	0.17	0.91	1.93	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	50	0.15	0.94	1.85	0.02	1.72	0.49	0.61	0.21
On-road Truck Transport	55	0.14	0.98	1.81	0.02	1.73	0.50	0.62	0.23
On-road Truck Transport	60	0.13	1.05	1.82	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	65	0.13	1.13	1.88	0.02	1.76	0.53	0.65	0.25

Notes:

- (1) On-site travel speed for businesses moving to / operating at alternate locations are assumed at 7.5 mph; emissions factors are interpolated between those for 5 mph and 10 mph.
- (2) Emission factors were generated by EMFAC2011 model with SCAB default age distributions.
- (3) NOx and PM emission factors are adjusted to meet CARB Statewide Truck and Bus Regulation.
- (4) Year 2046 uses 2035 emission factors, EMFAC 2011 only calculates emissions factor to 2035.
- (5) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (6) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-BUS-4. Emission Factors for Employee Commute Vehicles - Proposed Project and Reduced Project**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
						On-site		Off-site	
		VOC	CO	NOx	SOx	PM 10	PM 2.5	PM 10	PM 2.5
<b>Year 2013</b>									
On-road Truck - Idle (g/hr)	0	1.26	16.32	1.14	0.02	0.07	0.06	0.07	0.06
On-road Truck Transport	5	0.25	3.26	0.23	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	10	0.17	2.73	0.20	0.00	1.60	0.41	0.49	0.13
On-road Truck Transport	15	0.12	2.35	0.18	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.09	2.07	0.16	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.07	1.85	0.15	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.05	1.68	0.14	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.05	1.55	0.14	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.04	1.45	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.04	1.38	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.04	1.33	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.04	1.30	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.04	1.31	0.14	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.05	1.37	0.15	0.00	1.60	0.41	0.48	0.13
<b>Year 2014</b>									
On-road Truck - Idle (g/hr)	0	1.07	14.24	1.02	0.02	0.06	0.05	0.06	0.05
On-road Truck Transport	5	0.21	2.85	0.20	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	10	0.14	2.40	0.18	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	15	0.10	2.08	0.16	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.07	1.83	0.14	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.06	1.65	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.04	1.50	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.04	1.38	0.12	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.03	1.29	0.12	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.03	1.22	0.11	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.03	1.17	0.12	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.03	1.15	0.12	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.03	1.14	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.04	1.19	0.13	0.00	1.60	0.41	0.48	0.13
<b>Year 2015</b>									
On-road Truck - Idle (g/hr)	0	0.91	12.48	0.91	0.02	0.06	0.05	0.06	0.05
On-road Truck Transport	5	0.18	2.50	0.18	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	10	0.12	2.12	0.16	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	15	0.08	1.84	0.14	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.06	1.64	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.05	1.47	0.12	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.04	1.34	0.11	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.03	1.23	0.11	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.03	1.15	0.10	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.03	1.09	0.10	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.03	1.04	0.10	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.03	1.01	0.11	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.03	1.00	0.11	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.03	1.03	0.12	0.00	1.60	0.41	0.48	0.13
<b>Year 2016</b>									
On-road Truck - Idle (g/hr)	0	0.78	11.04	0.83	0.02	0.05	0.05	0.05	0.05
On-road Truck Transport	5	0.16	2.21	0.17	0.00	1.60	0.41	0.49	0.14
On-road Truck Transport	10	0.10	1.89	0.14	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	15	0.07	1.65	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.05	1.47	0.12	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.04	1.33	0.11	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.03	1.21	0.10	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.03	1.11	0.10	0.00	1.60	0.41	0.48	0.13



On-road Truck Transport	40	0.02	1.04	0.09	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.02	0.98	0.09	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.02	0.94	0.09	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.02	0.90	0.09	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.02	0.88	0.10	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.03	0.90	0.10	0.00	1.60	0.41	0.48	0.13
<b>Year 2023</b>									
On-road Truck - Idle (g/hr)	0	0.39	6.14	0.57	0.02	0.06	0.06	0.06	0.06
On-road Truck Transport	5	0.08	1.23	0.11	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	10	0.05	1.10	0.10	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	15	0.03	1.00	0.09	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.02	0.91	0.08	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.02	0.83	0.07	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.01	0.76	0.07	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.01	0.70	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.01	0.65	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.01	0.61	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.01	0.57	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.01	0.53	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.01	0.49	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.01	0.46	0.06	0.00	1.60	0.41	0.48	0.13
<b>Year 2035</b>									
On-road Truck - Idle (g/hr)	0	0.30	4.97	0.47	0.02	0.07	0.06	0.07	0.06
On-road Truck Transport	5	0.06	0.99	0.09	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	10	0.04	0.91	0.08	0.00	1.60	0.41	0.49	0.13
On-road Truck Transport	15	0.03	0.83	0.07	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.02	0.76	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.01	0.69	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.01	0.64	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.01	0.59	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.01	0.55	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.01	0.51	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.01	0.48	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.01	0.44	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.01	0.40	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.01	0.37	0.05	0.00	1.60	0.41	0.48	0.13
<b>Year 2046</b>									
On-road Truck - Idle (g/hr)	0	0.30	4.97	0.47	0.02	0.07	0.06	0.07	0.06
On-road Truck Transport	5	0.06	0.99	0.09	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	10	0.04	0.91	0.08	0.00	1.60	0.41	0.49	0.13
On-road Truck Transport	15	0.03	0.83	0.07	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.02	0.76	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.01	0.69	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.01	0.64	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.01	0.59	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.01	0.55	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.01	0.51	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.01	0.48	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.01	0.44	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.01	0.40	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.01	0.37	0.05	0.00	1.60	0.41	0.48	0.13

Notes:

- (1) On-site travel speed for businesses moving to / operating at alternate locations are assumed at 7.5 mph; emissions factors are interpolated between those for 5 mph and 10 mph.
- (2) Emission factors were generated by EMFAC2011 model with SCAB default age distributions.
- (3) Year 2046 uses 2035 emission factors, EMFAC 2011 only calculates emissions factor to 2035.
- (4) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (5) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-BUS-5. Annual Truck Emissions from Alternate Business Locations Operations - Proposed Project and Reduced Project**

Project Year - Mode	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013 (Businesses Operating at Existing Locations)</b>						
On-Site	2.26	7.16	15.55	0.01	0.81	0.36
Off-Site	2.36	9.94	44.75	0.09	3.80	1.60
<b>2013 Total</b>	<b>4.61</b>	<b>17.10</b>	<b>60.30</b>	<b>0.11</b>	<b>4.61</b>	<b>1.96</b>
<b>Year 2014 (Businesses Operating at Alternate Locations)</b>						
On-Site	1.11	3.84	8.79	0.01	0.40	0.16
Off-Site	1.08	4.35	21.68	0.05	1.74	0.68
<b>2014 Total</b>	<b>2.18</b>	<b>8.19</b>	<b>30.48</b>	<b>0.05</b>	<b>2.14</b>	<b>0.84</b>
<b>Year 2015 (Businesses Operating at Alternate Locations)</b>						
On-Site	1.07	3.85	8.07	0.01	0.38	0.14
Off-Site	1.03	4.06	19.91	0.05	1.68	0.62
<b>2015 Total</b>	<b>2.11</b>	<b>7.90</b>	<b>27.98</b>	<b>0.05</b>	<b>2.06</b>	<b>0.76</b>
<b>Year 2016 (Businesses Operating at Alternate Locations)</b>						
On-Site	1.01	3.73	7.40	0.01	0.35	0.11
Off-Site	0.99	3.80	18.34	0.05	1.64	0.58
<b>2016 Total</b>	<b>2.00</b>	<b>7.53</b>	<b>25.73</b>	<b>0.05</b>	<b>1.99</b>	<b>0.70</b>
<b>Year 2023 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.98	3.96	4.28	0.01	0.34	0.10
Off-Site	0.76	2.91	7.36	0.04	1.61	0.56
<b>2023 Total</b>	<b>1.73</b>	<b>6.87</b>	<b>11.64</b>	<b>0.05</b>	<b>1.95</b>	<b>0.66</b>
<b>Year 2035 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.95	3.93	4.10	0.01	0.34	0.10
Off-Site	0.74	2.76	6.76	0.04	1.60	0.55
<b>2035 Total</b>	<b>1.69</b>	<b>6.69</b>	<b>10.86</b>	<b>0.05</b>	<b>1.94</b>	<b>0.65</b>
<b>Year 2046 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.95	3.93	4.18	0.01	0.34	0.10
Off-Site	0.72	2.74	7.10	0.04	1.60	0.55
<b>2046 Total</b>	<b>1.68</b>	<b>6.67</b>	<b>11.27</b>	<b>0.05</b>	<b>1.94</b>	<b>0.65</b>

Notes:

- (1) Trucks include Port drayage trucks, vendor trucks, and other medium-duty trucks.
- (2) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-BUS-6. Peak Daily Truck Emissions from Alternate Business Locations Operations - Proposed Project and Reduced Project**

Project Year - Mode	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013 (Businesses Operating at Existing Locations)</b>						
On-Site	15.58	49.67	107.80	0.09	5.56	2.45
Off-Site	16.24	68.54	308.58	0.64	26.16	11.04
<b>2013 Total</b>	<b>31.82</b>	<b>118.21</b>	<b>416.38</b>	<b>0.73</b>	<b>31.72</b>	<b>13.49</b>
<b>Year 2014 (Businesses Operating at Alternate Locations)</b>						
On-Site	7.77	27.08	61.84	0.06	2.78	1.10
Off-Site	7.51	30.39	151.92	0.32	12.19	4.76
<b>2014 Total</b>	<b>15.28</b>	<b>57.47</b>	<b>213.76</b>	<b>0.37</b>	<b>14.97</b>	<b>5.86</b>
<b>Year 2015 (Businesses Operating at Alternate Locations)</b>						
On-Site	7.53	27.11	56.79	0.06	2.62	0.95
Off-Site	7.20	28.32	139.34	0.32	11.76	4.36
<b>2015 Total</b>	<b>14.73</b>	<b>55.43</b>	<b>196.13</b>	<b>0.37</b>	<b>14.37</b>	<b>5.31</b>
<b>Year 2016 (Businesses Operating at Alternate Locations)</b>						
On-Site	7.10	26.29	52.01	0.06	2.45	0.80
Off-Site	6.87	26.48	128.21	0.32	11.46	4.09
<b>2016 Total</b>	<b>13.98</b>	<b>52.76</b>	<b>180.21</b>	<b>0.37</b>	<b>13.91</b>	<b>4.89</b>
<b>Year 2023 (Businesses Operating at Alternate Locations)</b>						
On-Site	6.86	27.95	30.19	0.06	2.37	0.72
Off-Site	5.30	20.37	51.42	0.31	11.27	3.91
<b>2023 Total</b>	<b>12.16</b>	<b>48.32</b>	<b>81.61</b>	<b>0.37</b>	<b>13.64</b>	<b>4.63</b>
<b>Year 2035 (Businesses Operating at Alternate Locations)</b>						
On-Site	6.71	27.78	28.95	0.06	2.36	0.71
Off-Site	5.15	19.29	47.20	0.31	11.17	3.82
<b>2035 Total</b>	<b>11.86</b>	<b>47.07</b>	<b>76.15</b>	<b>0.37</b>	<b>13.53</b>	<b>4.54</b>
<b>Year 2046 (Businesses Operating at Alternate Locations)</b>						
On-Site	6.71	27.78	29.44	0.06	2.36	0.72
Off-Site	5.06	19.18	49.53	0.31	11.17	3.83
<b>2046 Total</b>	<b>11.77</b>	<b>46.96</b>	<b>78.97</b>	<b>0.37</b>	<b>13.53</b>	<b>4.54</b>

Notes:

- (1) Trucks include Port drayage trucks, vendor trucks, and other medium-duty trucks.
- (2) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-BUS-7. Annual Employee Commute Emissions from Alternate Business Locations Operations - Proposed Project and Reduced Project**

Project Year - Mode	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013 (Businesses Operating at Existing Locations)</b>						
On-Site	0.04	0.58	0.04	0.00	0.10	0.03
Off-Site	0.35	10.68	0.97	0.03	3.30	0.88
<b>2013 Total</b>	<b>0.39</b>	<b>11.26</b>	<b>1.01</b>	<b>0.03</b>	<b>3.40</b>	<b>0.91</b>
<b>Year 2014 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.02	0.24	0.02	0.00	0.04	0.01
Off-Site	0.15	4.62	0.41	0.01	1.58	0.42
<b>2014 Total</b>	<b>0.16</b>	<b>4.87</b>	<b>0.43</b>	<b>0.01</b>	<b>1.62</b>	<b>0.42</b>
<b>Year 2015 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.01	0.21	0.02	0.00	0.04	0.01
Off-Site	0.12	4.12	0.37	0.01	1.56	0.42
<b>2015 Total</b>	<b>0.14</b>	<b>4.33</b>	<b>0.38</b>	<b>0.01</b>	<b>1.61</b>	<b>0.42</b>
<b>Year 2016 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.01	0.19	0.01	0.00	0.04	0.01
Off-Site	0.10	3.55	0.32	0.01	1.50	0.40
<b>2016 Total</b>	<b>0.11</b>	<b>3.74</b>	<b>0.33</b>	<b>0.01</b>	<b>1.54</b>	<b>0.41</b>
<b>Year 2023 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.01	0.10	0.01	0.00	0.04	0.01
Off-Site	0.04	2.16	0.20	0.01	1.50	0.40
<b>2023 Total</b>	<b>0.05</b>	<b>2.26</b>	<b>0.21</b>	<b>0.01</b>	<b>1.54</b>	<b>0.41</b>
<b>Year 2035 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.00	0.08	0.01	0.00	0.04	0.01
Off-Site	0.03	1.84	0.17	0.01	1.50	0.40
<b>2035 Total</b>	<b>0.04</b>	<b>1.92</b>	<b>0.18</b>	<b>0.01</b>	<b>1.54</b>	<b>0.41</b>
<b>Year 2046 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.00	0.08	0.01	0.00	0.04	0.01
Off-Site	0.03	1.83	0.17	0.01	1.50	0.40
<b>2046 Total</b>	<b>0.04</b>	<b>1.92</b>	<b>0.17</b>	<b>0.01</b>	<b>1.54</b>	<b>0.41</b>

Notes:

- (1) Emission sources include employee commute vehicles and light-duty gasoline trucks
- (2) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-BUS-8. Peak Daily Employee Commute Emissions from Alternate Business Locations Operations - Proposed Project and Reduced Project**

Project Year - Mode	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013 (Businesses Operating at Existing Locations)</b>						
On-Site	0.28	3.75	0.27	0.00	0.63	0.17
Off-Site	2.24	68.71	6.25	0.17	21.25	5.67
<b>2013 Total</b>	<b>2.52</b>	<b>72.45</b>	<b>6.52</b>	<b>0.17</b>	<b>21.88</b>	<b>5.84</b>
<b>Year 2014 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.12	1.59	0.12	0.00	0.29	0.04
Off-Site	0.94	29.90	2.67	0.08	10.20	2.68
<b>2014 Total</b>	<b>1.06</b>	<b>31.49</b>	<b>2.79</b>	<b>0.08</b>	<b>10.49</b>	<b>2.72</b>
<b>Year 2015 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.10	1.40	0.11	0.00	0.29	0.04
Off-Site	0.79	26.63	2.38	0.08	10.10	2.69
<b>2015 Total</b>	<b>0.89</b>	<b>28.03</b>	<b>2.49</b>	<b>0.08</b>	<b>10.38</b>	<b>2.73</b>
<b>Year 2016 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.08	1.24	0.10	0.00	0.29	0.08
Off-Site	0.64	22.97	2.05	0.08	9.66	2.57
<b>2016 Total</b>	<b>0.73</b>	<b>24.21</b>	<b>2.15</b>	<b>0.08</b>	<b>9.94</b>	<b>2.65</b>
<b>Year 2023 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.04	0.69	0.06	0.00	0.29	0.08
Off-Site	0.27	13.94	1.29	0.08	9.66	2.57
<b>2023 Total</b>	<b>0.31</b>	<b>14.63</b>	<b>1.36</b>	<b>0.08</b>	<b>9.94</b>	<b>2.65</b>
<b>Year 2035 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.03	0.56	0.05	0.00	0.29	0.08
Off-Site	0.21	11.85	1.08	0.08	9.67	2.58
<b>2035 Total</b>	<b>0.24</b>	<b>12.41</b>	<b>1.13</b>	<b>0.08</b>	<b>9.95</b>	<b>2.66</b>
<b>Year 2046 (Businesses Operating at Alternate Locations)</b>						
On-Site	0.03	0.56	0.05	0.00	0.29	0.08
Off-Site	0.21	11.85	1.08	0.08	9.67	2.58
<b>2046 Total</b>	<b>0.24</b>	<b>12.41</b>	<b>1.13</b>	<b>0.08</b>	<b>9.95</b>	<b>2.66</b>

Notes:

- (1) Emission sources include employee commute vehicles and light-duty gasoline trucks
- (2) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Peak daily emissions are equivalent to the average daily emissions.
- (4) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-BUS-9. Activity Data for CHE at Alternate Business Locations - Proposed Project and Reduced Project**

Equipment	Fuel	Average HP	Equipment Total	Annual Hours of Operation	Average Load Factor	Annual hp-hrs
<b>Year 2013 (Businesses Operating at Existing Locations)</b>						
Container Handling Equipment	Diesel	198	3	6,240	0.59	728,957
Fork Lift	Diesel	93	8	5,318	0.3	121,332
Fork Lift	Diesel	138	5	9,152	0.3	380,640
Fork Lift	Diesel	192	3	6,240	0.3	358,800
Other, General Industrial Equipment	Diesel	220	2	780	0.51	91,494
Sweeper/Scrubber	Diesel	60	1	208	0.68	8,486
Top Handler	Diesel	120	2	1,948	0.59	137,918
Tractor/ Loader/Backhoe	Diesel	158	4	6,448	0.55	565,365
Yard Truck	Diesel	150	1	1,040	0.39	60,840
Yard Truck	Diesel	209	23	33,541	0.39	2,741,938
Yard Truck	Diesel	350	1	2,080	0.39	283,920
Fork Lift	LPG	77	166	324,880	0.3	6,937,166
Top Handler	LPG	92	1	1,440	0.3	39,744
<b>Years 2014, 2015, 2016, 2023, 2035, 2046 (Businesses Operating at Alternate Locations)</b>						
Container Handling Equipment	Diesel	198	3	6,240	0.59	728,957
Fork Lift	Diesel	93	8	2,983	0.3	70,283
Fork Lift	Diesel	138	5	9,152	0.3	380,640
Fork Lift	Diesel	192	3	6,240	0.3	358,800
Other, General Industrial Equipment	Diesel	220	2	780	0.51	91,494
Sweeper/Scrubber	Diesel	60	1	208	0.68	8,486
Top Handler	Diesel	120	2	543	0.59	38,458
Tractor/ Loader/Backhoe	Diesel	158	4	6,448	0.55	565,365
Yard Truck	Diesel	150	1	1,040	0.39	60,840
Yard Truck	Diesel	209	23	9,728	0.39	791,635
Yard Truck	Diesel	350	1	2,080	0.39	283,920
Fork Lift	LPG	77	166	90,592	0.3	1,934,402
Top Handler	LPG	92	1	402	0.3	11,082

Note: Activity data for year 2066 are identical to those for 2046.

**Table C1.2-BUS-10. Emission Factors for Alternate Business Location CHE - Proposed Project and Reduced Project**

Year	Equipment	Fuel	Emission Factors (grams/hp-hr)					
			VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013</b>								
	Container Handling Equipment > 175 - 210	Diesel	0.09	0.92	2.45	0.01	0.11	0.10
	Fork Lift > 50-120	Diesel	0.11	3.06	3.18	0.01	0.18	0.17
	Fork Lift > 120-175	Diesel	0.09	2.70	2.45	0.01	0.14	0.13
	Fork Lift > 175-250	Diesel	0.07	0.92	1.36	0.01	0.01	0.01
	Other, General Industrial Equipment > 175-250	Diesel	0.09	0.92	2.45	0.01	0.11	0.10
	Sweeper/Scrubber > 50-120	Diesel	0.09	3.05	2.89	0.01	0.20	0.18
	Top Handler > 50-120	Diesel	0.09	3.05	2.89	0.01	0.20	0.18
	Tractor/ Loader/Backhoe > 120-175	Diesel	0.09	2.70	2.45	0.01	0.14	0.13
	Yard Truck > 120-175	Diesel	0.09	2.70	2.45	0.01	0.14	0.13
	Yard Truck > 175-210	Diesel	0.09	0.92	2.45	0.01	0.11	0.10
	Yard Truck > 210-400	Diesel	0.09	0.92	2.45	0.01	0.11	0.10
	Fork Lift > 50-120	LPG	0.20	28.63	0.89	0.00	0.06	0.06
	Top Handler > 50-120	LPG	0.20	30.41	0.89	0.00	0.06	0.06
<b>Year 2014</b>			<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
	Container Handling Equipment > 175 - 210	Diesel	0.09	0.92	2.45	0.01	0.11	0.10
	Fork Lift > 50-120	Diesel	0.11	3.06	3.18	0.01	0.18	0.17
	Fork Lift > 120-175	Diesel	0.09	2.70	2.45	0.01	0.14	0.13
	Fork Lift > 175-250	Diesel	0.07	0.92	1.36	0.01	0.01	0.01
	Other, General Industrial Equipment > 175-250	Diesel	0.09	0.92	2.45	0.01	0.11	0.10
	Sweeper/Scrubber > 50-120	Diesel	0.09	3.05	2.89	0.01	0.20	0.18
	Top Handler > 50-120	Diesel	0.09	3.05	2.89	0.01	0.20	0.18
	Tractor/ Loader/Backhoe > 120-175	Diesel	0.09	2.70	2.45	0.01	0.14	0.13
	Yard Truck > 120-175	Diesel	0.09	2.70	2.45	0.01	0.14	0.13
	Yard Truck > 175-210	Diesel	0.09	0.92	2.45	0.01	0.11	0.10
	Yard Truck > 210-400	Diesel	0.09	0.92	2.45	0.01	0.11	0.10
	Fork Lift > 50-120	LPG	0.20	28.63	0.89	0.00	0.06	0.06
	Top Handler > 50-120	LPG	0.20	30.41	0.89	0.00	0.06	0.06
<b>Year 2015</b>			<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
	Container Handling Equipment > 175 - 210	Diesel	0.09	0.92	2.45	0.01	0.11	0.10
	Fork Lift > 50-120	Diesel	0.11	3.06	3.18	0.01	0.18	0.17
	Fork Lift > 120-175	Diesel	0.09	2.70	2.45	0.01	0.14	0.13
	Fork Lift > 175-250	Diesel	0.07	0.92	1.36	0.01	0.01	0.01
	Other, General Industrial Equipment > 175-250	Diesel	0.09	0.92	2.45	0.01	0.11	0.10
	Sweeper/Scrubber > 50-120	Diesel	0.09	3.05	2.89	0.01	0.20	0.18
	Top Handler > 50-120	Diesel	0.09	3.05	2.89	0.01	0.20	0.18
	Tractor/ Loader/Backhoe > 120-175	Diesel	0.09	2.70	2.45	0.01	0.14	0.13
	Yard Truck > 120-175	Diesel	0.09	2.70	2.45	0.01	0.14	0.13
	Yard Truck > 175-210	Diesel	0.09	0.92	2.45	0.01	0.11	0.10
	Yard Truck > 210-400	Diesel	0.09	0.92	2.45	0.01	0.11	0.10
	Fork Lift > 50-120	LPG	0.20	28.64	0.89	0.00	0.06	0.06
	Top Handler > 50-120	LPG	0.20	30.42	0.89	0.00	0.06	0.06
<b>Year 2016</b>			<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
	Container Handling Equipment > 175 - 210	Diesel	0.09	0.92	2.45	0.06	0.11	0.10
	Fork Lift > 50-120	Diesel	0.11	3.06	3.18	0.06	0.18	0.17
	Fork Lift > 120-175	Diesel	0.09	2.70	2.45	0.06	0.14	0.13
	Fork Lift > 175-250	Diesel	0.07	0.92	1.36	0.06	0.01	0.01
	Other, General Industrial Equipment > 175-250	Diesel	0.09	0.92	2.45	0.06	0.11	0.10
	Sweeper/Scrubber > 50-120	Diesel	0.09	3.05	2.89	0.06	0.20	0.18
	Top Handler > 50-120	Diesel	0.09	3.05	2.89	0.06	0.20	0.18
	Tractor/ Loader/Backhoe > 120-175	Diesel	0.09	2.70	2.45	0.06	0.14	0.13
	Yard Truck > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
	Yard Truck > 175-210	Diesel	0.07	0.92	1.31	0.06	0.06	0.05
	Yard Truck > 210-400	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
	Fork Lift > 50-120	LPG	0.20	28.64	0.89	0.00	0.06	0.06
	Top Handler > 50-120	LPG	0.20	30.42	0.89	0.00	0.06	0.06
<b>Year 2023</b>			<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
	Container Handling Equipment > 175 - 210	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
	Fork Lift > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
	Fork Lift > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
	Fork Lift > 175-250	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
	Other, General Industrial Equipment > 175-250	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
	Sweeper/Scrubber > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
	Top Handler > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
	Tractor/ Loader/Backhoe > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
	Yard Truck > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
	Yard Truck > 175-210	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
	Yard Truck > 210-400	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
	Fork Lift > 50-120	LPG	0.11	14.98	0.48	0.00	0.06	0.06
	Top Handler > 50-120	LPG	0.11	15.40	0.48	0.00	0.06	0.06
<b>Year 2035</b>			<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
	Container Handling Equipment > 175 - 210	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
	Fork Lift > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01

Fork Lift > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Fork Lift > 175-250	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Other, General Industrial Equipment > 175-250	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Sweeper/Scrubber > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
Top Handler > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
Tractor/ Loader/Backhoe > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Yard Truck > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Yard Truck > 175-210	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Yard Truck > 210-400	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Fork Lift > 50-120	LPG	0.11	14.98	0.48	0.00	0.06	0.06
Top Handler > 50-120	LPG	0.11	15.40	0.48	0.00	0.06	0.06
<b>Year 2046</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Fork Lift > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
Fork Lift > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Fork Lift > 175-250	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Other, General Industrial Equipment > 175-250	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Sweeper/Scrubber > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
Top Handler > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
Tractor/ Loader/Backhoe > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Yard Truck > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Yard Truck > 175-210	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Yard Truck > 210-400	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Fork Lift > 50-120	LPG	0.11	14.98	0.48	0.00	0.06	0.06
Top Handler > 50-120	LPG	0.11	15.40	0.48	0.00	0.06	0.06

Notes:

- (1) Emission factors were estimated with the use of ARB CHE calculator.
- (2) Emission factors for year 2066 are identical to those for 2046.



**Table C1.2-BUS-11. Annual Alternate Business Locations CHE Emissions - Proposed Project and Reduced Project**

Equipment	Fuel	Annual Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013</b>							
Container Handling Equipment > 175 - 210	Diesel	0.08	0.79	1.97	0.01	0.08	0.08
Fork Lift > 50-120	Diesel	0.02	0.54	0.60	0.00	0.03	0.03
Fork Lift > 120-175	Diesel	0.04	1.17	1.01	0.00	0.05	0.05
Fork Lift > 175-250	Diesel	0.03	0.37	0.52	0.00	0.00	0.00
Other, General Industrial Equipment > 175-250	Diesel	0.01	0.10	0.25	0.00	0.01	0.01
Sweeper/Scrubber > 50-120	Diesel	0.00	0.03	0.03	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.02	0.48	0.43	0.00	0.03	0.02
Tractor/ Loader/Backhoe > 120-175	Diesel	0.06	1.76	1.50	0.00	0.08	0.07
Yard Truck > 120-175	Diesel	0.01	0.21	0.17	0.00	0.01	0.01
Yard Truck > 175-210	Diesel	0.40	3.35	8.23	0.02	0.41	0.37
Yard Truck > 210-400	Diesel	0.04	0.35	0.86	0.00	0.04	0.04
Fork Lift > 50-120	LPG	1.69	212.60	6.77	0.00	0.46	0.42
Top Handler > 50-120	LPG	0.01	1.33	0.04	0.00	0.00	0.00
<b>Year 2014</b>							
Container Handling Equipment > 175 - 210	Diesel	0.08	0.80	1.99	0.01	0.08	0.08
Fork Lift > 50-120	Diesel	0.01	0.28	0.37	0.00	0.02	0.02
Fork Lift > 120-175	Diesel	0.04	1.18	1.01	0.00	0.05	0.05
Fork Lift > 175-250	Diesel	0.03	0.38	0.53	0.00	0.00	0.00
Other, General Industrial Equipment > 175-250	Diesel	0.01	0.10	0.25	0.00	0.01	0.01
Sweeper/Scrubber > 50-120	Diesel	0.00	0.03	0.03	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.00	0.14	0.12	0.00	0.01	0.01
Tractor/ Loader/Backhoe > 120-175	Diesel	0.06	1.77	1.52	0.00	0.08	0.07
Yard Truck > 120-175	Diesel	0.01	0.21	0.18	0.00	0.01	0.01
Yard Truck > 175-210	Diesel	0.11	0.99	2.43	0.01	0.12	0.11
Yard Truck > 210-400	Diesel	0.04	0.36	0.88	0.00	0.05	0.04
Fork Lift > 50-120	LPG	0.44	59.28	1.89	0.00	0.13	0.12
Top Handler > 50-120	LPG	0.00	0.37	0.01	0.00	0.00	0.00
<b>Year 2015</b>							
Container Handling Equipment > 175 - 210	Diesel	0.09	0.81	2.01	0.01	0.09	0.08
Fork Lift > 50-120	Diesel	0.01	0.29	0.37	0.00	0.02	0.02
Fork Lift > 120-175	Diesel	0.04	1.19	1.02	0.00	0.05	0.05
Fork Lift > 175-250	Diesel	0.03	0.38	0.53	0.00	0.00	0.00
Other, General Industrial Equipment > 175-250	Diesel	0.01	0.10	0.26	0.00	0.01	0.01
Sweeper/Scrubber > 50-120	Diesel	0.00	0.03	0.03	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.00	0.14	0.12	0.00	0.01	0.01
Tractor/ Loader/Backhoe > 120-175	Diesel	0.06	1.79	1.53	0.00	0.08	0.07
Yard Truck > 120-175	Diesel	0.01	0.21	0.18	0.00	0.01	0.01
Yard Truck > 175-210	Diesel	0.12	1.02	2.48	0.01	0.13	0.12
Yard Truck > 210-400	Diesel	0.04	0.37	0.90	0.00	0.05	0.04
Fork Lift > 50-120	LPG	0.44	59.31	1.89	0.00	0.13	0.12
Top Handler > 50-120	LPG	0.00	0.37	0.01	0.00	0.00	0.00
<b>Year 2016</b>							
Container Handling Equipment > 175 - 210	Diesel	0.09	0.82	2.03	0.01	0.09	0.08
Fork Lift > 50-120	Diesel	0.01	0.29	0.37	0.00	0.02	0.02
Fork Lift > 120-175	Diesel	0.04	1.20	1.03	0.00	0.05	0.05
Fork Lift > 175-250	Diesel	0.03	0.39	0.54	0.00	0.00	0.00
Other, General Industrial Equipment > 175-250	Diesel	0.01	0.10	0.26	0.00	0.01	0.01
Sweeper/Scrubber > 50-120	Diesel	0.00	0.03	0.03	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.00	0.14	0.12	0.00	0.01	0.01
Tractor/ Loader/Backhoe > 120-175	Diesel	0.06	1.81	1.54	0.00	0.08	0.08
Yard Truck > 120-175	Diesel	0.00	0.18	0.02	0.00	0.00	0.00
Yard Truck > 175-210	Diesel	0.07	0.90	1.05	0.01	0.05	0.05
Yard Truck > 210-400	Diesel	0.02	0.30	0.08	0.00	0.00	0.00
Fork Lift > 50-120	LPG	0.44	59.30	1.89	0.00	0.13	0.12
Top Handler > 50-120	LPG	0.00	0.37	0.01	0.00	0.00	0.00
<b>Year 2023</b>							
Container Handling Equipment > 175 - 210	Diesel	0.10	0.89	2.18	0.01	0.11	0.10
Fork Lift > 50-120	Diesel	0.02	0.30	0.39	0.00	0.02	0.02
Fork Lift > 120-175	Diesel	0.05	1.27	1.07	0.00	0.06	0.06
Fork Lift > 175-250	Diesel	0.03	0.42	0.58	0.00	0.00	0.00
Other, General Industrial Equipment > 175-250	Diesel	0.01	0.12	0.28	0.00	0.01	0.01
Sweeper/Scrubber > 50-120	Diesel	0.00	0.03	0.03	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.00	0.15	0.13	0.00	0.01	0.01
Tractor/ Loader/Backhoe > 120-175	Diesel	0.07	1.92	1.63	0.00	0.10	0.09
Yard Truck > 120-175	Diesel	0.00	0.21	0.02	0.00	0.00	0.00
Yard Truck > 175-210	Diesel	0.06	0.99	0.27	0.01	0.01	0.01

Yard Truck > 210-400	Diesel	0.02	0.36	0.10	0.00	0.00	0.00
Fork Lift > 50-120	LPG	0.24	31.54	1.03	0.00	0.13	0.12
Top Handler > 50-120	LPG	0.00	0.19	0.01	0.00	0.00	0.00
<b>Year 2035</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.04	0.82	0.22	0.01	0.01	0.01
Fork Lift > 50-120	Diesel	0.01	0.28	0.12	0.00	0.00	0.00
Fork Lift > 120-175	Diesel	0.02	1.18	0.11	0.00	0.00	0.00
Fork Lift > 175-250	Diesel	0.02	0.38	0.10	0.00	0.00	0.00
Other, General Industrial Equipment > 175-250	Diesel	0.01	0.11	0.03	0.00	0.00	0.00
Sweeper/Scrubber > 50-120	Diesel	0.00	0.03	0.01	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.00	0.14	0.06	0.00	0.00	0.00
Tractor/ Loader/Backhoe > 120-175	Diesel	0.03	1.84	0.17	0.00	0.01	0.01
Yard Truck > 120-175	Diesel	0.00	0.19	0.02	0.00	0.00	0.00
Yard Truck > 175-210	Diesel	0.04	0.84	0.23	0.01	0.01	0.01
Yard Truck > 210-400	Diesel	0.02	0.31	0.08	0.00	0.00	0.00
Fork Lift > 50-120	LPG	0.24	31.54	1.03	0.00	0.13	0.12
Top Handler > 50-120	LPG	0.00	0.19	0.01	0.00	0.00	0.00
<b>Year 2046</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.05	0.93	0.25	0.01	0.01	0.01
Fork Lift > 50-120	Diesel	0.01	0.31	0.13	0.00	0.00	0.00
Fork Lift > 120-175	Diesel	0.02	1.28	0.12	0.00	0.00	0.00
Fork Lift > 175-250	Diesel	0.02	0.43	0.12	0.00	0.00	0.00
Other, General Industrial Equipment > 175-250	Diesel	0.01	0.10	0.03	0.00	0.00	0.00
Sweeper/Scrubber > 50-120	Diesel	0.00	0.03	0.01	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.00	0.15	0.06	0.00	0.00	0.00
Tractor/ Loader/Backhoe > 120-175	Diesel	0.03	1.74	0.16	0.00	0.01	0.00
Yard Truck > 120-175	Diesel	0.00	0.20	0.02	0.00	0.00	0.00
Yard Truck > 175-210	Diesel	0.05	0.89	0.24	0.01	0.01	0.01
Yard Truck > 210-400	Diesel	0.02	0.32	0.09	0.00	0.00	0.00
Fork Lift > 50-120	LPG	0.24	31.54	1.03	0.00	0.13	0.12
Top Handler > 50-120	LPG	0.00	0.19	0.01	0.00	0.00	0.00

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-BUS-12. Peak Daily Alternate Business Locations CHE Emissions - Proposed Project and Reduced Project**

Equipment	Fuel	Daily Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013</b>							
Container Handling Equipment > 175 - 210	Diesel	0.58	5.64	14.11	0.04	0.59	0.54
Fork Lift > 50-120	Diesel	0.16	3.74	4.15	0.01	0.21	0.20
Fork Lift > 120-175	Diesel	0.29	8.43	7.22	0.02	0.37	0.34
Fork Lift > 175-250	Diesel	0.19	2.68	3.75	0.02	0.02	0.02
Other, General Industrial Equipment > 175-250	Diesel	0.08	0.72	1.80	0.00	0.08	0.07
Sweeper/Scrubber > 50-120	Diesel	0.01	0.21	0.19	0.00	0.01	0.01
Top Handler > 50-120	Diesel	0.11	3.27	2.92	0.01	0.18	0.16
Tractor/ Loader/Backhoe > 120-175	Diesel	0.44	12.61	10.79	0.03	0.55	0.51
Yard Truck > 120-175	Diesel	0.05	1.48	1.25	0.00	0.07	0.07
Yard Truck > 175-210	Diesel	2.72	22.70	55.75	0.13	2.76	2.54
Yard Truck > 210-400	Diesel	0.28	2.52	6.17	0.01	0.31	0.28
Fork Lift > 50-120	LPG	11.47	1438.23	45.80	0.00	3.10	2.86
Top Handler > 50-120	LPG	0.07	9.01	0.26	0.00	0.02	0.02
<b>Year 2014</b>							
<b>VOC CO NOx SOx PM10 PM2.5</b>							
Container Handling Equipment > 175 - 210	Diesel	0.60	5.72	14.27	0.04	0.61	0.56
Fork Lift > 50-120	Diesel	0.10	2.00	2.61	0.00	0.13	0.12
Fork Lift > 120-175	Diesel	0.30	8.49	7.27	0.02	0.37	0.34
Fork Lift > 175-250	Diesel	0.19	2.72	3.78	0.02	0.02	0.02
Other, General Industrial Equipment > 175-250	Diesel	0.08	0.73	1.82	0.00	0.08	0.07
Sweeper/Scrubber > 50-120	Diesel	0.01	0.21	0.19	0.00	0.01	0.01
Top Handler > 50-120	Diesel	0.03	0.92	0.82	0.00	0.05	0.05
Tractor/ Loader/Backhoe > 120-175	Diesel	0.45	12.73	10.88	0.03	0.57	0.52
Yard Truck > 120-175	Diesel	0.06	1.51	1.27	0.00	0.08	0.07
Yard Truck > 175-210	Diesel	0.77	6.74	16.49	0.04	0.84	0.77
Yard Truck > 210-400	Diesel	0.29	2.58	6.31	0.01	0.33	0.30
Fork Lift > 50-120	LPG	2.99	401.03	12.77	0.00	0.87	0.80
Top Handler > 50-120	LPG	0.02	2.51	0.07	0.00	0.00	0.00
<b>Year 2015</b>							
<b>VOC CO NOx SOx PM10 PM2.5</b>							
Container Handling Equipment > 175 - 210	Diesel	0.61	5.79	14.42	0.04	0.62	0.57
Fork Lift > 50-120	Diesel	0.10	2.01	2.63	0.00	0.13	0.12
Fork Lift > 120-175	Diesel	0.30	8.56	7.32	0.02	0.38	0.35
Fork Lift > 175-250	Diesel	0.20	2.75	3.82	0.02	0.03	0.02
Other, General Industrial Equipment > 175-250	Diesel	0.08	0.74	1.84	0.00	0.08	0.08
Sweeper/Scrubber > 50-120	Diesel	0.01	0.21	0.19	0.00	0.01	0.01
Top Handler > 50-120	Diesel	0.03	0.93	0.83	0.00	0.05	0.05
Tractor/ Loader/Backhoe > 120-175	Diesel	0.45	12.85	10.97	0.03	0.58	0.54
Yard Truck > 120-175	Diesel	0.06	1.53	1.29	0.00	0.08	0.07
Yard Truck > 175-210	Diesel	0.79	6.91	16.85	0.04	0.88	0.81
Yard Truck > 210-400	Diesel	0.31	2.65	6.44	0.01	0.34	0.31
Fork Lift > 50-120	LPG	2.99	401.20	12.77	0.00	0.87	0.80
Top Handler > 50-120	LPG	0.02	2.51	0.07	0.00	0.00	0.00
<b>Year 2016</b>							
<b>VOC CO NOx SOx PM10 PM2.5</b>							
Container Handling Equipment > 175 - 210	Diesel	0.62	5.86	14.58	0.04	0.64	0.59
Fork Lift > 50-120	Diesel	0.10	2.03	2.65	0.00	0.13	0.12
Fork Lift > 120-175	Diesel	0.30	8.62	7.36	0.02	0.39	0.36
Fork Lift > 175-250	Diesel	0.20	2.78	3.86	0.02	0.03	0.02
Other, General Industrial Equipment > 175-250	Diesel	0.08	0.75	1.87	0.00	0.08	0.08
Sweeper/Scrubber > 50-120	Diesel	0.01	0.22	0.19	0.00	0.01	0.01
Top Handler > 50-120	Diesel	0.03	0.94	0.83	0.00	0.05	0.05
Tractor/ Loader/Backhoe > 120-175	Diesel	0.46	12.97	11.06	0.03	0.60	0.55
Yard Truck > 120-175	Diesel	0.02	1.32	0.13	0.00	0.00	0.00
Yard Truck > 175-210	Diesel	0.47	6.10	7.12	0.04	0.36	0.33
Yard Truck > 210-400	Diesel	0.11	2.13	0.59	0.01	0.02	0.02
Fork Lift > 50-120	LPG	2.99	401.18	12.77	0.00	0.87	0.80
Top Handler > 50-120	LPG	0.02	2.51	0.07	0.00	0.00	0.00
<b>Year 2023</b>							
<b>VOC CO NOx SOx PM10 PM2.5</b>							
Container Handling Equipment > 175 - 210	Diesel	0.71	6.38	15.67	0.04	0.77	0.71
Fork Lift > 50-120	Diesel	0.11	2.13	2.77	0.00	0.15	0.13
Fork Lift > 120-175	Diesel	0.33	9.08	7.71	0.02	0.44	0.40
Fork Lift > 175-250	Diesel	0.23	3.01	4.13	0.02	0.03	0.03
Other, General Industrial Equipment > 175-250	Diesel	0.09	0.83	2.02	0.00	0.10	0.10
Sweeper/Scrubber > 50-120	Diesel	0.01	0.23	0.20	0.00	0.01	0.01

Top Handler > 50-120	Diesel	0.03	0.99	0.88	0.00	0.06	0.06
Tractor/ Loader/Backhoe > 120-175	Diesel	0.51	13.81	11.70	0.03	0.69	0.64
Yard Truck > 120-175	Diesel	0.03	1.51	0.14	0.00	0.01	0.01
Yard Truck > 175-210	Diesel	0.38	6.74	1.82	0.04	0.08	0.07
Yard Truck > 210-400	Diesel	0.15	2.58	0.70	0.01	0.03	0.03
Fork Lift > 50-120	LPG	1.63	213.35	6.97	0.00	0.87	0.80
Top Handler > 50-120	LPG	0.01	1.27	0.04	0.00	0.00	0.00
<b>Year 2035</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.31	5.86	1.61	0.04	0.06	0.05
Fork Lift > 50-120	Diesel	0.04	1.98	0.85	0.00	0.01	0.01
Fork Lift > 120-175	Diesel	0.15	8.49	0.80	0.02	0.03	0.02
Fork Lift > 175-250	Diesel	0.14	2.72	0.75	0.02	0.02	0.02
Other, General Industrial Equipment > 175-250	Diesel	0.04	0.77	0.21	0.00	0.01	0.01
Sweeper/Scrubber > 50-120	Diesel	0.00	0.22	0.10	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.02	0.94	0.40	0.00	0.00	0.00
Tractor/ Loader/Backhoe > 120-175	Diesel	0.24	13.21	1.24	0.03	0.04	0.04
Yard Truck > 120-175	Diesel	0.02	1.35	0.13	0.00	0.00	0.00
Yard Truck > 175-210	Diesel	0.29	5.72	1.58	0.04	0.05	0.05
Yard Truck > 210-400	Diesel	0.11	2.19	0.60	0.01	0.02	0.02
Fork Lift > 50-120	LPG	1.63	213.34	6.97	0.00	0.87	0.80
Top Handler > 50-120	LPG	0.01	1.27	0.04	0.00	0.00	0.00
<b>Year 2046</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.38	6.67	1.80	0.04	0.08	0.07
Fork Lift > 50-120	Diesel	0.05	2.14	0.92	0.00	0.01	0.01
Fork Lift > 120-175	Diesel	0.17	9.21	0.86	0.02	0.03	0.03
Fork Lift > 175-250	Diesel	0.17	3.08	0.84	0.02	0.03	0.03
Other, General Industrial Equipment > 175-250	Diesel	0.04	0.71	0.20	0.00	0.01	0.01
Sweeper/Scrubber > 50-120	Diesel	0.00	0.21	0.09	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.02	1.02	0.44	0.00	0.00	0.00
Tractor/ Loader/Backhoe > 120-175	Diesel	0.22	12.49	1.18	0.03	0.04	0.04
Yard Truck > 120-175	Diesel	0.02	1.40	0.13	0.00	0.00	0.00
Yard Truck > 175-210	Diesel	0.32	6.06	1.66	0.04	0.06	0.06
Yard Truck > 210-400	Diesel	0.12	2.32	0.63	0.01	0.02	0.02
Fork Lift > 50-120	LPG	1.63	213.34	6.97	0.00	0.87	0.80
Top Handler > 50-120	LPG	0.01	1.27	0.04	0.00	0.00	0.00

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-BUS-13. Summary of Annual Business CHE Emissions - Proposed Project and Reduced Project**

Project Study Year	Annual Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2013	2.41	223.09	22.38	0.04	1.21	1.11
Year 2014	0.85	65.90	11.20	0.02	0.57	0.52
Year 2015	0.86	66.01	11.33	0.02	0.58	0.53
Year 2016	0.78	65.83	8.97	0.02	0.45	0.42
Year 2023	0.78	65.83	8.97	0.02	0.45	0.42
Year 2035	0.44	37.84	2.21	0.02	0.16	0.15
Year 2046	0.46	38.10	2.27	0.02	0.17	0.16

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-BUS-14. Summary of Peak Daily Business CHE Emissions - Proposed Project and Reduced Project**

Project Study Year	Daily Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2013	16.44	1511.25	154.16	0.27	8.28	7.62
Year 2014	5.86	447.89	78.56	0.17	3.95	3.64
Year 2015	5.94	448.65	79.46	0.17	4.06	3.74
Year 2016	5.41	447.43	63.08	0.17	3.18	2.93
Year 2023	4.22	261.92	54.73	0.17	3.24	2.98
Year 2035	3.02	258.08	15.28	0.17	1.12	1.03
Year 2046	3.16	259.93	15.74	0.17	1.16	1.07

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-BUS-15. Activity Data for Alternate Business Location Switcher Locomotives - Proposed Project and Reduced Project**

<b>Project Scenario</b>	<b>Number of Trips</b>	<b>Idling Time per Trip (hr)</b>	<b>On-Site Distance per Trip (mi)</b>	<b>Duration of On-Site Movement per Trip (hr)</b>
Year 2013	260	0.08	2.00	0.40
Years 2013, 2014, 2015, 2016, 2023, 2035, 2046	73	0.08	2.00	0.40

Notes:

- (1) Assume switcher locomotive movement at notch setting of one and speed of 5mph.
- (2) Activity data for year 2066 are identical to those of 2046.

**Table C1.2-BUS-16. Emission Factors for Alternate Business Location Switcher Locomotives - Proposed Project and Reduced Project**

Project Year - Notch Setting	Emission Factors (g/hr)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>All Years</b>						
Idle	93.1	181.0	987.0	24.7	31.0	28.5
Movement	87.6	182.9	1239.8	39.0	23.0	21.2

Note: Assume switcher locomotive movement at notch setting of one and speed of 5mph.



**Table C1.2-BUS-17. Annual Emissions for Alternate Business Location Switcher Locomotives - Proposed Project and Reduced Project**

Project Year - Notch Setting	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013</b>						
Idle	0.00	0.00	0.02	0.00	0.00	0.00
Movement	0.01	0.02	0.14	0.00	0.00	0.00
<b>Total</b>	<b>0.01</b>	<b>0.03</b>	<b>0.17</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>
<b>Years 2014, 2015, 2016, 2023, 2035, 2046</b>						
Idle	0.00	0.00	0.01	0.00	0.00	0.00
Movement	0.00	0.01	0.04	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>0.01</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Note: Activity data for year 2066 are identical to those of 2046.

**Table C1.2-BUS-18. Peak Daily Emissions for Alternate Business Location Switcher Locomotives - Proposed Project and Reduced Project**

Project Year - Notch Setting	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013</b>						
Idle	0.01	0.03	0.14	0.00	0.00	0.00
Movement	0.06	0.13	0.86	0.03	0.02	0.01
<b>Total</b>	<b>0.07</b>	<b>0.15</b>	<b>1.00</b>	<b>0.03</b>	<b>0.02</b>	<b>0.02</b>
<b>Years 2014, 2015, 2016, 2023, 2035, 2046</b>						
Idle	0.00	0.01	0.04	0.00	0.00	0.00
Movement	0.02	0.04	0.24	0.01	0.00	0.00
<b>Total</b>	<b>0.02</b>	<b>0.04</b>	<b>0.28</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>

Note: Emissions for year 2066 are identical to those of 2046.

**Table C1.2-BUS-19. Annual Alternate Business Location Operation Emissions - Proposed Project and Reduced Project**

Year	Emission Source	Annual Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Trucks On-Site	2.26	7.16	15.55	0.01	0.81	0.36
	Trucks Off-Site	2.36	9.94	44.75	0.09	3.80	1.60
	Employee Commute On-Site	0.04	0.58	0.04	0.00	0.10	0.03
	Employee Commute Off-Site	0.35	10.68	0.97	0.03	3.30	0.88
	CHE	2.41	223.09	22.38	0.04	1.21	1.11
	Switcher Locomotive	0.01	0.03	0.17	0.01	0.00	0.00
	<b>TOTAL 2013</b>	<b>7.43</b>	<b>251.48</b>	<b>83.86</b>	<b>0.18</b>	<b>9.22</b>	<b>3.98</b>
2014	Trucks On-Site	1.11	3.84	8.79	0.01	0.40	0.16
	Trucks Off-Site	1.08	4.35	21.68	0.05	1.74	0.68
	Employee Commute On-Site	0.02	0.24	0.02	0.00	0.04	0.01
	Employee Commute Off-Site	0.15	4.62	0.41	0.01	1.58	0.42
	CHE	0.85	65.90	11.20	0.02	0.57	0.52
	Switcher Locomotive	0.00	0.01	0.05	0.00	0.00	0.00
	<b>TOTAL 2014</b>	<b>3.20</b>	<b>78.96</b>	<b>42.15</b>	<b>0.09</b>	<b>4.33</b>	<b>1.78</b>
2015	Trucks On-Site	1.07	3.85	8.07	0.01	0.38	0.14
	Trucks Off-Site	1.03	4.06	19.91	0.05	1.68	0.62
	Employee Commute On-Site	0.01	0.21	0.02	0.00	0.04	0.01
	Employee Commute Off-Site	0.12	4.12	0.37	0.01	1.56	0.42
	CHE	0.86	66.01	11.33	0.02	0.58	0.53
	Switcher Locomotive	0.00	0.01	0.05	0.00	0.00	0.00
	<b>TOTAL 2015</b>	<b>3.11</b>	<b>78.25</b>	<b>39.74</b>	<b>0.09</b>	<b>4.24</b>	<b>1.72</b>
2016	Trucks On-Site	1.01	3.73	7.40	0.01	0.35	0.11
	Trucks Off-Site	0.99	3.80	18.34	0.05	1.64	0.58
	Employee Commute On-Site	0.01	0.19	0.01	0.00	0.04	0.01
	Employee Commute Off-Site	0.10	3.55	0.32	0.01	1.50	0.40
	CHE	0.78	65.83	8.97	0.02	0.45	0.42
	Switcher Locomotive	0.00	0.01	0.05	0.00	0.00	0.00
	<b>TOTAL 2016</b>	<b>2.90</b>	<b>77.11</b>	<b>35.08</b>	<b>0.09</b>	<b>3.99</b>	<b>1.53</b>
2023	Trucks On-Site	0.98	3.96	4.28	0.01	0.34	0.10
	Trucks Off-Site	0.76	2.91	7.36	0.04	1.61	0.56
	Employee Commute On-Site	0.01	0.10	0.01	0.00	0.04	0.01
	Employee Commute Off-Site	0.04	2.16	0.20	0.01	1.50	0.40
	CHE	0.61	38.38	7.71	0.02	0.46	0.42
	Switcher Locomotive	0.00	0.01	0.05	0.00	0.00	0.00
	<b>TOTAL 2023</b>	<b>2.39</b>	<b>47.53</b>	<b>19.61</b>	<b>0.09</b>	<b>3.95</b>	<b>1.50</b>
2035	Trucks On-Site	0.95	3.93	4.10	0.01	0.34	0.10
	Trucks Off-Site	0.74	2.76	6.76	0.04	1.60	0.55
	Employee Commute On-Site	0.00	0.08	0.01	0.00	0.04	0.01
	Employee Commute Off-Site	0.03	1.84	0.17	0.01	1.50	0.40
	CHE	0.44	37.84	2.21	0.02	0.16	0.15
	Switcher Locomotive	0.00	0.01	0.05	0.00	0.00	0.00
	<b>TOTAL 2035</b>	<b>2.17</b>	<b>46.46</b>	<b>13.29</b>	<b>0.09</b>	<b>3.64</b>	<b>1.21</b>
2046	Trucks On-Site	0.95	3.93	4.18	0.01	0.34	0.10
	Trucks Off-Site	0.72	2.74	7.10	0.04	1.60	0.55
	Employee Commute On-Site	0.00	0.08	0.01	0.00	0.04	0.01
	Employee Commute Off-Site	0.03	1.83	0.17	0.01	1.50	0.40
	CHE	0.46	38.10	2.27	0.02	0.17	0.16
	Switcher Locomotive	0.00	0.01	0.05	0.00	0.00	0.00
	<b>TOTAL 2046</b>	<b>2.18</b>	<b>46.70</b>	<b>13.77</b>	<b>0.09</b>	<b>3.65</b>	<b>1.22</b>

Note: Emissions for year 2066 are identical to those of 2046.

**Table C1.2-BUS-20. Peak Daily Alternate Business Location Operation Emissions - Proposed Project and Reduced Project**

Year	Emission Source	Peak Daily Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Trucks On-Site	15.58	49.67	107.80	0.09	5.56	2.45
	Trucks Off-Site	16.24	68.54	308.58	0.64	26.16	11.04
	Employee Commute On-Site	0.28	3.75	0.27	0.00	0.63	0.17
	Employee Commute Off-Site	2.24	68.71	6.25	0.17	21.25	5.67
	CHE	16.44	1511.25	154.16	0.27	8.28	7.62
	Switcher Locomotive	0.07	0.15	1.00	0.03	0.02	0.02
	<b>TOTAL 2013</b>	<b>50.85</b>	<b>1702.07</b>	<b>578.06</b>	<b>1.20</b>	<b>61.90</b>	<b>26.97</b>
2014	Trucks On-Site	7.77	27.08	61.84	0.06	2.78	1.10
	Trucks Off-Site	7.51	30.39	151.92	0.32	12.19	4.76
	Employee Commute On-Site	0.12	1.59	0.12	0.00	0.29	0.04
	Employee Commute Off-Site	0.94	29.90	2.67	0.08	10.20	2.68
	CHE	5.86	447.89	78.56	0.17	3.95	3.64
	Switcher Locomotive	0.02	0.04	0.28	0.01	0.01	0.01
	<b>TOTAL 2014</b>	<b>22.22</b>	<b>536.90</b>	<b>295.39</b>	<b>0.63</b>	<b>29.42</b>	<b>12.22</b>
2015	Trucks On-Site	7.53	27.11	56.79	0.06	2.62	0.95
	Trucks Off-Site	7.20	28.32	139.34	0.32	11.76	4.36
	Employee Commute On-Site	0.10	1.40	0.11	0.00	0.29	0.04
	Employee Commute Off-Site	0.79	26.63	2.38	0.08	10.10	2.69
	CHE	5.94	448.65	79.46	0.17	4.06	3.74
	Switcher Locomotive	0.02	0.04	0.28	0.01	0.01	0.01
	<b>TOTAL 2015</b>	<b>21.58</b>	<b>532.16</b>	<b>278.36</b>	<b>0.63</b>	<b>28.82</b>	<b>11.78</b>
2016	Trucks On-Site	7.10	26.29	52.01	0.06	2.45	0.80
	Trucks Off-Site	6.87	26.48	128.21	0.32	11.46	4.09
	Employee Commute On-Site	0.08	1.24	0.10	0.00	0.29	0.08
	Employee Commute Off-Site	0.64	22.97	2.05	0.08	9.66	2.57
	CHE	5.41	447.43	63.08	0.17	3.18	2.93
	Switcher Locomotive	0.02	0.04	0.28	0.01	0.01	0.01
	<b>TOTAL 2016</b>	<b>20.14</b>	<b>524.45</b>	<b>245.72</b>	<b>0.63</b>	<b>27.05</b>	<b>10.47</b>
2023	Trucks On-Site	6.86	27.95	30.19	0.06	2.37	0.72
	Trucks Off-Site	5.30	20.37	51.42	0.31	11.27	3.91
	Employee Commute On-Site	0.04	0.69	0.06	0.00	0.29	0.08
	Employee Commute Off-Site	0.27	13.94	1.29	0.08	9.66	2.57
	CHE	4.22	261.92	54.73	0.17	3.24	2.98
	Switcher Locomotive	0.02	0.04	0.28	0.01	0.01	0.01
	<b>TOTAL 2023</b>	<b>16.71</b>	<b>324.91</b>	<b>137.97</b>	<b>0.62</b>	<b>26.83</b>	<b>10.27</b>
2035	Trucks On-Site	6.71	27.78	28.95	0.06	2.36	0.71
	Trucks Off-Site	5.15	19.29	47.20	0.31	11.17	3.82
	Employee Commute On-Site	0.03	0.56	0.05	0.00	0.29	0.08
	Employee Commute Off-Site	0.21	11.85	1.08	0.08	9.67	2.58
	CHE	3.02	258.08	15.28	0.17	1.12	1.03
	Switcher Locomotive	0.02	0.04	0.28	0.01	0.01	0.01
	<b>TOTAL 2035</b>	<b>15.14</b>	<b>317.61</b>	<b>92.84</b>	<b>0.62</b>	<b>24.60</b>	<b>8.23</b>
2046	Trucks On-Site	6.71	27.78	29.44	0.06	2.36	0.72
	Trucks Off-Site	5.06	19.18	49.53	0.31	11.17	3.83
	Employee Commute On-Site	0.03	0.56	0.05	0.00	0.29	0.08
	Employee Commute Off-Site	0.21	11.85	1.08	0.08	9.67	2.58
	CHE	3.16	259.93	15.74	0.17	1.16	1.07
	Switcher Locomotive	0.02	0.04	0.28	0.01	0.01	0.01
	<b>TOTAL 2046</b>	<b>15.19</b>	<b>319.34</b>	<b>96.12</b>	<b>0.62</b>	<b>24.65</b>	<b>8.27</b>

Note: Emissions for year 2066 are identical to those of 2046.

**Table C1.2-RP-1. Truck Trips and Mileage for SCIG -  
Reduced Project Alternative**

<b>Analysis Year</b>	<b>Annual Round Trips</b>	<b>Annual VMT Off-Site</b>
2016	205,183	2,194,733
2023	290,299	2,989,490
2035	665,000	6,582,332
2046	665,000	6,582,332

Source: Iteris

Note: Activity data for year 2066 are identical to those for 2046.

**Table C1.2-RP-2. On-Road Truck Operational Data for SCIG - Reduced Project Alternative**

<b>Activity by Year</b>	<b>Idling Hours / Round Trip</b>	<b>Miles/Trip</b>	<b>Idling Hours / Year</b>	<b>Miles/Year</b>
<b><i>On-site</i></b>				
Year 2016	0.33	1.79	68,394	367,166
Year 2023	0.33	1.79	96,766	519,478
Year 2035	0.33	1.79	221,667	1,189,991
Year 2046	0.33	1.79	221,667	1,189,991
<b><i>Ingress</i></b>				
Year 2016	0.03	0.96	6,839	195,983
Year 2023	0.03	0.96	9,677	277,282
Year 2035	0.03	0.96	22,167	635,183
Year 2046	0.03	0.96	22,167	635,183
<b><i>Egress</i></b>				
Year 2016	0.03	1.12	6,839	230,229
Year 2023	0.03	1.12	9,677	325,736
Year 2035	0.03	1.12	22,167	746,177
Year 2046	0.03	1.12	22,167	746,177
<b><i>Off-Site</i></b>				
Year 2016	--	10.70	--	2,194,733
Year 2023	--	10.30	--	2,989,490
Year 2035	--	9.90	--	6,582,332
Year 2046	--	9.90	--	6,582,332

Source: BNSF

Note: Idling time and mileage for year 2066 are identical to those for 2046.

**Table C1.2-RP-3a. On-Road Truck Emission Factors - SCIG Drayage Truck Fleet - Reduced Project Alternative**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)									
						On-site		Off-site			
		VOC	CO	NOx	SOx	PM 10	PM 2.5	PM 10	PM 2.5	DPM 10	DPM 2.5
<b>Project Year 2016</b>											
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10	0.11	0.10
On-road Truck Transport	5	4.84	9.62	20.20	0.02	1.75	0.52	0.63	0.24	0.10	0.10
On-road Truck Transport	10	2.81	5.99	15.18	0.02	1.74	0.51	0.62	0.23	0.10	0.09
On-road Truck Transport	15	1.43	3.48	11.42	0.02	1.73	0.50	0.62	0.22	0.09	0.08
On-road Truck Transport	20	0.57	1.75	8.29	0.02	1.72	0.49	0.60	0.21	0.07	0.07
On-road Truck Transport	25	0.54	1.78	7.74	0.02	1.72	0.49	0.60	0.21	0.07	0.07
On-road Truck Transport	30	0.47	1.71	6.98	0.02	1.72	0.49	0.60	0.21	0.07	0.07
On-road Truck Transport	35	0.41	1.66	6.35	0.02	1.72	0.49	0.61	0.21	0.08	0.07
On-road Truck Transport	40	0.36	1.65	5.85	0.02	1.73	0.50	0.61	0.22	0.08	0.08
On-road Truck Transport	45	0.32	1.67	5.49	0.02	1.74	0.51	0.62	0.23	0.09	0.08
On-road Truck Transport	50	0.28	1.73	5.26	0.02	1.75	0.52	0.63	0.24	0.10	0.09
On-road Truck Transport	55	0.26	1.81	5.15	0.02	1.76	0.53	0.65	0.25	0.12	0.11
On-road Truck Transport	60	0.24	1.93	5.19	0.02	1.78	0.55	0.66	0.27	0.14	0.12
On-road Truck Transport	65	0.24	2.08	5.35	0.02	1.80	0.57	0.68	0.29	0.16	0.14
<b>Project Year 2023</b>											
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10	0.11	0.10
On-road Truck Transport	5	3.16	6.30	8.78	0.02	1.74	0.51	0.62	0.23	0.10	0.09
On-road Truck Transport	10	1.84	3.92	6.60	0.02	1.73	0.50	0.62	0.23	0.09	0.08
On-road Truck Transport	15	0.93	2.28	4.97	0.02	1.73	0.50	0.61	0.22	0.08	0.08
On-road Truck Transport	20	0.37	1.13	3.35	0.02	1.71	0.48	0.59	0.20	0.07	0.06
On-road Truck Transport	25	0.35	1.17	3.37	0.02	1.71	0.49	0.60	0.21	0.07	0.06
On-road Truck Transport	30	0.31	1.12	3.03	0.02	1.71	0.49	0.60	0.21	0.07	0.06
On-road Truck Transport	35	0.27	1.09	2.76	0.02	1.72	0.49	0.60	0.21	0.07	0.07
On-road Truck Transport	40	0.23	1.08	2.54	0.02	1.72	0.49	0.60	0.21	0.08	0.07
On-road Truck Transport	45	0.21	1.10	2.39	0.02	1.73	0.50	0.61	0.22	0.09	0.08
On-road Truck Transport	50	0.18	1.13	2.28	0.02	1.74	0.51	0.62	0.23	0.10	0.09
On-road Truck Transport	55	0.17	1.19	2.24	0.02	1.75	0.52	0.64	0.24	0.11	0.10
On-road Truck Transport	60	0.16	1.26	2.25	0.02	1.77	0.54	0.65	0.26	0.13	0.12
On-road Truck Transport	65	0.15	1.36	2.32	0.02	1.79	0.56	0.67	0.28	0.15	0.13
<b>Project Year 2035</b>											
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.83	5.66	7.75	0.02	1.73	0.50	0.61	0.22	0.09	0.08
On-road Truck Transport	10	1.65	3.53	5.83	0.02	1.72	0.50	0.61	0.22	0.08	0.07
On-road Truck Transport	15	0.84	2.05	4.39	0.02	1.72	0.49	0.60	0.21	0.07	0.07
On-road Truck Transport	20	0.34	1.04	3.01	0.02	1.70	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	25	0.31	1.05	2.97	0.02	1.71	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	30	0.27	1.00	2.68	0.02	1.71	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	35	0.24	0.98	2.44	0.02	1.71	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	40	0.21	0.97	2.25	0.02	1.71	0.49	0.60	0.21	0.07	0.06
On-road Truck Transport	45	0.18	0.99	2.11	0.02	1.72	0.49	0.60	0.21	0.08	0.07
On-road Truck Transport	50	0.17	1.02	2.02	0.02	1.73	0.50	0.61	0.22	0.09	0.08
On-road Truck Transport	55	0.15	1.07	1.98	0.02	1.74	0.51	0.63	0.23	0.10	0.09
On-road Truck Transport	60	0.14	1.14	1.99	0.02	1.76	0.53	0.64	0.25	0.11	0.10
On-road Truck Transport	65	0.14	1.22	2.05	0.02	1.77	0.54	0.66	0.26	0.13	0.12
<b>Project Year 2046</b>											
On-road Truck - Idle (g/hr)	0	7.41	41.75	40.38	0.07	0.13	0.12	0.13	0.12	0.13	0.12
On-road Truck Transport	5	2.82	5.62	8.98	0.02	1.73	0.51	0.62	0.23	0.09	0.08
On-road Truck Transport	10	1.64	3.50	6.70	0.02	1.73	0.50	0.61	0.22	0.08	0.08
On-road Truck Transport	15	0.83	2.03	5.01	0.02	1.72	0.49	0.60	0.21	0.07	0.07
On-road Truck Transport	20	0.34	1.04	3.49	0.02	1.70	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	25	0.31	1.04	3.41	0.02	1.71	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	30	0.27	1.00	3.09	0.02	1.71	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	35	0.24	0.97	2.83	0.02	1.71	0.48	0.59	0.20	0.06	0.06
On-road Truck Transport	40	0.21	0.97	2.62	0.02	1.71	0.48	0.60	0.21	0.07	0.06
On-road Truck Transport	45	0.18	0.98	2.47	0.02	1.72	0.49	0.60	0.21	0.08	0.07
On-road Truck Transport	50	0.16	1.01	2.37	0.02	1.73	0.50	0.61	0.22	0.09	0.08
On-road Truck Transport	55	0.15	1.06	2.33	0.02	1.74	0.51	0.62	0.23	0.10	0.09
On-road Truck Transport	60	0.14	1.12	2.35	0.02	1.76	0.53	0.64	0.25	0.11	0.10
On-road Truck Transport	65	0.14	1.21	2.42	0.02	1.77	0.54	0.66	0.26	0.13	0.12

Notes:

- (1) EMFAC2011 with modified fleet age distribution based on Port-wide inventory (Starcrest)
- (2) Emission factors incorporated the SPBP Clean Truck Program and California Statewide Bus and Truck Regulation.
- (3) Year 2046 uses 2035 emission factors; EMFAC 2011 only calculates emissions factors to 2035.
- (4) PM emission factors include a sum of vehicle exhaust, tire wear, brake wear, and paved road dust.
- (5) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-RP-3b. On-Road Truck Emission Factors - SCIG Drayage Truck Fleet - Reduced Project Alternative - with Low Emission Trucks and On-Site Sweeping Mitigations**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)									
						On-site		Off-site			
		VOC	CO	NOx	SOx	PM 10	PM 2.5	PM 10	PM 2.5	DPM 10	DPM 2.5
<b>Project Year 2016</b>											
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.10	0.09	0.10	0.09
On-road Truck Transport	5	4.84	9.62	20.20	0.02	1.35	0.42	0.62	0.23	0.09	0.09
On-road Truck Transport	10	2.81	5.99	15.18	0.02	1.34	0.41	0.62	0.22	0.09	0.08
On-road Truck Transport	15	1.43	3.48	11.42	0.02	1.33	0.40	0.61	0.22	0.08	0.07
On-road Truck Transport	20	0.57	1.75	8.29	0.02	1.32	0.39	0.59	0.20	0.07	0.06
On-road Truck Transport	25	0.54	1.78	7.74	0.02	1.32	0.39	0.60	0.21	0.07	0.06
On-road Truck Transport	30	0.47	1.71	6.98	0.02	1.32	0.39	0.60	0.20	0.07	0.06
On-road Truck Transport	35	0.41	1.66	6.35	0.02	1.32	0.39	0.60	0.21	0.07	0.06
On-road Truck Transport	40	0.36	1.65	5.85	0.02	1.33	0.40	0.60	0.21	0.07	0.07
On-road Truck Transport	45	0.32	1.67	5.49	0.02	1.33	0.41	0.61	0.22	0.08	0.08
On-road Truck Transport	50	0.28	1.73	5.26	0.02	1.35	0.42	0.62	0.23	0.09	0.09
On-road Truck Transport	55	0.26	1.81	5.15	0.02	1.36	0.43	0.63	0.24	0.11	0.10
On-road Truck Transport	60	0.24	1.93	5.19	0.02	1.38	0.45	0.65	0.26	0.12	0.11
On-road Truck Transport	65	0.24	2.08	5.35	0.02	1.40	0.47	0.67	0.27	0.14	0.13
<b>Project Year 2023</b>											
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.03	0.03	0.03	0.03
On-road Truck Transport	5	3.16	6.30	8.78	0.02	1.34	0.41	0.56	0.17	0.03	0.03
On-road Truck Transport	10	1.84	3.92	6.60	0.02	1.33	0.40	0.55	0.17	0.03	0.02
On-road Truck Transport	15	0.93	2.28	4.97	0.02	1.32	0.40	0.55	0.16	0.02	0.02
On-road Truck Transport	20	0.37	1.13	3.35	0.02	1.31	0.38	0.55	0.16	0.02	0.02
On-road Truck Transport	25	0.35	1.17	3.37	0.02	1.31	0.39	0.55	0.16	0.02	0.02
On-road Truck Transport	30	0.31	1.12	3.03	0.02	1.31	0.39	0.55	0.16	0.02	0.02
On-road Truck Transport	35	0.27	1.09	2.76	0.02	1.31	0.39	0.55	0.16	0.02	0.02
On-road Truck Transport	40	0.23	1.08	2.54	0.02	1.32	0.39	0.55	0.16	0.02	0.02
On-road Truck Transport	45	0.21	1.10	2.39	0.02	1.33	0.40	0.55	0.17	0.02	0.02
On-road Truck Transport	50	0.18	1.13	2.28	0.02	1.34	0.41	0.55	0.17	0.03	0.03
On-road Truck Transport	55	0.17	1.19	2.24	0.02	1.35	0.42	0.56	0.17	0.03	0.03
On-road Truck Transport	60	0.16	1.26	2.25	0.02	1.37	0.44	0.56	0.18	0.04	0.03
On-road Truck Transport	65	0.15	1.36	2.32	0.02	1.39	0.46	0.57	0.18	0.04	0.04
<b>Project Year 2035</b>											
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.02	0.01	0.02	0.01
On-road Truck Transport	5	2.83	5.66	7.75	0.02	1.33	0.40	0.54	0.15	0.01	0.01
On-road Truck Transport	10	1.65	3.53	5.83	0.02	1.32	0.39	0.54	0.15	0.01	0.01
On-road Truck Transport	15	0.84	2.05	4.39	0.02	1.31	0.39	0.54	0.15	0.01	0.01
On-road Truck Transport	20	0.34	1.04	3.01	0.02	1.30	0.38	0.53	0.15	0.01	0.01
On-road Truck Transport	25	0.31	1.05	2.97	0.02	1.30	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	30	0.27	1.00	2.68	0.02	1.30	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	35	0.24	0.98	2.44	0.02	1.31	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	40	0.21	0.97	2.25	0.02	1.31	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	45	0.18	0.99	2.11	0.02	1.32	0.39	0.54	0.15	0.01	0.01
On-road Truck Transport	50	0.17	1.02	2.02	0.02	1.33	0.40	0.54	0.15	0.01	0.01
On-road Truck Transport	55	0.15	1.07	1.98	0.02	1.34	0.41	0.54	0.16	0.01	0.01
On-road Truck Transport	60	0.14	1.14	1.99	0.02	1.35	0.43	0.54	0.16	0.02	0.02
On-road Truck Transport	65	0.14	1.22	2.05	0.02	1.37	0.44	0.55	0.16	0.02	0.02
<b>Project Year 2046</b>											
On-road Truck - Idle (g/hr)	0	7.41	41.75	40.38	0.07	0.13	0.12	0.02	0.02	0.02	0.02
On-road Truck Transport	5	2.82	5.62	8.98	0.02	1.33	0.40	0.54	0.15	0.01	0.01
On-road Truck Transport	10	1.64	3.50	6.70	0.02	1.32	0.40	0.54	0.15	0.01	0.01
On-road Truck Transport	15	0.83	2.03	5.01	0.02	1.32	0.39	0.54	0.15	0.01	0.01
On-road Truck Transport	20	0.34	1.04	3.49	0.02	1.30	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	25	0.31	1.04	3.41	0.02	1.30	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	30	0.27	1.00	3.09	0.02	1.30	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	35	0.24	0.97	2.83	0.02	1.31	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	40	0.21	0.97	2.62	0.02	1.31	0.38	0.54	0.15	0.01	0.01
On-road Truck Transport	45	0.18	0.98	2.47	0.02	1.32	0.39	0.54	0.15	0.01	0.01
On-road Truck Transport	50	0.16	1.01	2.37	0.02	1.33	0.40	0.54	0.15	0.01	0.01
On-road Truck Transport	55	0.15	1.06	2.33	0.02	1.34	0.41	0.54	0.16	0.01	0.01
On-road Truck Transport	60	0.14	1.12	2.35	0.02	1.35	0.42	0.54	0.16	0.02	0.02
On-road Truck Transport	65	0.14	1.21	2.42	0.02	1.37	0.44	0.55	0.16	0.02	0.02

Notes:

- (1) EMFAC2011 with modified fleet age distribution based on Port-wide inventory (Starcrest)
- (2) Emission factors incorporated the SPBP Clean Truck Program and California Statewide Bus and Truck Regulation.
- (3) Year 2046 uses 2035 emission factors; EMFAC 2011 only calculates emissions factors to 2035.
- (4) PM emission factors include is a sum of vehicle exhaust, tire wear, brake wear, and paved road dust.
- (5) Low emission trucks mitigation assumes 10% LNG truck penetration in 2016, 75%in 2023, and 90% in 2026 and remain constant for the years after.
- (6) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (7) Emission factors for year 2066 are identical to those for 2046



**Table C1.2-RP-4a. Annual Truck Emissions for SCIG - Reduced Project Alternative**

Project Year - Mode		Emissions (tons/year)							
		VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
<b>On-Site</b>									
<b>2016</b>	Idling	0.67	3.77	3.47	0.01	0.01	0.01	0.01	0.01
	Driving	1.25	3.04	9.99	0.01	1.52	0.44	0.08	0.07
	<b>Subtotal</b>	<b>1.92</b>	<b>6.82</b>	<b>13.47</b>	<b>0.02</b>	<b>1.53</b>	<b>0.45</b>	<b>0.09</b>	<b>0.08</b>
<b>2023</b>	Idling	0.95	5.34	4.92	0.01	0.01	0.01	0.01	0.01
	Driving	1.16	2.82	6.14	0.02	2.14	0.62	0.10	0.09
	<b>Subtotal</b>	<b>2.10</b>	<b>8.16</b>	<b>11.06</b>	<b>0.03</b>	<b>2.15</b>	<b>0.63</b>	<b>0.12</b>	<b>0.11</b>
<b>2035</b>	Idling	2.17	12.23	11.26	0.02	0.03	0.03	0.03	0.03
	Driving	2.37	5.80	12.43	0.05	4.87	1.39	0.21	0.19
	<b>Subtotal</b>	<b>4.54</b>	<b>18.04</b>	<b>23.69</b>	<b>0.07</b>	<b>4.90</b>	<b>1.42</b>	<b>0.24</b>	<b>0.22</b>
<b>2046</b>	Idling	2.17	12.24	11.84	0.02	0.04	0.04	0.04	0.04
	Driving	2.36	5.77	14.21	0.05	4.87	1.39	0.21	0.19
	<b>Subtotal</b>	<b>4.53</b>	<b>18.01</b>	<b>26.05</b>	<b>0.07</b>	<b>4.91</b>	<b>1.42</b>	<b>0.25</b>	<b>0.23</b>
<b>Off-Site</b>									
<b>2016</b>	Driving	1.16	4.32	16.85	0.04	1.48	0.53	0.20	0.18
<b>2023</b>	Driving	1.04	3.89	9.88	0.05	1.99	0.70	0.25	0.23
<b>2035</b>	Driving	2.16	7.87	19.60	0.12	4.32	1.49	0.50	0.46
<b>2046</b>	Driving	2.12	7.79	22.57	0.12	4.32	1.49	0.50	0.46

Notes:

- (1) Emissions for year 2066 are identical to those for 2046.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) On-site driving emissions are calculated with 15 mph emission factors.

**Table C1.2-RP-4b. Annual Truck Emissions for SCIG - Reduced Project Alternative - Mitigation with Low Emission**

Project Year - Mode		Emissions (tons/year)							
		VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
<b>On-Site</b>									
<b>2016</b>	Idling	0.67	3.77	3.47	0.01	0.01	0.01	0.01	0.01
	Driving	1.25	3.04	9.99	0.01	1.16	0.35	0.07	0.06
	<b>Subtotal</b>	<b>1.92</b>	<b>6.82</b>	<b>13.47</b>	<b>0.02</b>	<b>1.17</b>	<b>0.36</b>	<b>0.08</b>	<b>0.07</b>
<b>2023</b>	Idling	0.95	5.34	4.92	0.01	0.01	0.01	0.00	0.00
	Driving	1.16	2.82	6.14	0.02	1.64	0.49	0.03	0.03
	<b>Subtotal</b>	<b>2.10</b>	<b>8.16</b>	<b>11.06</b>	<b>0.03</b>	<b>1.65</b>	<b>0.50</b>	<b>0.03</b>	<b>0.03</b>
<b>2035</b>	Idling	2.17	12.23	11.26	0.02	0.03	0.03	0.00	0.00
	Driving	2.37	5.80	12.43	0.05	3.72	1.10	0.03	0.03
	<b>Subtotal</b>	<b>4.54</b>	<b>18.04</b>	<b>23.69</b>	<b>0.07</b>	<b>3.76</b>	<b>1.13</b>	<b>0.03</b>	<b>0.03</b>
<b>2046</b>	Idling	2.17	12.24	11.84	0.02	0.04	0.04	0.01	0.01
	Driving	2.36	5.77	14.21	0.05	3.73	1.10	0.03	0.03
	<b>Subtotal</b>	<b>4.53</b>	<b>18.01</b>	<b>26.05</b>	<b>0.07</b>	<b>3.77</b>	<b>1.14</b>	<b>0.04</b>	<b>0.03</b>
<b>Off-Site</b>									
<b>2016</b>	Driving	1.16	4.32	16.85	0.04	1.48	0.53	0.18	0.16
<b>2023</b>	Driving	1.04	3.89	9.88	0.05	1.99	0.70	0.07	0.07
<b>2035</b>	Driving	2.16	7.87	19.60	0.12	4.32	1.49	0.07	0.07
<b>2046</b>	Driving	2.12	7.79	22.57	0.12	4.32	1.49	0.07	0.07

Notes:

- (1) Emissions for year 2066 are identical to those for 2046.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) On-site driving emissions are calculated with 15 mph emission factors.

**Table C1.2-RP-5a. Peak Daily Truck Emissions for SCIG - Reduced Project Alternative**

Project Year - Mode		Emissions (lbs/day)							
		VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
<b>On-Site</b>									
2016	Idling	4.16	23.48	21.61	0.04	0.06	0.06	0.06	0.06
	Driving	7.78	18.92	62.14	0.09	9.43	2.73	0.48	0.44
	<b>Subtotal</b>	<b>11.94</b>	<b>42.40</b>	<b>83.76</b>	<b>0.13</b>	<b>9.49</b>	<b>2.79</b>	<b>0.54</b>	<b>0.49</b>
2023	Idling	5.89	33.22	30.58	0.05	0.09	0.08	0.09	0.08
	Driving	7.19	17.52	38.22	0.13	13.29	3.83	0.63	0.58
	<b>Subtotal</b>	<b>13.08</b>	<b>50.74</b>	<b>68.80</b>	<b>0.18</b>	<b>13.37</b>	<b>3.91</b>	<b>0.72</b>	<b>0.66</b>
2035	Idling	13.49	76.10	70.05	0.12	0.20	0.18	0.20	0.18
	Driving	14.77	36.09	77.33	0.29	30.27	8.62	1.30	1.19
	<b>Subtotal</b>	<b>28.26</b>	<b>112.19</b>	<b>147.38</b>	<b>0.41</b>	<b>30.47</b>	<b>8.81</b>	<b>1.49</b>	<b>1.37</b>
2046	Idling	13.51	76.14	73.64	0.12	0.24	0.22	0.24	0.22
	Driving	14.68	35.87	88.38	0.29	30.29	8.64	1.31	1.20
	<b>Subtotal</b>	<b>28.19</b>	<b>112.01</b>	<b>162.03</b>	<b>0.41</b>	<b>30.52</b>	<b>8.85</b>	<b>1.55</b>	<b>1.42</b>
<b>Off-Site</b>									
2016	Driving	7.19	26.86	104.81	0.25	9.18	3.28	1.23	1.13
2023	Driving	6.44	24.20	61.45	0.34	12.37	4.37	1.57	1.45
2035	Driving	13.41	48.92	121.89	0.75	26.85	9.28	3.12	2.87
2046	Driving	13.18	48.47	140.37	0.75	26.85	9.27	3.10	2.85

Notes:

- (1) Emissions for year 2066 are identical to those for 2046.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) On-site driving emissions are calculated with 15 mph emission factors.

**Table C1.2-RP-5b. Peak Daily Truck Emissions for SCIG - Reduced Project Alternative - with Low Emission Trucks and Onsite Sweeping Mitigations**

Project Year - Mode		Emissions (lbs/day)							
		VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
<b>On-Site</b>									
2016	Idling	4.16	23.48	21.61	0.04	0.06	0.06	0.05	0.05
	Driving	7.78	18.92	62.14	0.09	7.24	2.19	0.43	0.40
	<b>Subtotal</b>	<b>11.94</b>	<b>42.40</b>	<b>83.76</b>	<b>0.13</b>	<b>7.30</b>	<b>2.24</b>	<b>0.49</b>	<b>0.45</b>
2023	Idling	5.89	33.22	30.58	0.05	0.09	0.08	0.02	0.02
	Driving	7.19	17.52	38.22	0.13	10.19	3.05	0.18	0.17
	<b>Subtotal</b>	<b>13.08</b>	<b>50.74</b>	<b>68.80</b>	<b>0.18</b>	<b>10.27</b>	<b>3.13</b>	<b>0.21</b>	<b>0.19</b>
2035	Idling	13.49	76.10	70.05	0.12	0.20	0.18	0.03	0.03
	Driving	14.77	36.09	77.33	0.29	23.17	6.85	0.19	0.17
	<b>Subtotal</b>	<b>28.26</b>	<b>112.19</b>	<b>147.38</b>	<b>0.41</b>	<b>23.37</b>	<b>7.03</b>	<b>0.22</b>	<b>0.20</b>
2046	Idling	13.51	76.14	73.64	0.12	0.24	0.22	0.03	0.03
	Driving	14.68	35.87	88.38	0.29	23.18	6.86	0.19	0.17
	<b>Subtotal</b>	<b>28.19</b>	<b>112.01</b>	<b>162.03</b>	<b>0.41</b>	<b>23.42</b>	<b>7.08</b>	<b>0.22</b>	<b>0.21</b>
<b>Off-Site</b>									
2016	Driving	7.19	26.86	104.81	0.25	9.18	3.28	1.11	1.02
2023	Driving	6.44	24.20	61.45	0.34	12.37	4.37	0.45	0.42
2035	Driving	13.41	48.92	121.89	0.75	26.85	9.28	0.45	0.42
2046	Driving	13.18	48.47	140.37	0.75	26.85	9.27	0.45	0.41

Notes:

- (1) Emissions for year 2066 are identical to those for 2046.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) On-site driving emissions are calculated with 15 mph emission factors.

**Table C1.2-RP-6a. Summary of Annual Truck Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
<b>2016</b>	3.1	11.1	30.3	0.1	3.0	1.0	0.3	0.3
<b>2023</b>	3.1	12.0	20.9	0.1	4.1	1.3	0.4	0.3
<b>2035</b>	6.7	25.9	43.3	0.2	9.2	2.9	0.7	0.7
<b>2046</b>	6.7	25.8	48.6	0.2	9.2	2.9	0.7	0.7

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-6b. Summary of Annual Truck Emissions for SCIG - Reduced Project Alternative - with Low Emission Trucks and Onsite Sweeping Mitigations**

Analysis Year	Emissions (tons/year)							
	VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
2016	3.1	11.1	30.3	0.1	2.6	0.9	0.3	0.2
2023	3.1	12.0	20.9	0.1	3.6	1.2	0.1	0.1
2035	6.7	25.9	43.3	0.2	8.1	2.6	0.1	0.1
2046	6.7	25.8	48.6	0.2	8.1	2.6	0.1	0.1

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-7a. Summary of Peak Daily Truck Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Emissions (lb/day)							
	VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
2016	19.1	69.3	188.6	0.4	18.7	6.1	1.8	1.6
2023	19.5	74.9	130.2	0.5	25.7	8.3	2.3	2.1
2035	41.7	161.1	269.3	1.2	57.3	18.1	4.6	4.2
2046	41.4	160.5	302.4	1.2	57.4	18.1	4.6	4.3

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-7b. Summary of Peak Daily Truck Emissions for SCIG - Reduced Project Alternative - with Low Emission Trucks and On-Site Sweeping Mitigations**

Analysis Year	Emissions (lb/day)							
	VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
<b>2016</b>	19.1	69.3	188.6	0.4	16.5	5.5	1.6	1.5
<b>2023</b>	19.5	74.9	130.2	0.5	22.6	7.5	0.7	0.6
<b>2035</b>	41.7	161.1	269.3	1.2	50.2	16.3	0.7	0.6
<b>2046</b>	41.4	160.5	302.4	1.2	50.3	16.4	0.7	0.6

Note: Emissions for year 2066 are identical to those for 2046.



**Table C1.2-RP-8. Worker Commute Operational Data for SCIG - Reduced Project Alternative**

<b>Activity by Year</b>	<b>Idling Time per Round Trip (hrs)</b>	<b>Miles/Round Trip</b>	<b>Idling Hours / Year</b>	<b>Miles/Year</b>
<b>On-site</b>				
Year 2016	0.07	0.42	2,232	14,062
Year 2023	0.07	0.42	3,144	19,807
Year 2035	0.07	0.42	7,200	45,360
Year 2046	0.07	0.42	7,200	45,360
<b>Off-Site</b>				
Year 2016	--	25.40	--	850,392
Year 2023	--	25.40	--	1,197,864
Year 2035	--	25.40	--	2,743,200
Year 2046	--	25.40	--	2,743,200

Note: Activity data for year 2066 are identical to those for 2046.

**Table C1.2-RP-9a. Worker Commute Emission Factors for SCIG - Reduced Project Alternative**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
						On-site		Off-site	
		VOC	CO	NOx	SOx	PM10	PM2.5	PM10	PM2.5
<b>Project Year 2016</b>									
On-road Truck - Idle (g/hr)	0	0.42	10800.00	68040.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	5	0.42	10800.00	68040.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	15	25.40	--	#####	0.00	0.00	0.00	0.00	0.00
On-road Travel	20	25.40	--	#####	0.00	0.00	0.00	0.00	0.00
On-road Travel	25	25.40	--	#####	0.00	0.00	0.00	0.00	0.00
On-road Travel	30	25.40	--	#####	0.00	0.00	0.00	0.00	0.00
On-road Travel	35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Project Year 2023</b>									
On-road Truck - Idle (g/hr)	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Project Year 2035</b>									
On-road Truck - Idle (g/hr)	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Project Year 2046</b>									
On-road Truck - Idle (g/hr)	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-road Travel	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes:

- (1) EMFAC2011 with SCAQMD default age distributions.
- (2) Year 2046 uses 2035 emission factors; EMFAC 2011 only calculates emissions factors to 2035.
- (3) PM emissions factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (4) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-RP-9b. Worker Commute Emission Factors for SCIG - Reduced Project Alternative - with On-Site Sweeping Mitig**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
						On-site		Off-site	
		VOC	CO	NOx	SOx	PM10	PM2.5	PM10	PM2.5
<b>Project Year 2016</b>									
On-road Truck - Idle (g/hr)	0	0.78	11.04	0.83	0.02	0.05	0.05	0.05	0.05
On-road Travel	5	0.16	2.21	0.17	0.00	1.60	0.41	0.49	0.14
On-road Travel	10	0.10	1.89	0.14	0.00	1.60	0.41	0.48	0.13
On-road Travel	15	0.07	1.65	0.13	0.00	1.60	0.41	0.48	0.13
On-road Travel	20	0.05	1.47	0.12	0.00	1.60	0.41	0.48	0.13
On-road Travel	25	0.04	1.33	0.11	0.00	1.60	0.41	0.48	0.13
On-road Travel	30	0.03	1.21	0.10	0.00	1.60	0.41	0.48	0.13
On-road Travel	35	0.03	1.11	0.10	0.00	1.60	0.41	0.48	0.13
On-road Travel	40	0.02	1.04	0.09	0.00	1.60	0.41	0.48	0.13
On-road Travel	45	0.02	0.98	0.09	0.00	1.60	0.41	0.48	0.13
On-road Travel	50	0.02	0.94	0.09	0.00	1.60	0.41	0.48	0.13
On-road Travel	55	0.02	0.90	0.09	0.00	1.60	0.41	0.48	0.13
On-road Travel	60	0.02	0.88	0.10	0.00	1.60	0.41	0.48	0.13
On-road Travel	65	0.03	0.90	0.10	0.00	1.60	0.41	0.48	0.13
<b>Project Year 2023</b>									
On-road Truck - Idle (g/hr)	0	0.39	6.14	0.57	0.02	0.06	0.06	0.06	0.06
On-road Travel	5	0.08	1.23	0.11	0.00	1.61	0.42	0.49	0.14
On-road Travel	10	0.05	1.10	0.10	0.00	1.60	0.41	0.48	0.13
On-road Travel	15	0.03	1.00	0.09	0.00	1.60	0.41	0.48	0.13
On-road Travel	20	0.02	0.91	0.08	0.00	1.60	0.41	0.48	0.13
On-road Travel	25	0.02	0.83	0.07	0.00	1.60	0.41	0.48	0.13
On-road Travel	30	0.01	0.76	0.07	0.00	1.60	0.41	0.48	0.13
On-road Travel	35	0.01	0.70	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	40	0.01	0.65	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	45	0.01	0.61	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	50	0.01	0.57	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	55	0.01	0.53	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	60	0.01	0.49	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	65	0.01	0.46	0.06	0.00	1.60	0.41	0.48	0.13
<b>Project Year 2035</b>									
On-road Truck - Idle (g/hr)	0	0.30	4.97	0.47	0.02	0.07	0.06	0.07	0.06
On-road Travel	5	0.06	0.99	0.09	0.00	1.61	0.42	0.49	0.14
On-road Travel	10	0.04	0.91	0.08	0.00	1.60	0.41	0.49	0.13
On-road Travel	15	0.03	0.83	0.07	0.00	1.60	0.41	0.48	0.13
On-road Travel	20	0.02	0.76	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	25	0.01	0.69	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	30	0.01	0.64	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	35	0.01	0.59	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	40	0.01	0.55	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	45	0.01	0.51	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	50	0.01	0.48	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	55	0.01	0.44	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	60	0.01	0.40	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	65	0.01	0.37	0.05	0.00	1.60	0.41	0.48	0.13
<b>Project Year 2046</b>									
On-road Truck - Idle (g/hr)	0	0.30	4.97	0.47	0.02	0.07	0.06	0.07	0.06
On-road Travel	5	0.06	0.99	0.09	0.00	1.61	0.42	0.49	0.14
On-road Travel	10	0.04	0.91	0.08	0.00	1.60	0.41	0.49	0.13
On-road Travel	15	0.03	0.83	0.07	0.00	1.60	0.41	0.48	0.13
On-road Travel	20	0.02	0.76	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	25	0.01	0.69	0.06	0.00	1.60	0.41	0.48	0.13
On-road Travel	30	0.01	0.64	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	35	0.01	0.59	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	40	0.01	0.55	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	45	0.01	0.51	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	50	0.01	0.48	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	55	0.01	0.44	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	60	0.01	0.40	0.05	0.00	1.60	0.41	0.48	0.13
On-road Travel	65	0.01	0.37	0.05	0.00	1.60	0.41	0.48	0.13

Notes:

- (1) EMFAC2011 with SCAQMD default age distributions.
- (2) Year 2046 uses 2035 emission factors; EMFAC 2011 only calculates emissions factors to 2035.
- (3) PM emissions factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (4) Onsite sweeping mitigation reduces onsite PM dust by 26%.
- (5) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-RP-10a. Annual Worker Commute Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>On-Site</b>						
2016	0.00	0.06	0.00	0.00	0.02	0.01
2023	0.00	0.05	0.00	0.00	0.04	0.01
2035	0.00	0.08	0.01	0.00	0.08	0.02
2046	0.00	0.08	0.01	0.00	0.08	0.02
<b>Off-Site</b>						
2016	0.01	0.64	0.06	0.00	0.45	0.12
2023	0.02	0.90	0.08	0.00	0.63	0.17
2035	0.03	1.75	0.16	0.01	1.45	0.39
2046	0.03	1.74	0.16	0.01	1.45	0.39

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) Paved road dust emissions are included in the PM 10 and PM 2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-10b. Annual Worker Commute Emissions for SCIG - Reduced Project Alternative - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>On-Site</b>						
2016	0.00	0.06	0.00	0.00	0.02	0.00
2023	0.00	0.05	0.00	0.00	0.03	0.01
2035	0.00	0.08	0.01	0.00	0.06	0.02
2046	0.00	0.08	0.01	0.00	0.06	0.02
<b>Off-Site</b>						
2016	0.01	0.64	0.06	0.00	0.45	0.12
2023	0.02	0.90	0.08	0.00	0.63	0.17
2035	0.03	1.75	0.16	0.01	1.45	0.39
2046	0.03	1.74	0.16	0.01	1.45	0.39

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) Paved road dust emissions are included in the PM 10 and PM 2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-11a. Peak Daily Worker Commute Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>On-Site</b>						
2016	0.02	0.31	0.02	0.00	0.14	0.04
2023	0.01	0.25	0.02	0.00	0.20	0.05
2035	0.02	0.47	0.04	0.00	0.45	0.12
2046	0.02	0.47	0.04	0.00	0.45	0.12
<b>Off-Site</b>						
2016	0.07	3.57	0.33	0.02	2.49	0.66
2023	0.10	5.00	0.47	0.03	3.51	0.94
2035	0.17	9.72	0.89	0.06	8.05	2.15
2046	0.17	9.67	0.89	0.06	8.05	2.15

Notes:

(1) On-site driving emissions are calculated with 10 mph emission factors.

**Table C1.2-RP-11b. Peak Daily Worker Commute Emissions for SCIG - Reduced Project Alternative - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>On-Site</b>						
2016	0.02	0.31	0.02	0.00	0.10	0.03
2023	0.01	0.25	0.02	0.00	0.15	0.04
2035	0.02	0.47	0.04	0.00	0.34	0.09
2046	0.02	0.47	0.04	0.00	0.34	0.09
<b>Off-Site</b>						
2016	0.07	3.57	0.33	0.02	2.49	0.66
2023	0.10	5.00	0.47	0.03	3.51	0.94
2035	0.17	9.72	0.89	0.06	8.05	2.15
2046	0.17	9.67	0.89	0.06	8.05	2.15

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) Paved road dust emissions are included in the PM 10 and PM 2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-12a. Summary of Annual Worker Commute Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.02	0.70	0.06	0.00	0.47	0.13
2023	0.02	0.94	0.09	0.01	0.67	0.18
2035	0.04	1.83	0.17	0.01	1.53	0.41
2046	0.03	1.82	0.17	0.01	1.53	0.41

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) PM10 and PM2.5 include emissions from exhaust, tire wear, brake wear, and road dust.
- (3) Emissions for year 2066 are identical to those for 2046.



**Table C1.2-RP-12b. Summary of Annual Worker Commute Emissions for SCIG - Reduced Project Alternative - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.02	0.70	0.06	0.00	0.47	0.12
2023	0.02	0.94	0.09	0.01	0.66	0.18
2035	0.04	1.83	0.17	0.01	1.51	0.40
2046	0.03	1.82	0.17	0.01	1.51	0.40

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) PM10 and PM2.5 include emissions from exhaust, tire wear, brake wear, and road dust.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-13a. Summary of Peak Daily Worker Commute Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.09	3.88	0.36	0.02	2.63	0.70
2023	0.11	5.25	0.49	0.03	3.71	0.99
2035	0.20	10.19	0.93	0.06	8.49	2.27
2046	0.19	10.14	0.93	0.06	8.49	2.27

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) PM10 and PM2.5 include emissions from exhaust, tire wear, brake wear, and road dust.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-13b. Summary of Peak Daily Worker Commute Emissions for SCIG - Reduced Project Alternative - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.09	3.88	0.36	0.02	2.60	0.69
2023	0.11	5.25	0.49	0.03	3.66	0.97
2035	0.20	10.19	0.93	0.06	8.38	2.24
2046	0.19	10.14	0.93	0.06	8.38	2.24

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) PM10 and PM2.5 include emissions from exhaust, tire wear, brake wear, and road dust.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-14. SCIG Train Trips - Reduced Project Alternative**

Year	Round Trips	
	Annual	Peak Day
2016	720	2
2023	1,080	3
2035	2,160	6
2046	2,160	6

Note: Train trips for year 2066 are identical to those for 2046.

**Table C1.2-RP-15. Emission Factors for SCIG Switcher Locomotives - Reduced Project Alternative**

Notch Setting	Emission Factors (g/hr)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>All Years</b>						
Idle	10.25	51.70	157.90	0.01	6.30	5.80
Moving	90.80	1,474.40	2,423.70	0.30	52.90	48.67

Notes:

- (1) Assume notch setting of 4 for all switcher movement.
- (2) Assume sulfur content of 15ppm for PM emission factors estimates.
- (3) Emission factors provided by Southwest Research Institute.

**Table C1.2-RP-16. Emission Factors for SCIG Linehaul Locomotives - Reduced Project Alternative**

Notch Setting	Emission Factors (g/hr)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>						
DB	68.5	179.1	863.9	0.6	36.4	33.5
Idle	23.4	39.7	371.6	0.3	8.3	7.6
1	58.2	156.8	1260.2	1.3	50.5	46.4
2	100.9	265.8	3073.9	2.8	107.0	98.5
3	199.3	672.9	7147.8	5.8	188.3	173.3
4	205.1	1043.8	9203.5	8.0	238.0	219.0
5	270.6	907.8	10160.3	11.0	283.6	260.9
6	341.6	955.4	14182.9	14.1	280.3	257.9
7	395.4	1292.8	16786.5	17.4	283.7	261.0
8	488.6	1603.8	19596.7	21.4	334.3	307.5
<b>Year 2023</b>						
DB	47.8	163.0	574.1	0.6	18.6	17.1
Idle	21.3	45.3	310.7	0.3	6.8	6.2
1	40.5	149.3	969.8	1.3	22.8	20.9
2	67.3	264.1	2193.7	2.8	48.3	44.4
3	147.7	676.1	5472.7	5.8	83.6	76.9
4	141.8	1135.1	7147.0	8.1	104.7	96.3
5	193.0	1061.0	6947.4	11.1	155.7	143.3
6	237.7	1058.8	9964.8	14.2	148.5	136.6
7	272.9	1383.3	11805.5	17.5	143.2	131.7
8	336.1	1673.8	14028.8	21.5	157.7	145.1
<b>Year 2035</b>						
DB	17.3	128.3	239.5	0.6	7.2	6.7
Idle	6.4	32.0	114.5	0.3	1.6	1.5
1	15.6	143.7	388.4	1.4	10.6	9.8
2	28.3	243.2	932.9	2.8	22.5	20.7
3	54.6	617.1	1988.2	6.0	39.5	36.3
4	55.4	845.0	2641.7	8.3	49.8	45.8
5	75.2	549.1	3182.1	11.2	59.0	54.3
6	96.4	603.6	4460.2	14.4	57.9	53.2
7	113.4	868.3	5294.7	17.7	59.1	54.4
8	142.0	1121.1	6169.0	21.7	69.0	63.5
<b>Year 2046</b>						
DB	10.2	120.6	136.6	0.6	4.0	3.7
Idle	3.8	30.4	68.0	0.3	0.7	0.7
1	9.8	141.9	234.6	1.4	6.6	6.1
2	18.8	239.5	565.2	2.8	13.9	12.8
3	34.5	607.5	1103.2	6.1	24.5	22.5
4	35.2	806.4	1502.8	8.3	30.8	28.3
5	48.7	480.2	1987.9	11.2	34.4	31.7
6	63.8	538.5	2781.7	14.4	33.6	30.9
7	76.2	791.5	3308.6	17.8	35.3	32.5
8	96.8	1035.6	3837.7	21.7	41.4	38.1

Notes:

- (1) Assume sulfur content of 15ppm for PM EF estimates.
- (2) Line-haul locomotive fleets for future years based on projections from 2005 CARB Railroad Statewide Agreement and EPA Regulatory Impact Analysis for the Locomotive Emissions Rulemaking.
- (3) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-RP-17. Peak Emission Factors SCIG Linehaul Locomotives - Reduced Project Alternative**

Notch Setting	Emission Factors (g/hr)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>						
DB	97.2	246.8	1139.4	0.6	40.4	37.2
Idle	30.6	47.3	408.9	0.3	10.1	9.2
1	77.6	178.4	1408.9	1.3	45.9	42.2
2	126.0	297.1	3572.0	2.7	98.8	90.9
3	258.3	746.3	9354.9	5.6	174.8	160.8
4	270.4	1264.9	11554.9	7.7	223.0	205.2
5	342.9	1322.8	11226.3	10.6	274.7	252.7
6	422.2	1368.2	15481.2	13.7	279.5	257.1
7	475.1	1800.7	18212.8	16.9	271.6	249.9
8	571.5	2191.2	21278.1	20.9	329.8	303.4
<b>Year 2023</b>						
DB	63.4	224.6	757.2	0.6	20.6	18.9
Idle	26.1	53.9	341.9	0.3	8.2	7.6
1	50.5	169.9	1084.3	1.2	20.7	19.1
2	78.6	295.3	2549.1	2.7	44.6	41.0
3	178.9	749.9	7162.6	5.5	77.6	71.4
4	174.7	1375.6	8973.1	7.7	98.1	90.3
5	228.6	1546.0	7676.2	10.7	150.8	138.7
6	274.6	1516.2	10877.0	13.7	148.0	136.2
7	306.4	1926.7	12808.6	17.0	137.1	126.2
8	367.4	2286.9	15232.5	21.0	155.6	143.1
<b>Year 2035</b>						
DB	23.0	176.8	315.8	0.6	8.0	7.4
Idle	7.8	38.1	126.0	0.3	2.0	1.8
1	19.4	163.5	434.2	1.3	9.7	8.9
2	33.0	271.9	1084.1	2.7	20.7	19.1
3	66.1	684.5	2602.2	5.8	36.6	33.7
4	68.3	1024.0	3316.7	7.9	46.6	42.9
5	89.0	800.2	3515.9	10.8	57.2	52.6
6	111.4	864.4	4868.5	13.9	57.7	53.1
7	127.3	1209.3	5744.6	17.2	56.6	52.1
8	155.3	1531.8	6698.3	21.2	68.1	62.7
<b>Year 2046</b>						
DB	13.5	166.1	180.2	0.6	4.5	4.1
Idle	4.6	36.2	74.8	0.3	0.9	0.8
1	12.2	161.4	262.3	1.3	6.0	5.5
2	21.9	267.8	656.8	2.7	12.8	11.8
3	41.8	673.8	1443.9	5.8	22.7	20.9
4	43.3	977.2	1886.8	7.9	28.9	26.6
5	57.7	699.7	2196.5	10.8	33.3	30.7
6	73.7	771.1	3036.4	14.0	33.5	30.9
7	85.6	1102.4	3589.7	17.3	33.8	31.1
8	105.8	1415.0	4167.0	21.2	40.8	37.6

Notes:

- (1) Assume sulfur content of 15ppm for PM EF estimates.
- (2) Peak day locomotive emission factors derived by using a ratio of the peak day locomotive fleet mix average emissions factor in 2010, to the average day locomotive fleet mix average emissions factor in 2010 and then applied the ratio to all future year average day locomotive emission factors.
- (3) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-RP-18. Annual Locomotive Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Source Activity	Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>On-Site</b>							
2016	Line Haul Locomotive	0.16	0.39	3.78	0.00	0.10	0.09
	Switcher	0.03	0.41	0.70	0.00	0.02	0.01
	<b>Subtotal</b>	<b>0.19</b>	<b>0.80</b>	<b>4.48</b>	<b>0.00</b>	<b>0.12</b>	<b>0.11</b>
2023	Line Haul Locomotive	0.19	0.63	4.29	0.01	0.08	0.08
	Switcher	0.03	0.41	0.70	0.00	0.02	0.01
	<b>Subtotal</b>	<b>0.22</b>	<b>1.04</b>	<b>4.99</b>	<b>0.01</b>	<b>0.10</b>	<b>0.09</b>
2035	Line Haul Locomotive	0.13	0.93	3.42	0.01	0.06	0.06
	Switcher	0.03	0.41	0.70	0.00	0.02	0.01
	<b>Subtotal</b>	<b>0.16</b>	<b>1.34</b>	<b>4.12</b>	<b>0.01</b>	<b>0.08</b>	<b>0.07</b>
2046	Line Haul Locomotive	0.08	0.88	2.04	0.01	0.03	0.03
	Switcher	0.03	0.41	0.70	0.00	0.02	0.01
	<b>Subtotal</b>	<b>0.11</b>	<b>1.29</b>	<b>2.74</b>	<b>0.01</b>	<b>0.05</b>	<b>0.05</b>
<b>Off-Site</b>							
2016	Travel on Alameda Corridor	0.80	2.16	22.07	0.02	0.55	0.51
	Alameda Corridor to SCAB	2.80	8.34	95.67	0.10	1.98	1.82
	<b>Subtotal</b>	<b>3.60</b>	<b>10.49</b>	<b>117.73</b>	<b>0.12</b>	<b>2.53</b>	<b>2.33</b>
2023	Travel on Alameda Corridor	0.83	3.34	24.32	0.03	0.42	0.38
	Alameda Corridor to SCAB	2.76	13.12	103.14	0.15	1.45	1.33
	<b>Subtotal</b>	<b>3.59</b>	<b>16.47</b>	<b>127.46</b>	<b>0.18</b>	<b>1.86</b>	<b>1.72</b>
2035	Travel on Alameda Corridor	0.61	4.98	19.76	0.06	0.34	0.31
	Alameda Corridor to SCAB	2.18	17.86	87.34	0.29	1.21	1.11
	<b>Subtotal</b>	<b>2.79</b>	<b>22.85</b>	<b>107.10</b>	<b>0.36</b>	<b>1.55</b>	<b>1.42</b>
2046	Travel on Alameda Corridor	0.39	4.72	11.87	0.06	0.20	0.18
	Alameda Corridor to SCAB	1.44	16.61	53.42	0.29	0.72	0.66
	<b>Subtotal</b>	<b>1.83</b>	<b>21.33</b>	<b>65.29</b>	<b>0.36</b>	<b>0.92</b>	<b>0.85</b>

Notes:

- (1) Emissions for year 2066 are identical to those for 2046
- (2) Off-site emissions tracks activities along the Alameda Corridor and to the boundary of the South Coast Air Basin (SCAB).



**Table C1.2-RP-19. Peak Daily Locomotive Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Source Activity	Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>On-Site</b>							
2016	Line Haul Locomotive	1.16	2.73	24.30	0.02	0.57	0.52
	Switcher	0.14	2.29	3.88	0.00	0.09	0.08
	<b>Subtotal</b>	<b>1.30</b>	<b>5.02</b>	<b>28.18</b>	<b>0.02</b>	<b>0.66</b>	<b>0.61</b>
2023	Line Haul Locomotive	1.29	4.35	27.56	0.03	0.50	0.46
	Switcher	0.15	2.29	3.88	0.00	0.09	0.08
	<b>Subtotal</b>	<b>1.45</b>	<b>6.63</b>	<b>31.44</b>	<b>0.03</b>	<b>0.59</b>	<b>0.54</b>
2035	Line Haul Locomotive	0.88	6.36	21.94	0.06	0.35	0.32
	Switcher	0.15	2.29	3.88	0.00	0.09	0.08
	<b>Subtotal</b>	<b>1.03</b>	<b>8.65</b>	<b>25.83</b>	<b>0.06</b>	<b>0.44</b>	<b>0.40</b>
2046	Line Haul Locomotive	0.54	6.02	13.06	0.06	0.19	0.18
	Switcher	0.15	2.29	3.88	0.00	0.09	0.08
	<b>Subtotal</b>	<b>0.70</b>	<b>8.31</b>	<b>16.94</b>	<b>0.06</b>	<b>0.28</b>	<b>0.26</b>
<b>Off-Site</b>							
2016	Travel on Alameda Corridor	5.48	15.58	145.30	0.12	3.12	2.87
	Alameda Corridor to SCAB	18.30	63.28	611.77	0.54	11.06	10.18
	<b>Subtotal</b>	<b>23.79</b>	<b>78.86</b>	<b>757.06</b>	<b>0.66</b>	<b>14.18</b>	<b>13.05</b>
2023	Travel on Alameda Corridor	5.66	24.17	160.25	0.18	2.38	2.19
	Alameda Corridor to SCAB	18.08	99.76	660.36	0.82	8.14	7.49
	<b>Subtotal</b>	<b>23.74</b>	<b>123.92</b>	<b>820.61</b>	<b>0.99</b>	<b>10.52</b>	<b>9.68</b>
2035	Travel on Alameda Corridor	4.16	35.54	129.71	0.35	1.90	1.75
	Alameda Corridor to SCAB	14.25	134.42	557.24	1.63	6.76	6.22
	<b>Subtotal</b>	<b>18.41</b>	<b>169.96</b>	<b>686.95</b>	<b>1.98</b>	<b>8.66</b>	<b>7.97</b>
2046	Travel on Alameda Corridor	2.64	33.59	77.67	0.35	1.11	1.03
	Alameda Corridor to SCAB	9.37	124.68	340.17	1.63	4.01	3.69
	<b>Subtotal</b>	<b>12.01</b>	<b>158.27</b>	<b>417.84</b>	<b>1.98</b>	<b>5.13</b>	<b>4.72</b>

Notes:

- (1) Peak day locomotive emission factors derived by using a ratio of the peak day locomotive fleet mix average emissions factor in 2010, to the average day locomotive fleet mix average emissions factor in 2010 and then applied the ratio to all future year average day locomotive emission factors.
- (2) Emissions for year 2066 are identical to those for 2046
- (3) Off-site emissions tracks activities along the Alameda Corridor and to the boundary of the South Coast Air Basin (SCAB).

**Table C1.2-RP-20. Summary of Annual Locomotive Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	3.78	11.30	122.21	0.12	2.65	2.44
2023	3.80	17.50	132.46	0.18	1.97	1.81
2035	2.95	24.18	111.23	0.37	1.63	1.50
2046	1.93	22.62	68.03	0.37	0.97	0.89

Note: Emission for year 2066 are identical to those for 2046.

**Table C1.2-RP-21. Summary of Peak Daily Locomotive Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	25.09	83.88	785.25	0.68	14.84	13.65
2023	25.19	130.56	852.05	1.02	11.11	10.22
2035	19.44	178.60	712.77	2.04	9.10	8.37
2046	12.70	166.58	434.78	2.04	5.41	4.98

Note: Emission for year 2066 are identical to those for 2046.

**Table C1.2-RP-22. Equipment Usage for SCIG Cargo Handling Equipment - Reduced Project Alternative**

Equipment	HP	LF	Fuel	Hours/Unit	Quantity	Total hp-hr
<b>Year 2016</b>						
Rail Car Wheel Change Machine	160	0.43	D	1,632	2	522,240
TRU	34	0.53	D	0.3	1420	14,484
<b>Year 2023</b>						
Rail Car Wheel Change Machine	160	0.43	D	1,632	2	522,240
TRU	34	0.53	D	0.3	1950	19,890
<b>Year 2035</b>						
Rail Car Wheel Change Machine	160	0.43	D	1,632	2	522,240
TRU	34	0.53	D	0.3	1950	19,890
<b>Year 2046</b>						
Rail Car Wheel Change Machine	160	0.43	D	1,632	2	522,240
TRU	34	0.53	D	0.3	1950	19,890

Notes:

- (1) Crane emissions are estimated using the ARB CHE Calculator; TRU emissions are estimated using CARB OFFROAD2007 Model.
- (2) All TRUs will be electrified on the SCIG site; emissions estimates assume 30 minutes running on diesel fuel between arrival on-site and plugging in to electrical outlets with a cycle percentage of 60%.
- (3) 0.13% of the container throughput at SCIG are TRUs
- (4) Equipment usage for 2066 is identical to that for 2046.

**Table C1.2-RP-23. Emission Factors for SCIG Cargo Handling Equipment - Reduced Project Alternative**

Equipment	Emission Factors (g/hp-hr)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>						
Rail Car Wheel Change Machine	0.05	2.70	0.27	0.06	0.01	0.01
TRU	0.65	5.17	4.68	0.01	0.15	0.14
<b>Year 2023</b>						
Rail Car Wheel Change Machine	0.05	2.70	0.27	0.06	0.01	0.01
TRU	0.58	5.13	3.62	0.01	0.02	0.02
<b>Year 2035</b>						
Rail Car Wheel Change Machine	0.05	2.70	0.27	0.06	0.01	0.01
TRU	0.58	5.13	3.57	0.01	0.02	0.02
<b>Year 2046</b>						
Rail Car Wheel Change Machine	0.05	2.70	0.27	0.06	0.01	0.01
TRU	0.58	5.13	3.57	0.01	0.02	0.02

Notes:

- (1) Crane emission factors were estimated using the ARB CHE calculator
- (2) TRU emission factors modeled using OFFROAD 2007; year 2046 uses 2040 emission factors
- (3) Emission factors for 2066 are identical to those for 2046

**Table C1.2-RP-24. Annual Emissions for SCIG Cargo Handling Equipment - Reduced Project Alternative**

Equipment	HP	Emission (tons/year)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>							
Rail Car Wheel Change Machine	160	0.01	0.67	0.06	0.00	0.00	0.00
TRU	34	0.01	0.04	0.04	0.00	0.00	0.00
<b>Total</b>		<b>0.02</b>	<b>0.72</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Year 2023</b>							
Rail Car Wheel Change Machine	160	0.01	0.72	0.07	0.00	0.00	0.00
TRU	34	0.01	0.06	0.04	0.00	0.00	0.00
<b>Total</b>		<b>0.02</b>	<b>0.77</b>	<b>0.11</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Year 2035</b>							
Rail Car Wheel Change Machine	160	0.01	0.67	0.06	0.00	0.00	0.00
TRU	34	0.01	0.06	0.04	0.00	0.00	0.00
<b>Total</b>		<b>0.02</b>	<b>0.73</b>	<b>0.11</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Year 2046</b>							
Rail Car Wheel Change Machine	160	0.01	0.74	0.07	0.00	0.00	0.00
TRU	34	0.01	0.06	0.04	0.00	0.00	0.00
<b>Total</b>		<b>0.02</b>	<b>0.80</b>	<b>0.11</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Notes:

- (1) Crane emissions are estimated using the ARB CHE Calculator; TRU emissions are estimated using CARB OFFROAD2007 Model.
- (2) Emissions for 2066 are identical to those for 2046.

**Table C1.2-RP-25. Peak Daily Emissions for SCIG Cargo Handling Equipment - Reduced Project Alternative**

Equipment	HP	Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>							
Rail Car Wheel Change Machine	160	0.06	3.74	0.35	0.01	0.01	0.01
TRU	34	1.46	11.67	10.57	0.02	0.34	0.31
<b>Total</b>		<b>1.52</b>	<b>15.41</b>	<b>10.93</b>	<b>0.03</b>	<b>0.35</b>	<b>0.32</b>
<b>Year 2023</b>							
Rail Car Wheel Change Machine	160	0.07	3.97	0.37	0.01	0.01	0.01
TRU	34	1.81	15.91	11.21	0.03	0.07	0.06
<b>Total</b>		<b>1.88</b>	<b>19.88</b>	<b>11.59</b>	<b>0.03</b>	<b>0.08</b>	<b>0.08</b>
<b>Year 2035</b>							
Rail Car Wheel Change Machine	160	0.06	3.74	0.35	0.01	0.01	0.01
TRU	34	1.81	15.91	11.06	0.03	0.05	0.05
<b>Total</b>		<b>1.87</b>	<b>19.65</b>	<b>11.41</b>	<b>0.03</b>	<b>0.06</b>	<b>0.06</b>
<b>Year 2046</b>							
Rail Car Wheel Change Machine	160	0.07	4.11	0.38	0.01	0.01	0.01
TRU	34	1.81	15.91	11.06	0.03	0.05	0.05
<b>Total</b>		<b>1.89</b>	<b>20.01</b>	<b>11.44</b>	<b>0.03</b>	<b>0.07</b>	<b>0.06</b>

Notes:

- (1) Crane emissions are estimated using the ARB CHE Calculator; TRU emissions are estimated using CARB OFFROAD2007 Model.
- (2) Emissions for 2066 are identical to those for 2046.

**Table C1.2-RP-26. Annual Activity Data for SCIG Maintenance Equipment - Reduced Project Alternative**

<b>Equipment</b>	<b>Quantity</b>	<b>Model Year</b>	<b>Fuel Type</b>	<b>HP</b>	<b>Activity (hrs/yr)</b>	<b>Load Factor</b>
<b>All Years</b>						
Welder	2	1996	G	20	208	0.51
Air Compressor	1	1989	G	35	484	0.56

Source: BNSF



**Table C1.2-RP-27. Emission Factors for SCIG Maintenance Equipment - Reduced Project Alternative**

Equipment	HP	Emission Factors (g/hp-hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>							
Welder	20	6.84	268.19	4.53	0.01	3.60	3.31
Air Compressor	35	2.94	120.21	4.04	0.01	0.06	0.06
<b>Year 2023</b>							
Welder	20	6.74	266.89	4.57	0.01	3.60	3.31
Air Compressor	35	1.91	132.78	2.43	0.01	0.06	0.06
<b>Year 2035</b>							
Welder	20	6.73	266.68	4.56	0.01	3.60	3.31
Air Compressor	35	1.50	141.45	1.86	0.01	0.06	0.06
<b>Year 2046</b>							
Welder	20	6.73	266.59	4.56	0.01	3.60	3.31
Air Compressor	35	1.50	141.36	1.85	0.01	0.06	0.06

Notes:

- (1) Emission factors were estimated with the use of ARB OFFROAD2007 model.
- (2) Year 2046 uses 2040 emission factors
- (3) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-RP-28. Annual Emissions for SCIG Maintenance Equipment - Reduced Project Alternative**

Equipment	HP	Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>							
Welder	20	0.03	1.25	0.02	0.00	0.02	0.02
Air Compressor	35	0.03	1.26	0.04	0.00	0.00	0.00
<b>Total</b>		<b>0.06</b>	<b>2.51</b>	<b>0.06</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>
<b>Year 2023</b>							
Welder	20	0.03	1.25	0.02	0.00	0.02	0.02
Air Compressor	35	0.02	1.39	0.03	0.00	0.00	0.00
<b>Total</b>		<b>0.05</b>	<b>2.64</b>	<b>0.05</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>
<b>Year 2035</b>							
Welder	20	0.03	1.25	0.02	0.00	0.02	0.02
Air Compressor	35	0.02	1.48	0.02	0.00	0.00	0.00
<b>Total</b>		<b>0.05</b>	<b>2.73</b>	<b>0.04</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>
<b>Year 2046</b>							
Welder	20	0.03	1.25	0.02	0.00	0.02	0.02
Air Compressor	35	0.02	1.48	0.02	0.00	0.00	0.00
<b>Total</b>		<b>0.05</b>	<b>2.73</b>	<b>0.04</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-29. Peak Daily Emissions for SCIG Maintenance Equipment - Reduced Project Alternative**

Equipment	HP	Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2016</b>							
Welder	20	0.18	6.97	0.12	0.00	0.09	0.09
Air Compressor	35	0.17	6.98	0.23	0.00	0.00	0.00
<b>Total</b>		<b>0.35</b>	<b>13.95</b>	<b>0.35</b>	<b>0.00</b>	<b>0.10</b>	<b>0.09</b>
<b>Year 2023</b>							
Welder	20	0.18	6.94	0.12	0.00	0.09	0.09
Air Compressor	35	0.11	7.71	0.14	0.00	0.00	0.00
<b>Total</b>		<b>0.29</b>	<b>14.65</b>	<b>0.26</b>	<b>0.00</b>	<b>0.10</b>	<b>0.09</b>
<b>Year 2035</b>							
Welder	20	0.17	6.93	0.12	0.00	0.09	0.09
Air Compressor	35	0.09	8.22	0.11	0.00	0.00	0.00
<b>Total</b>		<b>0.26</b>	<b>15.15</b>	<b>0.23</b>	<b>0.00</b>	<b>0.10</b>	<b>0.09</b>
<b>Year 2046</b>							
Welder	20	0.17	6.93	0.12	0.00	0.09	0.09
Air Compressor	35	0.09	8.21	0.11	0.00	0.00	0.00
<b>Total</b>		<b>0.26</b>	<b>15.14</b>	<b>0.23</b>	<b>0.00</b>	<b>0.10</b>	<b>0.09</b>

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-30. Activity Data for SCIG Emergency Generator - Reduced Project Alternative**

<b>Equipment</b>	<b>Quantity</b>	<b>HP</b>	<b>Fuel Type</b>	<b>Annual Usage (hr/yr)</b>	<b>Peak Daily Usage (hr/day)</b>
<b>All Years</b>					
Emergency Generator	1	846	D	199	24

**Table C1.2-RP-31. Emission Factors for SCIG Emergency Generator - Reduced Project Alternative**

Equipment	HP	Emission Factor (g/bhp-hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>All Years</b>							
Emergency Generator	846	0.13	2.60	0.50	0.00	0.02	0.02

Notes:

- (1) Emission factors assume Tier 4 generator.
- (2) SOx emission factor from OFFROAD2007

**Table C1.2-RP-32. Summary of Annual Emissions for SCIG Emergency Generator - Reduced Project Alternative**

Equipment	HP	Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>All Years</b>							
Emergency Generator	846	0.02	0.48	0.09	0.00	0.00	0.00
<b>Total</b>		<b>0.02</b>	<b>0.48</b>	<b>0.09</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**Table C1.2-RP-33. Summary of Peak Daily Emissions for SCIG Emergency Generator - Reduced Project Alternative**

Equipment	HP	Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>All Years</b>							
Emergency Generator	846	5.96	116.38	22.38	0.19	0.98	0.91
<b>Total</b>		<b>5.96</b>	<b>116.38</b>	<b>22.38</b>	<b>0.19</b>	<b>0.98</b>	<b>0.91</b>

**Table C1.2-RP-34. Activity Data for SCIG Gasoline Service Trucks - Reduced Project Alternative**

<b>Project Year/Mode</b>	<b>Throughput</b>	<b>On-site Idle / Trip (hrs)</b>	<b>Avg On-site Distance (mi)</b>	<b>Idle Hr / Year</b>	<b>VMT / Year</b>
<b>All Years</b>					
Light Duty Gas Service Trucks	5,040	0.17	0.42	840	2,117



**Table C1.2-RP-35a. Emission Factors for SCIG Gasoline Service Trucks - Reduced Project Alternative**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)					
		VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>Project Year 2016</b>							
On-road Truck - Idle (g/hr)	0	1.08	15.66	1.70	0.03	0.06	0.05
On-road Truck Transport	5	0.22	3.13	0.34	0.01	1.61	0.42
On-road Truck Transport	10	0.14	2.72	0.29	0.01	1.60	0.41
On-road Truck Transport	15	0.10	2.40	0.25	0.01	1.60	0.41
On-road Truck Transport	20	0.07	2.15	0.23	0.01	1.60	0.41
On-road Truck Transport	25	0.05	1.95	0.21	0.01	1.60	0.41
On-road Truck Transport	30	0.04	1.77	0.19	0.01	1.60	0.41
On-road Truck Transport	35	0.04	1.63	0.18	0.01	1.60	0.41
On-road Truck Transport	40	0.03	1.52	0.18	0.01	1.60	0.41
On-road Truck Transport	45	0.03	1.43	0.17	0.01	1.60	0.41
On-road Truck Transport	50	0.03	1.36	0.17	0.01	1.60	0.41
On-road Truck Transport	55	0.03	1.29	0.18	0.01	1.60	0.41
On-road Truck Transport	60	0.03	1.24	0.19	0.01	1.60	0.41
On-road Truck Transport	65	0.03	1.24	0.20	0.01	1.60	0.41
<b>Project Year 2023</b>							
On-road Truck - Idle (g/hr)	0	0.52	8.20	0.90	0.03	0.06	0.06
On-road Truck Transport	5	0.10	1.64	0.18	0.01	1.61	0.42
On-road Truck Transport	10	0.07	1.48	0.15	0.01	1.60	0.41
On-road Truck Transport	15	0.05	1.34	0.13	0.01	1.60	0.41
On-road Truck Transport	20	0.03	1.22	0.12	0.01	1.60	0.41
On-road Truck Transport	25	0.02	1.11	0.11	0.01	1.60	0.41
On-road Truck Transport	30	0.02	1.02	0.10	0.01	1.60	0.41
On-road Truck Transport	35	0.02	0.94	0.10	0.01	1.60	0.41
On-road Truck Transport	40	0.01	0.87	0.09	0.01	1.60	0.41
On-road Truck Transport	45	0.01	0.82	0.09	0.01	1.60	0.41
On-road Truck Transport	50	0.01	0.76	0.09	0.01	1.60	0.41
On-road Truck Transport	55	0.01	0.71	0.09	0.01	1.60	0.41
On-road Truck Transport	60	0.01	0.65	0.10	0.01	1.60	0.41
On-road Truck Transport	65	0.01	0.62	0.10	0.01	1.60	0.41
<b>Project Year 2035</b>							
On-road Truck - Idle (g/hr)	0	0.38	6.04	0.61	0.03	0.07	0.06
On-road Truck Transport	5	0.08	1.21	0.12	0.01	1.61	0.42
On-road Truck Transport	10	0.05	1.10	0.11	0.01	1.60	0.41
On-road Truck Transport	15	0.03	1.00	0.09	0.01	1.60	0.41
On-road Truck Transport	20	0.02	0.92	0.08	0.01	1.60	0.41
On-road Truck Transport	25	0.02	0.84	0.08	0.01	1.60	0.41
On-road Truck Transport	30	0.01	0.77	0.07	0.01	1.60	0.41
On-road Truck Transport	35	0.01	0.71	0.07	0.01	1.60	0.41
On-road Truck Transport	40	0.01	0.66	0.06	0.01	1.60	0.41
On-road Truck Transport	45	0.01	0.62	0.06	0.01	1.60	0.41
On-road Truck Transport	50	0.01	0.58	0.06	0.01	1.60	0.41
On-road Truck Transport	55	0.01	0.53	0.06	0.01	1.60	0.41
On-road Truck Transport	60	0.01	0.49	0.07	0.01	1.60	0.41
On-road Truck Transport	65	0.01	0.45	0.07	0.01	1.60	0.41
<b>Project Year 2046</b>							
On-road Truck - Idle (g/hr)	0	0.38	6.04	0.61	0.03	0.07	0.06
On-road Truck Transport	5	0.08	1.21	0.12	0.01	1.61	0.42
On-road Truck Transport	10	0.05	1.10	0.11	0.01	1.60	0.41
On-road Truck Transport	15	0.03	1.00	0.09	0.01	1.60	0.41
On-road Truck Transport	20	0.02	0.92	0.08	0.01	1.60	0.41
On-road Truck Transport	25	0.02	0.84	0.08	0.01	1.60	0.41
On-road Truck Transport	30	0.01	0.77	0.07	0.01	1.60	0.41
On-road Truck Transport	35	0.01	0.71	0.07	0.01	1.60	0.41
On-road Truck Transport	40	0.01	0.66	0.06	0.01	1.60	0.41
On-road Truck Transport	45	0.01	0.62	0.06	0.01	1.60	0.41
On-road Truck Transport	50	0.01	0.58	0.06	0.01	1.60	0.41
On-road Truck Transport	55	0.01	0.53	0.06	0.01	1.60	0.41
On-road Truck Transport	60	0.01	0.49	0.07	0.01	1.60	0.41
On-road Truck Transport	65	0.01	0.45	0.07	0.01	1.60	0.41

Notes:

- (1) EMFAC2011 with SCAB default age distributions.
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Year 2046 uses 2035 emission factors.
- (4) Emission factors for year 2066 are identical to those of 2046.

**Table C1.2-RP-35b. Emission Factors for SCIG Gasoline Service Trucks - Reduced Project Alternative - with On-Site Sweeping Mitigation**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)					
		VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>Project Year 2016</b>							
On-road Truck - Idle (g/hr)	0	1.08	15.66	1.70	0.03	0.06	0.05
On-road Truck Transport	5	0.22	3.13	0.34	0.01	1.20	0.32
On-road Truck Transport	10	0.14	2.72	0.29	0.01	1.20	0.31
On-road Truck Transport	15	0.10	2.40	0.25	0.01	1.20	0.31
On-road Truck Transport	20	0.07	2.15	0.23	0.01	1.19	0.31
On-road Truck Transport	25	0.05	1.95	0.21	0.01	1.19	0.31
On-road Truck Transport	30	0.04	1.77	0.19	0.01	1.19	0.31
On-road Truck Transport	35	0.04	1.63	0.18	0.01	1.19	0.31
On-road Truck Transport	40	0.03	1.52	0.18	0.01	1.19	0.31
On-road Truck Transport	45	0.03	1.43	0.17	0.01	1.19	0.31
On-road Truck Transport	50	0.03	1.36	0.17	0.01	1.19	0.31
On-road Truck Transport	55	0.03	1.29	0.18	0.01	1.19	0.31
On-road Truck Transport	60	0.03	1.24	0.19	0.01	1.19	0.31
On-road Truck Transport	65	0.03	1.24	0.20	0.01	1.19	0.31
<b>Project Year 2023</b>							
On-road Truck - Idle (g/hr)	0	0.52	8.20	0.90	0.03	0.06	0.06
On-road Truck Transport	5	0.10	1.64	0.18	0.01	1.20	0.32
On-road Truck Transport	10	0.07	1.48	0.15	0.01	1.20	0.31
On-road Truck Transport	15	0.05	1.34	0.13	0.01	1.20	0.31
On-road Truck Transport	20	0.03	1.22	0.12	0.01	1.19	0.31
On-road Truck Transport	25	0.02	1.11	0.11	0.01	1.19	0.31
On-road Truck Transport	30	0.02	1.02	0.10	0.01	1.19	0.31
On-road Truck Transport	35	0.02	0.94	0.10	0.01	1.19	0.31
On-road Truck Transport	40	0.01	0.87	0.09	0.01	1.19	0.31
On-road Truck Transport	45	0.01	0.82	0.09	0.01	1.19	0.31
On-road Truck Transport	50	0.01	0.76	0.09	0.01	1.19	0.31
On-road Truck Transport	55	0.01	0.71	0.09	0.01	1.19	0.31
On-road Truck Transport	60	0.01	0.65	0.10	0.01	1.19	0.31
On-road Truck Transport	65	0.01	0.62	0.10	0.01	1.19	0.31
<b>Project Year 2035</b>							
On-road Truck - Idle (g/hr)	0	0.38	6.04	0.61	0.03	0.07	0.06
On-road Truck Transport	5	0.08	1.21	0.12	0.01	1.20	0.32
On-road Truck Transport	10	0.05	1.10	0.11	0.01	1.20	0.31
On-road Truck Transport	15	0.03	1.00	0.09	0.01	1.20	0.31
On-road Truck Transport	20	0.02	0.92	0.08	0.01	1.20	0.31
On-road Truck Transport	25	0.02	0.84	0.08	0.01	1.19	0.31
On-road Truck Transport	30	0.01	0.77	0.07	0.01	1.19	0.31
On-road Truck Transport	35	0.01	0.71	0.07	0.01	1.19	0.31
On-road Truck Transport	40	0.01	0.66	0.06	0.01	1.19	0.31
On-road Truck Transport	45	0.01	0.62	0.06	0.01	1.19	0.31
On-road Truck Transport	50	0.01	0.58	0.06	0.01	1.19	0.31
On-road Truck Transport	55	0.01	0.53	0.06	0.01	1.19	0.31
On-road Truck Transport	60	0.01	0.49	0.07	0.01	1.19	0.31
On-road Truck Transport	65	0.01	0.45	0.07	0.01	1.19	0.31
<b>Project Year 2046</b>							
On-road Truck - Idle (g/hr)	0	0.38	6.04	0.61	0.03	0.07	0.06
On-road Truck Transport	5	0.08	1.21	0.12	0.01	1.20	0.32
On-road Truck Transport	10	0.05	1.10	0.11	0.01	1.20	0.31
On-road Truck Transport	15	0.03	1.00	0.09	0.01	1.20	0.31
On-road Truck Transport	20	0.02	0.92	0.08	0.01	1.20	0.31
On-road Truck Transport	25	0.02	0.84	0.08	0.01	1.19	0.31
On-road Truck Transport	30	0.01	0.77	0.07	0.01	1.19	0.31
On-road Truck Transport	35	0.01	0.71	0.07	0.01	1.19	0.31
On-road Truck Transport	40	0.01	0.66	0.06	0.01	1.19	0.31
On-road Truck Transport	45	0.01	0.62	0.06	0.01	1.19	0.31
On-road Truck Transport	50	0.01	0.58	0.06	0.01	1.19	0.31
On-road Truck Transport	55	0.01	0.53	0.06	0.01	1.19	0.31
On-road Truck Transport	60	0.01	0.49	0.07	0.01	1.19	0.31
On-road Truck Transport	65	0.01	0.45	0.07	0.01	1.19	0.31

Notes:

- (1) EMFAC2011 with SCAB default age distributions.
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Year 2046 uses 2035 emission factors.
- (4) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (5) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-RP-36a. Annual Gasoline Service Truck Emissions for SCIG - Reduced Project Alternative**

Project Scenario - Mode	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>Project Year 2016</b>						
Year 2016 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2016 - Driving	0.00	0.01	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Project Year 2023</b>						
Year 2023 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2023 - Driving	0.00	0.00	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Project Year 2035</b>						
Year 2035 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2035 - Driving	0.00	0.00	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Project Year 2046</b>						
Year 2046 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2046 - Driving	0.00	0.00	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-36b. Annual Gasoline Service Truck Emissions for SCIG - Reduced Project Alternative - with On-Site Sweeping Mitigation**

Project Scenario - Mode	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>Project Year 2016</b>						
Year 2016 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2016 - Driving	0.00	0.01	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Project Year 2023</b>						
Year 2023 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2023 - Driving	0.00	0.00	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Project Year 2035</b>						
Year 2035 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2035 - Driving	0.00	0.00	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Project Year 2046</b>						
Year 2046 - Idling	0.00	0.01	0.00	0.00	0.00	0.00
Year 2046 - Driving	0.00	0.00	0.00	0.00	0.00	0.00
<b>Subtotal</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Notes:

- (1) On-site driving emissions are calculated with 10 mph emission factors.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-37a. Summary of Annual Gasoline Service Truck On-Site Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.00	0.02	0.00	0.00	0.00	0.00
2023	0.00	0.01	0.00	0.00	0.00	0.00
2035	0.00	0.01	0.00	0.00	0.00	0.00
2046	0.00	0.01	0.00	0.00	0.00	0.00

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-37b. Summary of Annual Gasoline Service Truck On-Site Emissions for SCIG - Reduced Project Alternative - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.00	0.02	0.00	0.00	0.00	0.00
2023	0.00	0.01	0.00	0.00	0.00	0.00
2035	0.00	0.01	0.00	0.00	0.00	0.00
2046	0.00	0.01	0.00	0.00	0.00	0.00

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-38a. Summary of Peak Daily Gasoline Service Truck Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.01	0.12	0.01	0.00	0.02	0.01
2023	0.00	0.06	0.01	0.00	0.02	0.01
2035	0.00	0.05	0.00	0.00	0.02	0.01
2046	0.00	0.05	0.00	0.00	0.02	0.01

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-38b. Summary of Peak Daily Gasoline Service Truck Emissions for SCIG - Reduced Project Alternative - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.01	0.12	0.01	0.00	0.02	0.00
2023	0.00	0.06	0.01	0.00	0.02	0.00
2035	0.00	0.05	0.00	0.00	0.02	0.00
2046	0.00	0.05	0.00	0.00	0.02	0.00

Note: Emissions for year 2066 are identical to those for 2046.



**Table C1.2-RP-39. Activity Data for SCIG Refueling Trucks - Reduced Project Alternative**

Truck Type	Annual Throughput	Idle / Trip (hrs)	Average Distance (mi)	Idle Hr / Year	VMT / Year
<b>Year 2016</b>					
<b>On-Site</b>					
Refueling Trucks for Diesel Fuel	823	0.95	0.25	784	206
Refueling Trucks for LNG Fuel	10	0.17	0.25	2	3
<b>Off-Site</b>					
Refueling Trucks for all fuels	833	--	17.80	--	14,830
<b>Year 2023</b>					
<b>On-Site</b>					
Refueling Trucks for Diesel Fuel	1,235	0.95	0.25	1,176	309
Refueling Trucks for LNG Fuel	15	0.17	0.25	3	4
<b>Off-Site</b>					
Refueling Trucks for all fuels	1250	--	17.80	--	22,254
<b>Year 2035</b>					
<b>On-Site</b>					
Refueling Trucks for Diesel Fuel	2,469	0.95	0.25	2,351	617
Refueling Trucks for LNG Fuel	34	0.17	0.25	6	8
<b>Off-Site</b>					
Refueling Trucks for all fuels	2503	--	17.80	--	44,551
<b>Year 2046</b>					
<b>On-Site</b>					
Refueling Trucks for Diesel Fuel	2,469	0.95	0.25	2,351	617
Refueling Trucks for LNG Fuel	34	0.17	0.25	6	8
<b>Off-Site</b>					
Refueling Trucks for all fuels	2503	--	17.80	--	44,551

Notes:

- (1) The number of fuel delivery truck trips for each analysis year was estimated based on the expected fuel consumption at the facility and tanker truck capacity.
- (2) Trucks were assumed to travel on-site at an average speed of 10 mph;
- (3) Activity data for year 2066 are identical to those for 2046.

**Table C1.2-RP-40a. Emission Factors for SCIG Refueling Trucks - Reduced Project Alternative**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
						On-site		Off-site	
		VOC	CO	NOx	SOx	PM 10	PM 2.5	PM 10	PM 2.5
<b>Project Year 2016</b>									
On-road Truck - Idle (g/hr)	0	6.02	33.69	58.40	0.07	0.15	0.14	0.15	0.14
On-road Truck Transport	5	3.24	6.32	19.93	0.02	1.80	0.57	0.69	0.29
On-road Truck Transport	10	1.89	3.99	14.50	0.02	1.77	0.54	0.65	0.26
On-road Truck Transport	15	0.96	2.37	10.60	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	20	0.36	1.18	8.46	0.02	1.72	0.50	0.61	0.22
On-road Truck Transport	25	0.36	1.23	7.33	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	30	0.31	1.16	6.76	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	35	0.27	1.12	6.30	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	40	0.23	1.09	5.94	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	45	0.21	1.09	5.69	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	50	0.19	1.12	5.54	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	55	0.17	1.17	5.50	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	60	0.16	1.24	5.56	0.02	1.76	0.53	0.65	0.25
On-road Truck Transport	65	0.17	1.33	5.72	0.02	1.78	0.55	0.67	0.27
<b>Project Year 2023</b>									
On-road Truck - Idle (g/hr)	0	7.29	41.11	39.72	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.74	5.46	7.74	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	1.59	3.40	5.78	0.02	1.72	0.49	0.61	0.22
On-road Truck Transport	15	0.81	1.98	4.33	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	20	0.32	0.98	2.84	0.02	1.70	0.47	0.58	0.19
On-road Truck Transport	25	0.30	1.01	2.95	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	30	0.27	0.97	2.67	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	35	0.23	0.95	2.44	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	40	0.20	0.94	2.26	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	45	0.18	0.95	2.13	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	50	0.16	0.98	2.05	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	55	0.15	1.03	2.01	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	60	0.14	1.09	2.03	0.02	1.75	0.52	0.64	0.24
On-road Truck Transport	65	0.13	1.18	2.09	0.02	1.77	0.54	0.65	0.26
<b>Project Year 2035</b>									
On-road Truck - Idle (g/hr)	0	7.37	41.56	38.79	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.61	5.22	7.08	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	1.52	3.25	5.31	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	15	0.77	1.89	3.99	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	20	0.31	0.96	2.72	0.02	1.70	0.47	0.58	0.19
On-road Truck Transport	25	0.29	0.97	2.71	0.02	1.70	0.47	0.59	0.20
On-road Truck Transport	30	0.25	0.93	2.44	0.02	1.70	0.47	0.58	0.20
On-road Truck Transport	35	0.22	0.90	2.23	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	40	0.19	0.90	2.05	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	45	0.17	0.91	1.93	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	50	0.15	0.94	1.85	0.02	1.72	0.49	0.61	0.21
On-road Truck Transport	55	0.14	0.98	1.81	0.02	1.73	0.50	0.62	0.23
On-road Truck Transport	60	0.13	1.05	1.82	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	65	0.13	1.13	1.88	0.02	1.76	0.53	0.65	0.25
<b>Project Year 2046</b>									
On-road Truck - Idle (g/hr)	0	7.37	41.56	38.79	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.61	5.22	7.08	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	1.52	3.25	5.31	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	15	0.77	1.89	3.99	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	20	0.31	0.96	2.72	0.02	1.70	0.47	0.58	0.19
On-road Truck Transport	25	0.29	0.97	2.71	0.02	1.70	0.47	0.59	0.20
On-road Truck Transport	30	0.25	0.93	2.44	0.02	1.70	0.47	0.58	0.20
On-road Truck Transport	35	0.22	0.90	2.23	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	40	0.19	0.90	2.05	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	45	0.17	0.91	1.93	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	50	0.15	0.94	1.85	0.02	1.72	0.49	0.61	0.21
On-road Truck Transport	55	0.14	0.98	1.81	0.02	1.73	0.50	0.62	0.23
On-road Truck Transport	60	0.13	1.05	1.82	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	65	0.13	1.13	1.88	0.02	1.76	0.53	0.65	0.25

Notes:

- (1) Emission factors were generated with the use of EMFAC2011 model with SCAB default age distributions.
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Year 2046 uses 2035 emission factors
- (4) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-RP-40b. Emission Factors for SCIG Refueling Trucks - Reduced Project Alternative - with On-Site Sweeping Mitigation**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
						On-site		Off-site	
		VOC	CO	NOx	SOx	PM 10	PM 2.5	PM 10	PM 2.5
<b>Project Year 2016</b>									
On-road Truck - Idle (g/hr)	0	6.02	33.69	58.40	0.07	0.15	0.14	0.15	0.14
On-road Truck Transport	5	3.24	6.32	19.93	0.02	1.40	0.47	0.69	0.29
On-road Truck Transport	10	1.89	3.99	14.50	0.02	1.37	0.44	0.65	0.26
On-road Truck Transport	15	0.96	2.37	10.60	0.02	1.34	0.41	0.63	0.24
On-road Truck Transport	20	0.36	1.18	8.46	0.02	1.32	0.39	0.61	0.22
On-road Truck Transport	25	0.36	1.23	7.33	0.02	1.32	0.39	0.60	0.21
On-road Truck Transport	30	0.31	1.16	6.76	0.02	1.31	0.39	0.60	0.21
On-road Truck Transport	35	0.27	1.12	6.30	0.02	1.31	0.39	0.60	0.21
On-road Truck Transport	40	0.23	1.09	5.94	0.02	1.32	0.39	0.60	0.21
On-road Truck Transport	45	0.21	1.09	5.69	0.02	1.32	0.40	0.61	0.22
On-road Truck Transport	50	0.19	1.12	5.54	0.02	1.33	0.40	0.62	0.23
On-road Truck Transport	55	0.17	1.17	5.50	0.02	1.35	0.42	0.63	0.24
On-road Truck Transport	60	0.16	1.24	5.56	0.02	1.36	0.43	0.65	0.25
On-road Truck Transport	65	0.17	1.33	5.72	0.02	1.38	0.45	0.67	0.27
<b>Project Year 2023</b>									
On-road Truck - Idle (g/hr)	0	7.29	41.11	39.72	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.74	5.46	7.74	0.02	1.33	0.40	0.61	0.22
On-road Truck Transport	10	1.59	3.40	5.78	0.02	1.32	0.39	0.61	0.22
On-road Truck Transport	15	0.81	1.98	4.33	0.02	1.31	0.39	0.60	0.21
On-road Truck Transport	20	0.32	0.98	2.84	0.02	1.30	0.37	0.58	0.19
On-road Truck Transport	25	0.30	1.01	2.95	0.02	1.30	0.38	0.59	0.20
On-road Truck Transport	30	0.27	0.97	2.67	0.02	1.30	0.38	0.59	0.20
On-road Truck Transport	35	0.23	0.95	2.44	0.02	1.30	0.38	0.59	0.20
On-road Truck Transport	40	0.20	0.94	2.26	0.02	1.31	0.38	0.59	0.20
On-road Truck Transport	45	0.18	0.95	2.13	0.02	1.32	0.39	0.60	0.21
On-road Truck Transport	50	0.16	0.98	2.05	0.02	1.32	0.40	0.61	0.22
On-road Truck Transport	55	0.15	1.03	2.01	0.02	1.34	0.41	0.62	0.23
On-road Truck Transport	60	0.14	1.09	2.03	0.02	1.35	0.42	0.64	0.24
On-road Truck Transport	65	0.13	1.18	2.09	0.02	1.37	0.44	0.65	0.26
<b>Project Year 2035</b>									
On-road Truck - Idle (g/hr)	0	7.37	41.56	38.79	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.61	5.22	7.08	0.02	1.32	0.40	0.61	0.22
On-road Truck Transport	10	1.52	3.25	5.31	0.02	1.32	0.39	0.60	0.21
On-road Truck Transport	15	0.77	1.89	3.99	0.02	1.31	0.38	0.59	0.20
On-road Truck Transport	20	0.31	0.96	2.72	0.02	1.30	0.37	0.58	0.19
On-road Truck Transport	25	0.29	0.97	2.71	0.02	1.30	0.37	0.59	0.20
On-road Truck Transport	30	0.25	0.93	2.44	0.02	1.30	0.37	0.58	0.20
On-road Truck Transport	35	0.22	0.90	2.23	0.02	1.30	0.38	0.59	0.20
On-road Truck Transport	40	0.19	0.90	2.05	0.02	1.31	0.38	0.59	0.20
On-road Truck Transport	45	0.17	0.91	1.93	0.02	1.31	0.39	0.60	0.21
On-road Truck Transport	50	0.15	0.94	1.85	0.02	1.32	0.39	0.61	0.21
On-road Truck Transport	55	0.14	0.98	1.81	0.02	1.33	0.40	0.62	0.23
On-road Truck Transport	60	0.13	1.05	1.82	0.02	1.35	0.42	0.63	0.24
On-road Truck Transport	65	0.13	1.13	1.88	0.02	1.36	0.43	0.65	0.25
<b>Project Year 2046</b>									
On-road Truck - Idle (g/hr)	0	7.37	41.56	38.79	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.61	5.22	7.08	0.02	1.32	0.40	0.61	0.22
On-road Truck Transport	10	1.52	3.25	5.31	0.02	1.32	0.39	0.60	0.21
On-road Truck Transport	15	0.77	1.89	3.99	0.02	1.31	0.38	0.59	0.20
On-road Truck Transport	20	0.31	0.96	2.72	0.02	1.30	0.37	0.58	0.19
On-road Truck Transport	25	0.29	0.97	2.71	0.02	1.30	0.37	0.59	0.20
On-road Truck Transport	30	0.25	0.93	2.44	0.02	1.30	0.37	0.58	0.20
On-road Truck Transport	35	0.22	0.90	2.23	0.02	1.30	0.38	0.59	0.20
On-road Truck Transport	40	0.19	0.90	2.05	0.02	1.31	0.38	0.59	0.20
On-road Truck Transport	45	0.17	0.91	1.93	0.02	1.31	0.39	0.60	0.21
On-road Truck Transport	50	0.15	0.94	1.85	0.02	1.32	0.39	0.61	0.21
On-road Truck Transport	55	0.14	0.98	1.81	0.02	1.33	0.40	0.62	0.23
On-road Truck Transport	60	0.13	1.05	1.82	0.02	1.35	0.42	0.63	0.24
On-road Truck Transport	65	0.13	1.13	1.88	0.02	1.36	0.43	0.65	0.25

Notes:

- (1) Emission factors were generated with the use of EMFAC2011 model with SCAB default age distributions.
- (2) PM emission factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Year 2046 uses 2035 emission factors
- (4) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (5) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-RP-41a. Annual Refueling Truck Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Refueling Truck Type - Mode	Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>On-Site</b>							
<b>2016</b>	Diesel Fuel - Idling	0.01	0.03	0.05	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.01</b>	<b>0.03</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2023</b>	Diesel Fuel - Idling	0.01	0.05	0.05	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.01</b>	<b>0.05</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2035</b>	Diesel Fuel - Idling	0.02	0.11	0.10	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.02</b>	<b>0.11</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2046</b>	Diesel Fuel - Idling	0.02	0.11	0.10	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.02</b>	<b>0.11</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Off-Site</b>							
<b>2016</b>	Driving	0.00	0.02	0.11	0.00	0.01	0.00
<b>2023</b>	Driving	0.01	0.03	0.06	0.00	0.01	0.01
<b>2035</b>	Driving	0.01	0.05	0.11	0.00	0.03	0.01
<b>2046</b>	Driving	0.01	0.05	0.11	0.00	0.03	0.01

Notes:

- (1) On-site driving emissions assume 10 mph.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-41b. Annual Refueling Truck Emissions for SCIG - Reduced Project Alternative - with On-Site Sweeping Mitigation**

Analysis Year	Refueling Truck Type - Mode	Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>On-Site</b>							
2016	Diesel Fuel - Idling	0.01	0.03	0.05	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.01</b>	<b>0.03</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
2023	Diesel Fuel - Idling	0.01	0.05	0.05	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.01</b>	<b>0.05</b>	<b>0.05</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
2035	Diesel Fuel - Idling	0.02	0.11	0.10	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.02</b>	<b>0.11</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
2046	Diesel Fuel - Idling	0.02	0.11	0.10	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.02</b>	<b>0.11</b>	<b>0.10</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Off-Site</b>							
2016	Driving	0.00	0.02	0.11	0.00	0.01	0.00
2023	Driving	0.01	0.03	0.06	0.00	0.01	0.01
2035	Driving	0.01	0.05	0.11	0.00	0.03	0.01
2046	Driving	0.01	0.05	0.11	0.00	0.03	0.01

Notes:

- (1) On-site driving emissions assume 10 mph.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (4) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-42a. Peak Daily Refueling Truck Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Refueling Truck Type - Mode	Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>On-Site</b>							
<b>2016</b>	Diesel Fuel - Idling	0.03	0.16	0.28	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.01	0.02	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.03</b>	<b>0.17</b>	<b>0.30</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2023</b>	Diesel Fuel - Idling	0.05	0.30	0.29	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.01	0.01	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.06</b>	<b>0.30</b>	<b>0.30</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2035</b>	Diesel Fuel - Idling	0.11	0.60	0.56	0.00	0.00	0.00
	Diesel Fuel - Driving	0.01	0.01	0.02	0.00	0.01	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.11</b>	<b>0.61</b>	<b>0.58</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>
<b>2046</b>	Diesel Fuel - Idling	0.11	0.60	0.56	0.00	0.00	0.00
	Diesel Fuel - Driving	0.01	0.01	0.02	0.00	0.01	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.11</b>	<b>0.61</b>	<b>0.58</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>
<b>Off-Site</b>							
<b>2016</b>	Driving	0.03	0.11	0.60	0.00	0.06	0.02
<b>2023</b>	Driving	0.03	0.14	0.33	0.00	0.08	0.03
<b>2035</b>	Driving	0.07	0.28	0.62	0.00	0.16	0.06
<b>2046</b>	Driving	0.07	0.27	0.62	0.00	0.16	0.06

Notes:

- (1) On-site driving emissions assume 10 mph.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-42b. Peak Daily Refueling Truck Emissions for SCIG - Reduced Project Alternative - with On-Site Sweeping Mitigation**

Analysis Year	Refueling Truck Type - Mode	Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM 10	PM 2.5
<b>On-Site</b>							
2016	Diesel Fuel - Idling	0.03	0.16	0.28	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.01	0.02	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.03</b>	<b>0.17</b>	<b>0.30</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
2023	Diesel Fuel - Idling	0.05	0.30	0.29	0.00	0.00	0.00
	Diesel Fuel - Driving	0.00	0.01	0.01	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.06</b>	<b>0.30</b>	<b>0.30</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
2035	Diesel Fuel - Idling	0.11	0.60	0.56	0.00	0.00	0.00
	Diesel Fuel - Driving	0.01	0.01	0.02	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.11</b>	<b>0.61</b>	<b>0.58</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>
2046	Diesel Fuel - Idling	0.11	0.60	0.56	0.00	0.00	0.00
	Diesel Fuel - Driving	0.01	0.01	0.02	0.00	0.00	0.00
	LNG Fuel - Idling	0.00	0.00	0.00	0.00	0.00	0.00
	LNG Fuel - Driving	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Subtotal</b>	<b>0.11</b>	<b>0.61</b>	<b>0.58</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>
<b>Off-Site</b>							
2016	Driving	0.03	0.11	0.60	0.00	0.06	0.02
2023	Driving	0.03	0.14	0.33	0.00	0.08	0.03
2035	Driving	0.07	0.28	0.62	0.00	0.16	0.06
2046	Driving	0.07	0.27	0.62	0.00	0.16	0.06

Notes:

- (1) On-site driving emissions assume 10 mph.
- (2) Paved road dust emissions are included in the PM10 and PM2.5 calculations.
- (3) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (4) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-43a. Summary of Annual Refueling Truck Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
2016	0.01	0.05	0.16	0.00	0.01	0.00
2023	0.02	0.08	0.11	0.00	0.02	0.01
2035	0.03	0.16	0.22	0.00	0.03	0.01
2046	0.03	0.16	0.22	0.00	0.03	0.01

Note: Emissions for 2066 are identical to those for 2046.



**Table C1.2-RP-43b. Summary of Annual Refueling Truck Emissions for SCIG - Reduced Project Alternative - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
2016	0.01	0.05	0.16	0.00	0.01	0.00
2023	0.02	0.08	0.11	0.00	0.02	0.01
2035	0.03	0.16	0.22	0.00	0.03	0.01
2046	0.03	0.16	0.22	0.00	0.03	0.01

Notes:

- (1) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (2) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-44a. Summary of Peak Daily Refueling Truck Emissions for SCIG - Reduced Project Alternative**

Analysis Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
2016	0.06	0.28	0.90	0.00	0.06	0.02
2023	0.09	0.45	0.63	0.00	0.09	0.03
2035	0.18	0.89	1.20	0.01	0.17	0.06
2046	0.18	0.89	1.20	0.01	0.17	0.06

Note: Emissions for 2066 are identical to those for 2046.

**Table C1.2-RP-44b. Summary of Peak Daily Refueling Truck Emissions for SCIG - Reduced Project Alternative - with On-Site Sweeping Mitigation**

Analysis Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
2016	0.06	0.28	0.90	0.00	0.06	0.02
2023	0.09	0.45	0.63	0.00	0.09	0.03
2035	0.18	0.89	1.20	0.01	0.17	0.06
2046	0.18	0.89	1.20	0.01	0.17	0.06

Notes:

- (1) On-site sweeping mitigation result in a 26% control of paved road fugitive dust PM10 and PM2.5 emissions from on-road vehicles traveling within the SCIG facility
- (2) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-45. Activity Data for SCIG LNG Yard Hostlers - Reduced Project Alternative**

<b>Analysis Year</b>	<b>Quantity</b>	<b>HP</b>	<b>Load Factor</b>	<b>Daily Activity (hr/day/unit)</b>	<b>Annual Activity (hr/yr/unit)</b>	<b>Round Trip Distance (mi/unit)</b>	<b>Annual VMT (mi/unit)</b>
2016	2	250	0.65	18	6480	0.98	52.92
2023	3	250	0.65	18	6480	0.98	52.92
2035	7	250	0.65	18	6480	0.98	52.92
2046	7	250	0.65	18	6480	0.98	52.92

Note: Activity data for year 2066 are identical to those for 2046.

**Table C1.2-RP-46. Emission Factors for SCIG LNG Yard Hostlers -  
Reduced Project Alternative**

Analysis Year	Emission Factors (g/bhp-hr)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.01	14.20	0.13	0.000	0.002	0.002
2023	0.01	14.20	0.13	0.000	0.002	0.002
2035	0.01	14.20	0.13	0.000	0.002	0.002
2046	0.01	14.20	0.13	0.000	0.002	0.002

Note:

- (1) Emission factors from engine certification data.
- (2) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-RP-47. Summary of Annual Emissions for SCIG LNG Yard  
Hostlers - Reduced Project Alternative**

Analysis Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.02	32.96	0.30	0.00	0.00	0.00
2023	0.02	49.45	0.45	0.00	0.01	0.01
2035	0.05	109.88	1.01	0.00	0.02	0.01
2046	0.05	109.88	1.01	0.00	0.02	0.01

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-RP-48. Summary of Peak Daily Emissions for LNG Yard Hostler - Reduced Project Alternative**

Analysis Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
2016	0.10	205.04	1.88	0.00	0.03	0.03
2023	0.14	307.56	2.82	0.00	0.04	0.04
2035	0.32	683.47	6.26	0.00	0.10	0.09
2046	0.32	683.47	6.26	0.00	0.10	0.09

**Table C1.2-RP-49. Activity Data for Paints, Oils, Cleaners, and Other Fluids Used for Maintenance - Reduced Project Alternative**

<b>Year</b>	<b>Cans Used Per Month</b>
2016	438
2023	613
2035	613
2046	613

Notes:

(1) Cans include paints, cleaners, oils, lubricants, etc.

(2) Activity data for year 2066 are identical to those for 2046



**Table C1.2-RP-50. VOC Emissions from Paints, Oils, Cleaners, and Other Fluids Used for Maintenance – Reduced Project Alternative**

<b>Year</b>	<b>Annual Emissions (tons/yr)</b>	<b>Peak Daily Emissions (lbs/day)</b>
2016	0.99	5.48
2023	1.35	7.52
2035	1.35	7.52
2046	1.35	7.52

Note: Emissions for year 2066 are identical to those for 2046

<b>Table C1.2-RP-51. Average Daily Operational Emissions – Reduced Project Alternative</b>						
Source Category	Average Daily Emissions (lb/day) <sup>a, e, f</sup>					
	VOC	CO	NOx	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Project Year 2016</b>						
Locomotives On-Site	1	4	25	0	1	1
Locomotives Off-Site <sup>b</sup>	20	58	654	1	14	13
Trucks On-Site	11	38	75	0	8	2
Trucks Off-Site <sup>b</sup>	6	24	94	0	8	3
Railyard Equipment	6	204	3	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	4	0	0	2	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	6	23	46	0	2	1
Trucks Off-Site <sup>b</sup>	6	24	115	0	10	4
CHE	5	400	56	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	1	23	2	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
<u>Displaced Businesses</u> <sup>c</sup>	19	1,192	135	1	9	6
<b>Total - Project Year 2016</b> <sup>d</sup>	<b>82</b>	<b>1,996</b>	<b>1,207</b>	<b>3</b>	<b>68</b>	<b>35</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Reduced Project minus CEQA Baseline	-58	38	-968	-18	-109	-49
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2023</b>						
Locomotives On-Site	1	6	28	0	1	1
Locomotives Off-Site <sup>b</sup>	20	91	708	1	10	10
Trucks On-Site	12	45	61	0	12	3
Trucks Off-Site <sup>b</sup>	6	22	55	0	11	4
Railyard Equipment	8	296	4	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	5	0	0	4	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	0	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	6	25	27	0	2	1
Trucks Off-Site <sup>b</sup>	5	18	46	0	10	3
CHE	4	234	49	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	14	1	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
<u>Displaced Businesses</u> <sup>c</sup>	14	662	73	1	8	5

<b>Total - Project Year 2023<sup>d</sup></b>	<b>76</b>	<b>1,420</b>	<b>1,054</b>	<b>3</b>	<b>71</b>	<b>33</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Reduced Project minus CEQA Baseline	-64	-537	-1,122	-18	-107	-52
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b><i>Project Year 2035</i></b>						
Locomotives On-Site	1	7	23	0	0	0
Locomotives Off-Site <sup>b</sup>	16	127	595	2	9	8
Trucks On-Site	25	100	132	0	27	8
Trucks Off-Site <sup>b</sup>	12	44	109	1	24	8
Railyard Equipment	8	632	7	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	10	1	0	8	2
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	6	25	26	0	2	1
Trucks Off-Site <sup>b</sup>	5	17	42	0	10	3
CHE	3	231	14	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
<u>Displaced Businesses<sup>c</sup></u>	13	656	58	1	7	4
<b>Total - Project Year 2035<sup>d</sup></b>	<b>88</b>	<b>1,863</b>	<b>1,009</b>	<b>5</b>	<b>99</b>	<b>38</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Reduced Project minus CEQA Baseline	-52	-95	-1,167	-16	-79	-46
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b><i>Project Year 2046</i></b>						
Locomotives On-Site	1	7	15	0	0	0
Locomotives Off-Site <sup>b</sup>	10	119	363	2	5	5
Trucks On-Site	25	100	145	0	27	8
Trucks Off-Site <sup>b</sup>	12	43	125	1	24	8
Railyard Equipment	8	632	7	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	10	1	0	8	2
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	6	25	26	0	2	1
Trucks Off-Site <sup>b</sup>	5	17	44	0	10	3
CHE	3	232	14	0	1	1

Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	13	663	60	1	7	4
<b>Total - Project Year 2046 <sup>d</sup></b>	<b>83</b>	<b>1,863</b>	<b>803</b>	<b>4</b>	<b>95</b>	<b>35</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Reduced Project minus CEQA Baseline	-57	-95	-1,372	-17	-82	-49
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Notes:

- a) Emissions represent annual emissions divided by 365 days per year of operation.
- b) Truck, train, and worker commute emissions include transport within the South Coast Air Basin.
- c) On-site emissions from businesses displaced by the Project
- d) Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
  
- e) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
- f) Emission estimates for year 2066 are identical to those for 2046.

<b>Table C1.2-RP-52. Peak Daily Operational Emissions – Reduced Project Alternative</b>						
<b>Source Category</b>	<b>Peak Daily Emissions (lb/day) <sup>a, e, f</sup></b>					
	<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
<b><i>Project Year 2016</i></b>						
Locomotives On-Site	1	5	28	0	1	1
Locomotives Off-Site <sup>b</sup>	24	79	757	1	14	13
Trucks On-Site	12	42	84	0	9	3
Trucks Off-Site <sup>b</sup>	7	27	105	0	9	3
Railyard Equipment	12	339	25	0	1	1
TRU	1	12	11	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	4	0	0	2	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	7	26	52	0	2	1
Trucks Off-Site <sup>b</sup>	7	26	128	0	11	4
CHE	5	447	63	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	1	23	2	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
<u>Displaced Businesses <sup>c</sup></u>	22	1,334	151	1	10	6
<b>Total - Project Year 2016 <sup>d</sup></b>	<b>99</b>	<b>2,367</b>	<b>1,407</b>	<b>3</b>	<b>74</b>	<b>39</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Reduced Project minus CEQA Baseline	-58	187	-1,051	-18	-117	-52
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b><i>Project Year 2023</i></b>						
Locomotives On-Site	1	7	31	0	1	1
Locomotives Off-Site <sup>b</sup>	24	124	821	1	11	10
Trucks On-Site	13	51	69	0	13	4
Trucks Off-Site <sup>b</sup>	6	24	61	0	12	4
Railyard Equipment	14	443	26	0	1	1
TRU	2	16	11	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	5	0	0	4	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	0	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	7	28	30	0	2	1
Trucks Off-Site <sup>b</sup>	5	20	51	0	11	4
CHE	4	262	55	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	14	1	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
<u>Displaced Businesses <sup>c</sup></u>	15	741	82	1	8	5

<b>Total - Project Year 2023<sup>d</sup></b>	<b>93</b>	<b>1,736</b>	<b>1,240</b>	<b>4</b>	<b>77</b>	<b>36</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Reduced Project minus CEQA Baseline	-65	-444	-1,219	-18	-115	-55
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b><i>Project Year 2035</i></b>						
Locomotives On-Site	1	9	26	0	0	0
Locomotives Off-Site <sup>b</sup>	18	170	687	2	9	8
Trucks On-Site	28	112	147	0	30	9
Trucks Off-Site <sup>b</sup>	13	49	122	1	27	9
Railyard Equipment	14	819	29	0	1	1
TRU	2	16	11	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	10	1	0	8	2
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	7	28	29	0	2	1
Trucks Off-Site <sup>b</sup>	5	19	47	0	11	4
CHE	3	258	15	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
<u>Displaced Businesses<sup>c</sup></u>	14	735	65	1	7	4
<b>Total - Project Year 2035<sup>d</sup></b>	<b>107</b>	<b>2,238</b>	<b>1,182</b>	<b>5</b>	<b>108</b>	<b>42</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Reduced Project minus CEQA Baseline	-51	58	-1,276	-16	-84	-49
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b><i>Project Year 2046</i></b>						
Locomotives On-Site	1	8	17	0	0	0
Locomotives Off-Site <sup>b</sup>	12	158	418	2	5	5
Trucks On-Site	28	112	162	0	31	9
Trucks Off-Site <sup>b</sup>	13	48	140	1	27	9
Railyard Equipment	14	819	29	0	1	1
TRU	2	16	11	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	10	1	0	8	2
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	7	28	29	0	2	1
Trucks Off-Site <sup>b</sup>	5	19	50	0	11	4
CHE	3	260	16	0	1	1

Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	15	742	67	1	7	4
<b>Total - Project Year 2046 <sup>d</sup></b>	<b>100</b>	<b>2,235</b>	<b>943</b>	<b>5</b>	<b>105</b>	<b>39</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Reduced Project minus CEQA Baseline	-57	55	-1,516	-17	-87	-52
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Notes:

- a) Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day operations of the facility.
- b) Truck, train, and worker commute emissions include transport within the South Coast Air Basin.
- c) On-site emissions from businesses displaced by the Project
- d) Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
  
- e) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
- f) Emission estimates for year 2066 are identical to those for 2046.

**Table C1.2-RP-53. Average Daily Operational Emissions – Reduced Project Alternative - with Low Emission Trucks & On-Site Sweeping Mitigations**

Source Category	Average Daily Emissions (lb/day) <sup>a, e, f</sup>					
	VOC	CO	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Project Year 2016</b>						
Locomotives On-Site	1	4	25	0	1	1
Locomotives Off-Site <sup>b</sup>	20	58	654	1	14	13
Trucks On-Site	11	38	75	0	7	2
Trucks Off-Site <sup>b</sup>	6	24	94	0	8	3
Railyard Equipment	6	204	3	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	4	0	0	2	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	6	23	46	0	2	1
Trucks Off-Site <sup>b</sup>	6	24	115	0	10	4
CHE	5	400	56	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	1	23	2	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	19	1,192	135	1	9	6
<b>Total - Project Year 2016 <sup>d</sup></b>	<b>82</b>	<b>1,996</b>	<b>1,207</b>	<b>3</b>	<b>66</b>	<b>35</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Reduced Project minus CEQA Baseline	-58	38	-968	-18	-111	-50
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2023</b>						
Locomotives On-Site	1	6	28	0	1	1
Locomotives Off-Site <sup>b</sup>	20	91	708	1	10	10
Trucks On-Site	12	45	61	0	9	3
Trucks Off-Site <sup>b</sup>	6	22	55	0	11	4
Railyard Equipment	8	296	4	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	5	0	0	4	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	0	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	6	25	27	0	2	1
Trucks Off-Site <sup>b</sup>	5	18	46	0	10	3
CHE	4	234	49	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	14	1	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0



<u>Displaced Businesses</u> <sup>c</sup>	14	662	73	1	8	5
<b>Total - Project Year 2023</b> <sup>d</sup>	<b>76</b>	<b>1,420</b>	<b>1,054</b>	<b>3</b>	<b>68</b>	<b>32</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Reduced Project minus CEQA Baseline	-64	-537	-1,122	-18	-110	-52
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2035</b>						
Locomotives On-Site	1	7	23	0	0	0
Locomotives Off-Site <sup>b</sup>	16	127	595	2	9	8
Trucks On-Site	25	100	132	0	21	6
Trucks Off-Site <sup>b</sup>	12	44	109	1	24	8
Railyard Equipment	8	632	7	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	10	1	0	8	2
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	6	25	26	0	2	1
Trucks Off-Site <sup>b</sup>	5	17	42	0	10	3
CHE	3	231	14	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
<u>Displaced Businesses</u> <sup>c</sup>	13	656	58	1	7	4
<b>Total - Project Year 2035</b> <sup>d</sup>	<b>88</b>	<b>1,863</b>	<b>1,009</b>	<b>5</b>	<b>92</b>	<b>37</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Reduced Project minus CEQA Baseline	-52	-95	-1,167	-16	-85	-48
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2046</b>						
Locomotives On-Site	1	7	15	0	0	0
Locomotives Off-Site <sup>b</sup>	10	119	363	2	5	5
Trucks On-Site	25	100	145	0	21	6
Trucks Off-Site <sup>b</sup>	12	43	125	1	24	8
Railyard Equipment	8	632	7	0	0	0
TRU	0	0	0	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	10	1	0	8	2
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	6	25	26	0	2	1
Trucks Off-Site <sup>b</sup>	5	17	44	0	10	3

CHE	3	232	14	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	13	663	60	1	7	4
<b>Total - Project Year 2046 <sup>d</sup></b>	<b>83</b>	<b>1,863</b>	<b>803</b>	<b>4</b>	<b>89</b>	<b>33</b>
<b>CEQA Impacts</b>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Reduced Project minus CEQA Baseline	-57	-95	-1,372	-17	-89	-51
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Notes:

- a) Emissions represent annual emissions divided by 365 days per year of operation.
- b) Truck, train, and worker commute emissions include transport within the South Coast Air Basin.
- c) On-site emissions from businesses displaced by the Project
- d) Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
  
- e) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
- f) Emission estimates for year 2066 are identical to those for 2046.

**Table C1.2-RP-54. Peak Daily Operational Emissions – Reduced Project Alternative - with Low Emission Trucks & On-Site Sweeping Mitigations**

Source Category	Peak Daily Emissions (lb/day) <sup>a, e, f</sup>					
	VOC	CO	NOx	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Project Year 2016</b>						
Locomotives On-Site	1	5	28	0	1	1
Locomotives Off-Site <sup>b</sup>	24	79	757	1	14	13
Trucks On-Site	12	42	84	0	7	2
Trucks Off-Site <sup>b</sup>	7	27	105	0	9	3
Railyard Equipment	12	339	25	0	1	1
TRU	1	12	11	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	4	0	0	2	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	7	26	52	0	2	1
Trucks Off-Site <sup>b</sup>	7	26	128	0	11	4
CHE	5	447	63	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	1	23	2	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	22	1,334	151	1	10	6
<b>Total - Project Year 2016 <sup>d</sup></b>	<b>99</b>	<b>2,367</b>	<b>1,407</b>	<b>3</b>	<b>72</b>	<b>38</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Reduced Project minus CEQA Baseline	-58	187	-1,051	-18	-120	-53
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2023</b>						
Locomotives On-Site	1	7	31	0	1	1
Locomotives Off-Site <sup>b</sup>	24	124	821	1	11	10
Trucks On-Site	13	51	69	0	10	3
Trucks Off-Site <sup>b</sup>	6	24	61	0	12	4
Railyard Equipment	14	443	26	0	1	1
TRU	2	16	11	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	5	0	0	4	1
Refueling Trucks On-Site	0	0	0	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	0	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	7	28	30	0	2	1
Trucks Off-Site <sup>b</sup>	5	20	51	0	11	4
CHE	4	262	55	0	3	3
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	14	1	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0

<u>Displaced Businesses</u> <sup>c</sup>	15	741	82	1	8	5
<b>Total - Project Year 2023</b> <sup>d</sup>	<b>93</b>	<b>1,736</b>	<b>1,240</b>	<b>4</b>	<b>74</b>	<b>35</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Reduced Project minus CEQA Baseline	-65	-444	-1,219	-18	-118	-56
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2035</b>						
Locomotives On-Site	1	9	26	0	0	0
Locomotives Off-Site <sup>b</sup>	18	170	687	2	9	8
Trucks On-Site	28	112	147	0	23	7
Trucks Off-Site <sup>b</sup>	13	49	122	1	27	9
Railyard Equipment	14	819	29	0	1	1
TRU	2	16	11	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	10	1	0	8	2
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	7	28	29	0	2	1
Trucks Off-Site <sup>b</sup>	5	19	47	0	11	4
CHE	3	258	15	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
<u>Displaced Businesses</u> <sup>c</sup>	14	735	65	1	7	4
<b>Total - Project Year 2035</b> <sup>d</sup>	<b>107</b>	<b>2,238</b>	<b>1,182</b>	<b>5</b>	<b>101</b>	<b>40</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Reduced Project minus CEQA Baseline	-51	58	-1,276	-16	-91	-50
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2046</b>						
Locomotives On-Site	1	8	17	0	0	0
Locomotives Off-Site <sup>b</sup>	12	158	418	2	5	5
Trucks On-Site	28	112	162	0	23	7
Trucks Off-Site <sup>b</sup>	13	48	140	1	27	9
Railyard Equipment	14	819	29	0	1	1
TRU	2	16	11	0	0	0
Employee Commute On-Site	0	0	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	10	1	0	8	2
Refueling Trucks On-Site	0	1	1	0	0	0
Refueling Trucks Off-Site <sup>b</sup>	0	0	1	0	0	0
<u>Alternate Business Location Sources</u>						
Trucks On-Site	7	28	29	0	2	1
Trucks Off-Site <sup>b</sup>	5	19	50	0	11	4

CHE	3	260	16	0	1	1
Employee Commute On-Site	0	1	0	0	0	0
Employee Commute Off-Site <sup>b</sup>	0	12	1	0	10	3
Alternate Business Location Locomotive Activities	0	0	0	0	0	0
Displaced Businesses <sup>c</sup>	15	742	67	1	7	4
<b>Total - Project Year 2046 <sup>d</sup></b>	<b>100</b>	<b>2,235</b>	<b>943</b>	<b>5</b>	<b>98</b>	<b>37</b>
<u>CEQA Impacts</u>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Reduced Project minus CEQA Baseline	-57	55	-1,516	-17	-94	-54
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Notes:

- a) Emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day operations of the facility.
- b) Truck, train, and worker commute emissions include transport within the South Coast Air Basin.
- c) On-site emissions from businesses displaced by the Project
- d) Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
  
- e) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
- f) Emission estimates for year 2066 are identical to those for 2046.

**Table C1.2-NP-1. Activity Data for Drayage Trucks  
Traveling to Hobart Yard - No Project Alternative**

<b>Project Year</b>	<b>Roundtrip Distance per Trip (mi)</b>	<b>Truck Roundtrips per Year</b>
Year 2016	40.2	356,887
Year 2023	40.2	504,937
Year 2035	40.2	1,142,159
Year 2046	40.2	1,142,159

Note: Activity data for year 2066 are identical to those for 2046.

**Table C1.2-NP-2. Emission Factors for Drayage Trucks Traveling to Hobart Yard - No Project Alternative**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
		VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
<b>Year 2016</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	4.84	9.62	20.20	0.02	0.63	0.24	0.10	0.10
On-road Truck Transport	10	2.81	5.99	15.18	0.02	0.62	0.23	0.10	0.09
On-road Truck Transport	15	1.43	3.48	11.42	0.02	0.62	0.22	0.09	0.08
On-road Truck Transport	20	0.57	1.75	8.29	0.02	0.60	0.21	0.07	0.07
On-road Truck Transport	25	0.54	1.78	7.74	0.02	0.60	0.21	0.07	0.07
On-road Truck Transport	30	0.47	1.71	6.98	0.02	0.60	0.21	0.07	0.07
On-road Truck Transport	35	0.41	1.66	6.35	0.02	0.61	0.21	0.08	0.07
On-road Truck Transport	40	0.36	1.65	5.85	0.02	0.61	0.22	0.08	0.08
On-road Truck Transport	45	0.32	1.67	5.49	0.02	0.62	0.23	0.09	0.08
On-road Truck Transport	50	0.28	1.73	5.26	0.02	0.63	0.24	0.10	0.09
On-road Truck Transport	55	0.26	1.81	5.15	0.02	0.65	0.25	0.12	0.11
On-road Truck Transport	60	0.24	1.93	5.19	0.02	0.66	0.27	0.14	0.12
On-road Truck Transport	65	0.24	2.08	5.35	0.02	0.68	0.29	0.16	0.14
<b>Year 2023</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	3.16	6.30	8.78	0.02	0.62	0.23	0.10	0.09
On-road Truck Transport	10	1.84	3.92	6.60	0.02	0.62	0.23	0.09	0.08
On-road Truck Transport	15	0.93	2.28	4.97	0.02	0.61	0.22	0.08	0.08
On-road Truck Transport	20	0.37	1.13	3.35	0.02	0.59	0.20	0.07	0.06
On-road Truck Transport	25	0.35	1.17	3.37	0.02	0.60	0.21	0.07	0.06
On-road Truck Transport	30	0.31	1.12	3.03	0.02	0.60	0.21	0.07	0.06
On-road Truck Transport	35	0.27	1.09	2.76	0.02	0.60	0.21	0.07	0.07
On-road Truck Transport	40	0.23	1.08	2.54	0.02	0.60	0.21	0.08	0.07
On-road Truck Transport	45	0.21	1.10	2.39	0.02	0.61	0.22	0.09	0.08
On-road Truck Transport	50	0.18	1.13	2.28	0.02	0.62	0.23	0.10	0.09
On-road Truck Transport	55	0.17	1.19	2.24	0.02	0.64	0.24	0.11	0.10
On-road Truck Transport	60	0.16	1.26	2.25	0.02	0.65	0.26	0.13	0.12
On-road Truck Transport	65	0.15	1.36	2.32	0.02	0.67	0.28	0.15	0.13
<b>Year 2035</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.83	5.66	7.75	0.02	0.61	0.22	0.09	0.08
On-road Truck Transport	10	1.65	3.53	5.83	0.02	0.61	0.22	0.08	0.07
On-road Truck Transport	15	0.84	2.05	4.39	0.02	0.60	0.21	0.07	0.07
On-road Truck Transport	20	0.34	1.04	3.01	0.02	0.59	0.20	0.06	0.06
On-road Truck Transport	25	0.31	1.05	2.97	0.02	0.59	0.20	0.06	0.06
On-road Truck Transport	30	0.27	1.00	2.68	0.02	0.59	0.20	0.06	0.06
On-road Truck Transport	35	0.24	0.98	2.44	0.02	0.59	0.20	0.06	0.06
On-road Truck Transport	40	0.21	0.97	2.25	0.02	0.60	0.21	0.07	0.06
On-road Truck Transport	45	0.18	0.99	2.11	0.02	0.60	0.21	0.08	0.07
On-road Truck Transport	50	0.17	1.02	2.02	0.02	0.61	0.22	0.09	0.08
On-road Truck Transport	55	0.15	1.07	1.98	0.02	0.63	0.23	0.10	0.09
On-road Truck Transport	60	0.14	1.14	1.99	0.02	0.64	0.25	0.11	0.10
On-road Truck Transport	65	0.14	1.22	2.05	0.02	0.66	0.26	0.13	0.12
<b>Year 2046</b>									
On-road Truck - Idle (g/hr)	0	7.41	41.75	40.38	0.07	0.13	0.12	0.13	0.12
On-road Truck Transport	5	2.82	5.62	8.98	0.02	0.62	0.23	0.09	0.08
On-road Truck Transport	10	1.64	3.50	6.70	0.02	0.61	0.22	0.08	0.08
On-road Truck Transport	15	0.83	2.03	5.01	0.02	0.60	0.21	0.07	0.07
On-road Truck Transport	20	0.34	1.04	3.49	0.02	0.59	0.20	0.06	0.06
On-road Truck Transport	25	0.31	1.04	3.41	0.02	0.59	0.20	0.06	0.06
On-road Truck Transport	30	0.27	1.00	3.09	0.02	0.59	0.20	0.06	0.06
On-road Truck Transport	35	0.24	0.97	2.83	0.02	0.59	0.20	0.06	0.06
On-road Truck Transport	40	0.21	0.97	2.62	0.02	0.60	0.21	0.07	0.06
On-road Truck Transport	45	0.18	0.98	2.47	0.02	0.60	0.21	0.08	0.07
On-road Truck Transport	50	0.16	1.01	2.37	0.02	0.61	0.22	0.09	0.08
On-road Truck Transport	55	0.15	1.06	2.33	0.02	0.62	0.23	0.10	0.09
On-road Truck Transport	60	0.14	1.12	2.35	0.02	0.64	0.25	0.11	0.10
On-road Truck Transport	65	0.14	1.21	2.42	0.02	0.66	0.26	0.13	0.12

Notes:

- (1) EMFAC2011 with modified fleet age distribution based on Port-wide inventory (Starcrest)
- (2) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-NP-3. Annual Emissions for Drayage Trucks Traveling to Hobart Yard - No Project Alternative**

Project Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2016	6.30	28.06	96.19	0.27	9.77	3.56
Year 2023	6.30	26.44	60.76	0.37	13.63	4.87
Year 2035	12.54	53.43	120.61	0.84	30.35	10.61
Year 2046	12.51	52.96	140.81	0.84	30.31	10.57

Note:

- (1) Annual emissions estimates for trips between port terminals and Hobart Yard.
- (2) Emissions for year 2066 are identical to those for 2046.



**Table C1.2-NP-4. Peak Daily Emissions for Drayage Trucks Traveling to Hobart Yard - No Project Alternative**

Project Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2016	39.22	174.52	598.32	1.66	60.79	22.15
Year 2023	39.16	164.43	377.93	2.29	84.76	30.30
Year 2035	77.98	332.34	750.18	5.20	188.78	66.01
Year 2046	77.83	329.44	875.85	5.21	188.54	65.75

Note:

- (1) Peak daily emissions estimates for trips between port terminals and Hobart Yard.
- (2) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-NP-5. Activity Data for Linehaul Locomotives  
Traveling from Hobart Yard to South Coast Air Basin Boundary -  
No Project Alternative**

<b>Project Year</b>	<b>Roundtrip Distance (mi)</b>	<b>Trains per Year</b>
Year 2016	163.8	720
Year 2023	163.8	1080
Year 2035	163.8	2160
Year 2046	163.8	2160

Notes:

- (1) Round trip distance between Hobart Railyard and the South Coast Air Basin boundary.
- (2) Source: train trips are derived from TEU throughput
- (3) Activity data for year 2066 are identical to those for 2046.

**Table C1.2-NP-6. Annual Average Emission Factors for Linehaul Locomotives Traveling from Hobart Yard to South Coast Air Basin Boundary - No Project Alternative**

Project Year	Emission Factors (grams/mile)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2016	20.91	62.37	715.80	0.73	14.81	13.62
Year 2023	13.75	65.46	514.47	0.73	7.22	6.65
Year 2035	5.44	44.55	217.83	0.73	3.02	2.78
Year 2046	3.58	41.42	133.24	0.73	1.79	1.65

Notes:

- (1) Assume sulfur content of 15ppm
- (2) Line-haul locomotive fleet fractions for Hobart provided by BNSF.
- (3) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-NP-6b. Peak Day Emission Factors for Linehaul Locomotives Traveling from Hobart Yard to South Coast Air Basin Boundary - No Project Alternative**

Project Year	Emission Factors (grams/mile)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2016	24.65	85.22	823.91	0.73	14.90	13.71
Year 2023	16.24	89.57	592.91	0.73	7.31	6.72
Year 2035	6.40	60.34	250.16	0.73	3.03	2.79
Year 2046	4.20	55.97	152.71	0.73	1.80	1.66

Notes:

- (1) Assume sulfur content of 15ppm
- (2) Line-haul locomotive fleet fractions for Hobart provided by BNSF.
- (3) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-NP-7. Annual Emissions for Linehaul Locomotives Traveling from Hobart Yard to South Coast Air Basin Boundary - No Project Alternative**

Project Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2016	2.72	8.11	93.06	0.10	1.92	1.77
Year 2023	2.68	12.77	100.32	0.14	1.41	1.30
Year 2035	2.12	17.38	84.96	0.29	1.18	1.08
Year 2046	1.40	16.16	51.97	0.29	0.70	0.64

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-NP-8. Peak Daily Emissions for Linehaul Locomotives Traveling from Hobart Yard to South Coast Air Basin Boundary - No Project Alternative**

Project Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2016	17.80	61.55	595.06	0.53	10.76	9.90
Year 2023	17.59	97.03	642.33	0.79	7.92	7.28
Year 2035	13.86	130.75	542.02	1.59	6.58	6.05
Year 2046	9.11	121.28	330.88	1.59	3.90	3.59

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-NP-9. Activity Data for Existing Business On-Road Vehicles - No Project Alternative**

<b>Project Year - Source</b>	<b>Number of Trips</b>	<b>Average Idling Time per Trip (hr)</b>	<b>Average On-Site Distance per Trip (mi)</b>	<b>Average Off-Site Round-Trip Distance to Port Terminals (mi)</b>	<b>Average Off-Site Round-Trip Distance Outside of Harbor District (mi)</b>
<b>Years 2013</b>					
Port Drayage Trucks	276,523	0.33	0.98	10.58	N/A
Vendor Vehicles	238,361	0.31	0.94	N/A	11.51
Employee Commute Vehicles	422,229	0.11	0.22	N/A	25.40
Medium Duty Trucks	465	0.33	0.20	N/A	12.40
<b>Years 2014, 2015</b>					
Port Drayage Trucks	276,523	0.33	0.98	10.58	N/A
Vendor Vehicles	238,361	0.31	0.94	N/A	11.54
Employee Commute Vehicles	422,229	0.11	0.22	N/A	25.40
Medium Duty Trucks	465	0.33	0.20	N/A	12.38
<b>Years 2016, 2023, 2035, 2046</b>					
Port Drayage Trucks	312,635	0.33	0.98	10.92	N/A
Vendor Vehicles	274,281	0.31	0.94	N/A	11.54
Employee Commute Vehicles	494,988	0.11	0.22	N/A	25.40
Medium Duty Trucks	572	0.33	0.20	N/A	12.38

Note:

- (1) On-road vehicle activity represent data averaged across all businesses.
- (2) Employee commute trips include light-duty gasoline vehicles and light-duty gasoline trucks
- (3) Activity data for year 2066 are identical to those for 2046.

**Table C1.2-NP-10a. Emission Factors for Existing Business Port Drayage Trucks - No Project Alternative**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
						On-Site		Off-Site	
		VOC	CO	NOx	SOx	PM 10	PM 2.5	PM 10	PM 2.5
<b>Year 2013</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	4.16	8.27	19.14	0.02	1.73	0.50	0.62	0.22
On-road Truck Transport	7.5	3.29	6.71	16.76	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	2.42	5.15	14.39	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	15	1.23	2.99	10.83	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	20	0.50	1.53	7.95	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	25	0.46	1.53	7.34	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	30	0.40	1.47	6.61	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	35	0.35	1.43	6.02	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	40	0.31	1.42	5.55	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	45	0.27	1.44	5.20	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	50	0.24	1.49	4.98	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	55	0.22	1.56	4.88	0.02	1.74	0.51	0.63	0.23
On-road Truck Transport	60	0.21	1.66	4.91	0.02	1.76	0.53	0.64	0.25
On-road Truck Transport	65	0.20	1.79	5.07	0.02	1.78	0.54	0.66	0.26
<b>Year 2014</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	4.46	8.87	19.80	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	7.5	3.53	7.20	17.34	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	10	2.59	5.52	14.89	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	15	1.32	3.20	11.20	0.02	1.72	0.49	0.61	0.22
On-road Truck Transport	20	0.53	1.63	8.21	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	25	0.49	1.64	7.59	0.02	1.71	0.48	0.60	0.20
On-road Truck Transport	30	0.43	1.57	6.84	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	35	0.38	1.53	6.23	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	40	0.33	1.52	5.74	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	45	0.29	1.54	5.38	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	50	0.26	1.59	5.15	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	55	0.24	1.67	5.05	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	60	0.22	1.78	5.08	0.02	1.77	0.53	0.65	0.26
On-road Truck Transport	65	0.22	1.91	5.24	0.02	1.79	0.55	0.67	0.27
<b>Year 2015</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	4.69	9.33	20.16	0.02	1.75	0.51	0.63	0.23
On-road Truck Transport	7.5	3.71	7.57	17.65	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	10	2.73	5.81	15.15	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	15	1.39	3.37	11.40	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	20	0.56	1.71	8.32	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	25	0.52	1.73	7.73	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	30	0.45	1.65	6.97	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	35	0.40	1.61	6.34	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	40	0.35	1.60	5.84	0.02	1.72	0.49	0.61	0.22
On-road Truck Transport	45	0.31	1.62	5.48	0.02	1.73	0.50	0.62	0.22
On-road Truck Transport	50	0.27	1.67	5.24	0.02	1.74	0.51	0.63	0.23
On-road Truck Transport	55	0.25	1.76	5.14	0.02	1.76	0.53	0.64	0.25
On-road Truck Transport	60	0.24	1.87	5.17	0.02	1.77	0.54	0.66	0.26
On-road Truck Transport	65	0.23	2.01	5.34	0.02	1.79	0.56	0.68	0.28
<b>Year 2016</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	4.84	9.62	20.20	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	7.5	3.83	7.81	17.69	0.02	1.75	0.51	0.63	0.24
On-road Truck Transport	10	2.81	5.99	15.18	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	15	1.43	3.48	11.42	0.02	1.73	0.50	0.62	0.22
On-road Truck Transport	20	0.57	1.75	8.29	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	25	0.54	1.78	7.74	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	30	0.47	1.71	6.98	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	35	0.41	1.66	6.35	0.02	1.72	0.49	0.61	0.21
On-road Truck Transport	40	0.36	1.65	5.85	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	45	0.32	1.67	5.49	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	50	0.28	1.73	5.26	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	55	0.26	1.81	5.15	0.02	1.76	0.53	0.65	0.25
On-road Truck Transport	60	0.24	1.93	5.19	0.02	1.78	0.55	0.66	0.27



On-road Truck Transport	65	0.24	2.08	5.35	0.02	1.80	0.57	0.68	0.29
<b>Year 2023</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	3.16	6.30	8.78	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	7.5	2.50	5.11	7.69	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	10	1.84	3.92	6.60	0.02	1.73	0.50	0.62	0.23
On-road Truck Transport	15	0.93	2.28	4.97	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	20	0.37	1.13	3.35	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	25	0.35	1.17	3.37	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	30	0.31	1.12	3.03	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	35	0.27	1.09	2.76	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	40	0.23	1.08	2.54	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	45	0.21	1.10	2.39	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	50	0.18	1.13	2.28	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	55	0.17	1.19	2.24	0.02	1.75	0.52	0.64	0.24
On-road Truck Transport	60	0.16	1.26	2.25	0.02	1.77	0.54	0.65	0.26
On-road Truck Transport	65	0.15	1.36	2.32	0.02	1.79	0.56	0.67	0.28
<b>Year 2035</b>									
On-road Truck - Idle (g/hr)	0	7.40	41.72	38.41	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.83	5.66	7.75	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	7.5	2.24	4.60	6.79	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	1.65	3.53	5.83	0.02	1.72	0.50	0.61	0.22
On-road Truck Transport	15	0.84	2.05	4.39	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	20	0.34	1.04	3.01	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	25	0.31	1.05	2.97	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	30	0.27	1.00	2.68	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	35	0.24	0.98	2.44	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	40	0.21	0.97	2.25	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	45	0.18	0.99	2.11	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	50	0.17	1.02	2.02	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	55	0.15	1.07	1.98	0.02	1.74	0.51	0.63	0.23
On-road Truck Transport	60	0.14	1.14	1.99	0.02	1.76	0.53	0.64	0.25
On-road Truck Transport	65	0.14	1.22	2.05	0.02	1.77	0.54	0.66	0.26
<b>Year 2046</b>									
On-road Truck - Idle (g/hr)	0	7.41	41.75	40.38	0.07	0.13	0.12	0.13	0.12
On-road Truck Transport	5	2.82	5.62	8.98	0.02	1.73	0.51	0.62	0.23
On-road Truck Transport	7.5	2.23	4.56	7.84	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	1.64	3.50	6.70	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	15	0.83	2.03	5.01	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	20	0.34	1.04	3.49	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	25	0.31	1.04	3.41	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	30	0.27	1.00	3.09	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	35	0.24	0.97	2.83	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	40	0.21	0.97	2.62	0.02	1.71	0.48	0.60	0.21
On-road Truck Transport	45	0.18	0.98	2.47	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	50	0.16	1.01	2.37	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	55	0.15	1.06	2.33	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	60	0.14	1.12	2.35	0.02	1.76	0.53	0.64	0.25
On-road Truck Transport	65	0.14	1.21	2.42	0.02	1.77	0.54	0.66	0.26

Notes:

- (1) On-site travel speed was assumed at 7.5 mph.
- (2) Emission factors were derived from EMFAC2011 with modified fleet age distribution based on Port-wide inventory (Starcrest)
- (3) PM emissions factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (4) Emissions factors for year 2066 are identical to those for 2046.

**Table C1.2-NP-11a. Emission Factors for Existing Business Vendor Vehicles - No Project Alternative**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
		VOC	CO	NOx	SOx	On-Site		Off-Site	
						PM 10	PM 2.5	PM 10	PM 2.5
<b>Year 2013</b>									
On-road Truck - Idle (g/hr)	0	7.16	37.86	76.47	0.07	0.53	0.49	0.53	0.49
On-road Truck Transport	5	5.45	9.95	29.32	0.02	2.37	1.09	1.25	0.81
On-road Truck Transport	7.5	4.32	8.30	25.21	0.02	2.27	1.00	1.16	0.72
On-road Truck Transport	10	3.20	6.65	21.10	0.02	2.18	0.91	1.06	0.64
On-road Truck Transport	15	1.64	4.28	15.29	0.02	2.03	0.78	0.92	0.50
On-road Truck Transport	20	0.70	2.89	12.07	0.02	1.96	0.72	0.85	0.44
On-road Truck Transport	25	0.58	2.35	10.67	0.02	1.89	0.65	0.77	0.37
On-road Truck Transport	30	0.49	2.12	9.93	0.02	1.87	0.63	0.75	0.35
On-road Truck Transport	35	0.42	1.94	9.33	0.02	1.85	0.62	0.74	0.34
On-road Truck Transport	40	0.36	1.80	8.87	0.02	1.85	0.61	0.74	0.34
On-road Truck Transport	45	0.32	1.73	8.56	0.02	1.86	0.62	0.75	0.34
On-road Truck Transport	50	0.29	1.70	8.38	0.02	1.88	0.64	0.77	0.36
On-road Truck Transport	55	0.29	1.72	8.35	0.02	1.92	0.67	0.80	0.39
On-road Truck Transport	60	0.29	1.80	8.45	0.02	1.96	0.71	0.84	0.43
On-road Truck Transport	65	0.32	1.93	8.70	0.02	2.01	0.76	0.89	0.48
<b>Year 2014</b>									
On-road Truck - Idle (g/hr)	0	6.27	33.36	69.56	0.07	0.33	0.31	0.33	0.31
On-road Truck Transport	5	4.00	7.45	25.66	0.02	2.08	0.82	0.96	0.54
On-road Truck Transport	7.5	3.17	6.19	22.09	0.02	2.02	0.77	0.91	0.49
On-road Truck Transport	10	2.35	4.93	18.52	0.02	1.97	0.72	0.85	0.44
On-road Truck Transport	15	1.21	3.13	13.45	0.02	1.88	0.64	0.76	0.36
On-road Truck Transport	20	0.51	2.10	10.83	0.02	1.85	0.61	0.73	0.33
On-road Truck Transport	25	0.43	1.72	9.37	0.02	1.79	0.55	0.67	0.27
On-road Truck Transport	30	0.37	1.56	8.70	0.02	1.77	0.54	0.66	0.26
On-road Truck Transport	35	0.31	1.44	8.16	0.02	1.77	0.53	0.65	0.25
On-road Truck Transport	40	0.27	1.36	7.75	0.02	1.76	0.53	0.65	0.25
On-road Truck Transport	45	0.24	1.31	7.46	0.02	1.77	0.54	0.65	0.26
On-road Truck Transport	50	0.22	1.30	7.30	0.02	1.78	0.55	0.66	0.27
On-road Truck Transport	55	0.21	1.32	7.27	0.02	1.80	0.56	0.68	0.28
On-road Truck Transport	60	0.21	1.38	7.36	0.02	1.82	0.58	0.70	0.30
On-road Truck Transport	65	0.23	1.48	7.57	0.02	1.85	0.61	0.73	0.33
<b>Year 2015</b>									
On-road Truck - Idle (g/hr)	0	6.34	34.46	64.05	0.07	0.27	0.25	0.27	0.25
On-road Truck Transport	5	3.63	6.90	22.59	0.02	1.93	0.69	0.82	0.41
On-road Truck Transport	7.5	2.88	5.68	19.47	0.02	1.90	0.65	0.78	0.37
On-road Truck Transport	10	2.12	4.46	16.35	0.02	1.86	0.62	0.74	0.34
On-road Truck Transport	15	1.08	2.73	11.90	0.02	1.80	0.57	0.69	0.29
On-road Truck Transport	20	0.45	1.66	9.57	0.02	1.78	0.55	0.67	0.27
On-road Truck Transport	25	0.39	1.45	8.25	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	30	0.33	1.34	7.64	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	35	0.29	1.26	7.15	0.02	1.74	0.50	0.62	0.23
On-road Truck Transport	40	0.25	1.21	6.77	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	45	0.22	1.19	6.50	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	50	0.20	1.20	6.35	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	55	0.19	1.23	6.31	0.02	1.77	0.53	0.65	0.25
On-road Truck Transport	60	0.19	1.30	6.38	0.02	1.79	0.55	0.67	0.27
On-road Truck Transport	65	0.20	1.40	6.57	0.02	1.81	0.57	0.69	0.29
<b>Year 2016</b>									
On-road Truck - Idle (g/hr)	0	6.02	33.69	58.40	0.07	0.15	0.14	0.15	0.14
On-road Truck Transport	5	3.24	6.32	19.93	0.02	1.80	0.57	0.69	0.29
On-road Truck Transport	7.5	2.57	5.16	17.22	0.02	1.79	0.55	0.67	0.27
On-road Truck Transport	10	1.89	3.99	14.50	0.02	1.77	0.54	0.65	0.26
On-road Truck Transport	15	0.96	2.37	10.60	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	20	0.36	1.18	8.46	0.02	1.72	0.50	0.61	0.22
On-road Truck Transport	25	0.36	1.23	7.33	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	30	0.31	1.16	6.76	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	35	0.27	1.12	6.30	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	40	0.23	1.09	5.94	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	45	0.21	1.09	5.69	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	50	0.19	1.12	5.54	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	55	0.17	1.17	5.50	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	60	0.16	1.24	5.56	0.02	1.76	0.53	0.65	0.25
On-road Truck Transport	65	0.17	1.33	5.72	0.02	1.78	0.55	0.67	0.27
<b>Year 2023</b>									
On-road Truck - Idle (g/hr)	0	7.29	41.11	39.72	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.74	5.46	7.74	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	7.5	2.17	4.43	6.76	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	10	1.59	3.40	5.78	0.02	1.72	0.49	0.61	0.22
On-road Truck Transport	15	0.81	1.98	4.33	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	20	0.32	0.98	2.84	0.02	1.70	0.47	0.58	0.19
On-road Truck Transport	25	0.30	1.01	2.95	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	30	0.27	0.97	2.67	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	35	0.23	0.95	2.44	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	40	0.20	0.94	2.26	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	45	0.18	0.95	2.13	0.02	1.72	0.49	0.60	0.21

On-road Truck Transport	50	0.16	0.98	2.05	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	55	0.15	1.03	2.01	0.02	1.74	0.51	0.62	0.23
On-road Truck Transport	60	0.14	1.09	2.03	0.02	1.75	0.52	0.64	0.24
On-road Truck Transport	65	0.13	1.18	2.09	0.02	1.77	0.54	0.65	0.26
<b>Year 2035</b>									
On-road Truck Transport	5	2.61	5.22	7.08	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	7.5	2.06	4.23	6.20	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	10	1.52	3.25	5.31	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	15	0.77	1.89	3.99	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	20	0.31	0.96	2.72	0.02	1.70	0.47	0.58	0.19
On-road Truck Transport	25	0.29	0.97	2.71	0.02	1.70	0.47	0.59	0.20
On-road Truck Transport	30	0.25	0.93	2.44	0.02	1.70	0.47	0.58	0.20
On-road Truck Transport	35	0.22	0.90	2.23	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	40	0.19	0.90	2.05	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	45	0.17	0.91	1.93	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	50	0.15	0.94	1.85	0.02	1.72	0.49	0.61	0.21
On-road Truck Transport	55	0.14	0.98	1.81	0.02	1.73	0.50	0.62	0.23
On-road Truck Transport	60	0.13	1.05	1.82	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	65	0.13	1.13	1.88	0.02	1.76	0.53	0.65	0.25
<b>Year 2046</b>									
On-road Truck - Idle (g/hr)	0	7.37	41.56	38.79	0.07	0.11	0.10	0.11	0.10
On-road Truck Transport	5	2.61	5.22	7.08	0.02	1.73	0.50	0.61	0.22
On-road Truck Transport	7.5	2.06	4.23	6.20	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	10	1.52	3.25	5.31	0.02	1.72	0.49	0.60	0.21
On-road Truck Transport	15	0.77	1.89	3.99	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	20	0.31	0.96	2.72	0.02	1.70	0.47	0.58	0.19
On-road Truck Transport	25	0.29	0.97	2.71	0.02	1.70	0.47	0.59	0.20
On-road Truck Transport	30	0.25	0.93	2.44	0.02	1.70	0.47	0.58	0.20
On-road Truck Transport	35	0.22	0.90	2.23	0.02	1.70	0.48	0.59	0.20
On-road Truck Transport	40	0.19	0.90	2.05	0.02	1.71	0.48	0.59	0.20
On-road Truck Transport	45	0.17	0.91	1.93	0.02	1.71	0.49	0.60	0.21
On-road Truck Transport	50	0.15	0.94	1.85	0.02	1.72	0.49	0.61	0.21
On-road Truck Transport	55	0.14	0.98	1.81	0.02	1.73	0.50	0.62	0.23
On-road Truck Transport	60	0.13	1.05	1.82	0.02	1.75	0.52	0.63	0.24
On-road Truck Transport	65	0.13	1.13	1.88	0.02	1.76	0.53	0.65	0.25

Notes:

- (1) On-site travel speed was assumed at 7.5 mph.
- (2) Emission factors were generated by EMFAC2011 model with SCAB default age distributions.
- (3) PM emissions factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (4) Emissions factors for year 2066 are identical to those for 2046.

**Table C1.2-NP-12a. Emission Factors for Existing Business Employee Commute Vehicles - No Project Alternative**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
		VOC	CO	NOx	SOx	On-Site		Off-Site	
						PM 10	PM 2.5	PM 10	PM 2.5
<b>Year 2013</b>									
On-road Truck - Idle (g/hr)	0	1.26	16.32	1.14	0.02	0.07	0.06	0.07	0.06
On-road Truck Transport	5	0.25	3.26	0.23	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	7.5	0.21	3.00	0.21	0.00	1.60	0.41	0.49	0.14
On-road Truck Transport	10	0.17	2.73	0.20	0.00	1.60	0.41	0.49	0.13
On-road Truck Transport	15	0.12	2.35	0.18	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.09	2.07	0.16	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.07	1.85	0.15	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.05	1.68	0.14	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.05	1.55	0.14	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.04	1.45	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.04	1.38	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.04	1.33	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.04	1.30	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.04	1.31	0.14	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.05	1.37	0.15	0.00	1.60	0.41	0.48	0.13
<b>Year 2014</b>									
On-road Truck - Idle (g/hr)	0	1.07	14.24	1.02	0.02	0.06	0.05	0.06	0.05
On-road Truck Transport	5	0.21	2.85	0.20	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	7.5	0.18	2.62	0.19	0.00	1.60	0.41	0.49	0.13
On-road Truck Transport	10	0.14	2.40	0.18	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	15	0.10	2.08	0.16	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.07	1.83	0.14	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.06	1.65	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.04	1.50	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.04	1.38	0.12	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.03	1.29	0.12	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.03	1.22	0.11	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.03	1.17	0.12	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.03	1.15	0.12	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.03	1.14	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.04	1.19	0.13	0.00	1.60	0.41	0.48	0.13
<b>Year 2015</b>									
On-road Truck - Idle (g/hr)	0	0.91	12.48	0.91	0.02	0.06	0.05	0.06	0.05
On-road Truck Transport	5	0.18	2.50	0.18	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	7.5	0.15	2.31	0.17	0.00	1.60	0.41	0.49	0.13
On-road Truck Transport	10	0.12	2.12	0.16	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	15	0.08	1.84	0.14	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.06	1.64	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.05	1.47	0.12	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.04	1.34	0.11	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.03	1.23	0.11	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.03	1.15	0.10	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.03	1.09	0.10	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.03	1.04	0.10	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.03	1.01	0.11	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.03	1.00	0.11	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.03	1.03	0.12	0.00	1.60	0.41	0.48	0.13
<b>Year 2016</b>									
On-road Truck - Idle (g/hr)	0	0.78	11.04	0.83	0.02	0.05	0.05	0.05	0.05
On-road Truck Transport	5	0.16	2.21	0.17	0.00	1.60	0.41	0.49	0.14
On-road Truck Transport	7.5	0.13	2.05	0.16	0.00	1.60	0.41	0.49	0.13
On-road Truck Transport	10	0.10	1.89	0.14	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	15	0.07	1.65	0.13	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.05	1.47	0.12	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.04	1.33	0.11	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.03	1.21	0.10	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.03	1.11	0.10	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.02	1.04	0.09	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.02	0.98	0.09	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.02	0.94	0.09	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.02	0.90	0.09	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.02	0.88	0.10	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.03	0.90	0.10	0.00	1.60	0.41	0.48	0.13
<b>Year 2023</b>									
On-road Truck - Idle (g/hr)	0	0.39	6.14	0.57	0.02	0.06	0.06	0.06	0.06
On-road Truck Transport	5	0.08	1.23	0.11	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	7.5	0.06	1.17	0.11	0.00	1.60	0.41	0.49	0.13
On-road Truck Transport	10	0.05	1.10	0.10	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	15	0.03	1.00	0.09	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.02	0.91	0.08	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.02	0.83	0.07	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.01	0.76	0.07	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.01	0.70	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.01	0.65	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.01	0.61	0.06	0.00	1.60	0.41	0.48	0.13

On-road Truck Transport	50	0.01	0.57	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.01	0.53	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.01	0.49	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.01	0.46	0.06	0.00	1.60	0.41	0.48	0.13
<b>Year 2035</b>									
On-road Truck - Idle (g/hr)	0	0.30	4.97	0.47	0.02	0.07	0.06	0.07	0.06
On-road Truck Transport	5	0.06	0.99	0.09	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	7.5	0.05	0.95	0.09	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	10	0.04	0.91	0.08	0.00	1.60	0.41	0.49	0.13
On-road Truck Transport	15	0.03	0.83	0.07	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.02	0.76	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.01	0.69	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.01	0.64	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.01	0.59	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.01	0.55	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.01	0.51	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.01	0.48	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.01	0.44	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.01	0.40	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.01	0.37	0.05	0.00	1.60	0.41	0.48	0.13
<b>Year 2046</b>									
On-road Truck - Idle (g/hr)	0	0.30	4.97	0.47	0.02	0.07	0.06	0.07	0.06
On-road Truck Transport	5	0.06	0.99	0.09	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	7.5	0.05	0.95	0.09	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	10	0.04	0.91	0.08	0.00	1.60	0.41	0.49	0.13
On-road Truck Transport	15	0.03	0.83	0.07	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	20	0.02	0.76	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.01	0.69	0.06	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.01	0.64	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.01	0.59	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.01	0.55	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.01	0.51	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.01	0.48	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.01	0.44	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.01	0.40	0.05	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.01	0.37	0.05	0.00	1.60	0.41	0.48	0.13

Notes:

- (1) On-site travel speed was assumed at 7.5 mph.
- (2) Emission factors were generated by EMFAC2011 model with SCAB default age distributions.
- (3) PM emissions factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (4) Emissions factors for year 2066 are identical to those for 2046.

**Table C1.2-NP-13. Existing Business Annual Truck Emissions - No Project Alternative**

Project Year - Mode	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013</b>						
On-Site	2.43	7.70	16.19	0.01	0.87	0.37
Off-Site	2.55	10.69	47.58	0.10	4.07	1.68
<b>2013 Total</b>	<b>4.98</b>	<b>18.39</b>	<b>63.77</b>	<b>0.12</b>	<b>4.94</b>	<b>2.05</b>
<b>Year 2014</b>						
On-Site	2.09	6.87	14.94	0.01	0.79	0.30
Off-Site	2.50	9.99	46.65	0.10	3.87	1.47
<b>2014 Total</b>	<b>4.59</b>	<b>16.86</b>	<b>61.59</b>	<b>0.12</b>	<b>4.67</b>	<b>1.77</b>
<b>Year 2015</b>						
On-Site	2.04	6.87	13.88	0.01	0.76	0.26
Off-Site	2.48	9.73	44.20	0.10	3.79	1.39
<b>2015 Total</b>	<b>4.52</b>	<b>16.59</b>	<b>58.08</b>	<b>0.12</b>	<b>4.54</b>	<b>1.66</b>
<b>Year 2016</b>						
On-Site	2.25	7.79	14.89	0.02	0.82	0.26
Off-Site	2.77	10.76	47.81	0.12	4.27	1.53
<b>2016 Total</b>	<b>5.03</b>	<b>18.54</b>	<b>62.70</b>	<b>0.13</b>	<b>5.09</b>	<b>1.79</b>
<b>Year 2023</b>						
On-Site	2.04	7.80	8.61	0.02	0.80	0.24
Off-Site	2.12	8.01	19.81	0.11	4.20	1.47
<b>2023 Total</b>	<b>4.16</b>	<b>15.82</b>	<b>28.41</b>	<b>0.13</b>	<b>5.00</b>	<b>1.71</b>
<b>Year 2035</b>						
On-Site	1.98	7.70	8.22	0.02	0.79	0.24
Off-Site	1.93	7.36	17.69	0.12	4.16	1.43
<b>2035 Total</b>	<b>3.90</b>	<b>15.06</b>	<b>25.90</b>	<b>0.13</b>	<b>4.95</b>	<b>1.67</b>
<b>Year 2046</b>						
On-Site	1.98	7.70	8.48	0.02	0.80	0.24
Off-Site	1.95	7.33	19.49	0.12	4.15	1.42
<b>2046 Total</b>	<b>3.93</b>	<b>15.02</b>	<b>27.97</b>	<b>0.13</b>	<b>4.94</b>	<b>1.66</b>

Notes:

- (1) Trucks include Port drayage trucks, vendor trucks, and other medium-duty trucks.
- (2) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-NP-14. Existing Business Peak Daily Truck Emissions - No Project Alternative**

Project Year - Mode	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013</b>						
On-Site	17.19	54.73	114.29	0.10	6.15	2.60
Off-Site	18.02	75.46	335.08	0.71	28.69	11.81
<b>2013 Total</b>	<b>35.21</b>	<b>130.19</b>	<b>449.37</b>	<b>0.82</b>	<b>34.84</b>	<b>14.41</b>
<b>Year 2014</b>						
On-Site	14.87	49.05	105.63	0.10	5.60	2.09
Off-Site	17.71	70.68	329.16	0.73	27.36	10.38
<b>2014 Total</b>	<b>32.57</b>	<b>119.73</b>	<b>434.79</b>	<b>0.83</b>	<b>32.95</b>	<b>12.47</b>
<b>Year 2015</b>						
On-Site	14.55	49.07	98.32	0.10	5.34	1.85
Off-Site	17.56	68.91	312.20	0.73	26.77	9.83
<b>2015 Total</b>	<b>32.10</b>	<b>117.98</b>	<b>410.51</b>	<b>0.83</b>	<b>32.11</b>	<b>11.68</b>
<b>Year 2016</b>						
On-Site	16.15	55.88	106.00	0.12	5.82	1.85
Off-Site	19.73	76.59	339.06	0.83	30.25	10.84
<b>2016 Total</b>	<b>35.88</b>	<b>132.48</b>	<b>445.05</b>	<b>0.95</b>	<b>36.07</b>	<b>12.69</b>
<b>Year 2023</b>						
On-Site	14.58	55.84	61.50	0.12	5.67	1.71
Off-Site	15.09	56.97	140.74	0.81	29.77	10.43
<b>2023 Total</b>	<b>29.67</b>	<b>112.81</b>	<b>202.24</b>	<b>0.93</b>	<b>35.43</b>	<b>12.14</b>
<b>Year 2035</b>						
On-Site	14.11	55.11	58.74	0.12	5.64	1.69
Off-Site	13.68	52.32	125.65	0.82	29.46	10.16
<b>2035 Total</b>	<b>27.80</b>	<b>107.43</b>	<b>184.39</b>	<b>0.94</b>	<b>35.10</b>	<b>11.85</b>
<b>Year 2046</b>						
On-Site	14.10	55.08	60.69	0.12	5.65	1.70
Off-Site	13.88	52.07	138.58	0.82	29.40	10.09
<b>2046 Total</b>	<b>27.98</b>	<b>107.15</b>	<b>199.26</b>	<b>0.94</b>	<b>35.05</b>	<b>11.79</b>

Notes:

- (1) Trucks include Port drayage trucks, vendor trucks, and other medium-duty trucks.
- (2) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-NP-15. Existing Business Annual Employee Commute Emissions - No Project Alternative**

Project Year - Mode	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013</b>						
On-Site	0.07	0.96	0.07	0.00	0.17	0.04
Off-Site	0.63	18.95	1.70	0.04	5.78	1.54
<b>2013 Total</b>	<b>0.70</b>	<b>19.91</b>	<b>1.77</b>	<b>0.05</b>	<b>5.94</b>	<b>1.59</b>
<b>Year 2014</b>						
On-Site	0.06	0.84	0.06	0.00	0.17	0.04
Off-Site	0.54	16.82	1.48	0.04	5.65	1.51
<b>2014 Total</b>	<b>0.60</b>	<b>17.66</b>	<b>1.55</b>	<b>0.05</b>	<b>5.82</b>	<b>1.55</b>
<b>Year 2015</b>						
On-Site	0.05	0.74	0.05	0.00	0.17	0.04
Off-Site	0.45	14.98	1.32	0.04	5.65	1.51
<b>2015 Total</b>	<b>0.50</b>	<b>15.72</b>	<b>1.38</b>	<b>0.05</b>	<b>5.81</b>	<b>1.55</b>
<b>Year 2016</b>						
On-Site	0.05	0.77	0.06	0.00	0.19	0.05
Off-Site	0.45	15.83	1.40	0.05	6.62	1.76
<b>2016 Total</b>	<b>0.50</b>	<b>16.60</b>	<b>1.46</b>	<b>0.05</b>	<b>6.81</b>	<b>1.82</b>
<b>Year 2023</b>						
On-Site	0.03	0.43	0.04	0.00	0.20	0.05
Off-Site	0.19	9.71	0.89	0.05	6.62	1.77
<b>2023 Total</b>	<b>0.22</b>	<b>10.14</b>	<b>0.93</b>	<b>0.05</b>	<b>6.82</b>	<b>1.82</b>
<b>Year 2035</b>						
On-Site	0.02	0.35	0.03	0.00	0.20	0.05
Off-Site	0.14	8.11	0.73	0.05	6.62	1.77
<b>2035 Total</b>	<b>0.16</b>	<b>8.46</b>	<b>0.77</b>	<b>0.05</b>	<b>6.82</b>	<b>1.82</b>
<b>Year 2046</b>						
On-Site	0.02	0.35	0.03	0.00	0.20	0.05
Off-Site	0.14	8.17	0.74	0.05	6.62	1.77
<b>2046 Total</b>	<b>0.16</b>	<b>8.52</b>	<b>0.77</b>	<b>0.05</b>	<b>6.82</b>	<b>1.82</b>

Notes:

- (1) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (2) Emissions for year 2066 are identical to those for 2046.



**Table C1.2-NP-16. Existing Business Peak Daily Employee Commute Emissions - No Project Alternative**

Project Year - Mode	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013</b>						
On-Site	0.50	6.74	0.48	0.01	1.16	0.31
Off-Site	4.38	132.61	11.89	0.31	40.37	10.78
<b>2013 Total</b>	<b>4.88</b>	<b>139.34</b>	<b>12.37</b>	<b>0.32</b>	<b>41.53</b>	<b>11.09</b>
<b>Year 2014</b>						
On-Site	0.43	5.89	0.43	0.01	1.16	0.31
Off-Site	3.75	117.46	10.36	0.31	39.39	10.51
<b>2014 Total</b>	<b>4.17</b>	<b>123.35</b>	<b>10.78</b>	<b>0.31</b>	<b>40.55</b>	<b>10.82</b>
<b>Year 2015</b>						
On-Site	0.36	5.17	0.38	0.01	1.16	0.31
Off-Site	3.14	104.67	9.23	0.31	39.38	10.50
<b>2015 Total</b>	<b>3.50</b>	<b>109.83</b>	<b>9.62</b>	<b>0.31</b>	<b>40.54</b>	<b>10.81</b>
<b>Year 2016</b>						
On-Site	0.37	5.39	0.41	0.01	1.36	0.36
Off-Site	3.14	111.01	9.80	0.36	46.34	12.35
<b>2016 Total</b>	<b>3.51</b>	<b>116.40</b>	<b>10.21</b>	<b>0.37</b>	<b>47.70</b>	<b>12.71</b>
<b>Year 2023</b>						
On-Site	0.18	3.02	0.28	0.01	1.37	0.37
Off-Site	1.35	68.14	6.22	0.36	46.34	12.36
<b>2023 Total</b>	<b>1.53</b>	<b>71.16</b>	<b>6.50</b>	<b>0.37</b>	<b>47.71</b>	<b>12.72</b>
<b>Year 2035</b>						
On-Site	0.14	2.44	0.23	0.01	1.37	0.37
Off-Site	0.99	56.90	5.15	0.36	46.37	12.38
<b>2035 Total</b>	<b>1.13</b>	<b>59.35</b>	<b>5.38</b>	<b>0.37</b>	<b>47.74</b>	<b>12.75</b>
<b>Year 2046</b>						
On-Site	0.14	2.44	0.23	0.01	1.37	0.37
Off-Site	1.01	57.31	5.17	0.36	46.37	12.39
<b>2046 Total</b>	<b>1.15</b>	<b>59.76</b>	<b>5.40</b>	<b>0.37</b>	<b>47.74</b>	<b>12.76</b>

Notes:

- (1) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (2) Peak daily emissions are equivalent to the average daily emissions.
- (3) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-NP-17. Activity Data for Existing Business CHE - No Project Alternative**

<b>Cargo Handling Equipment</b>	<b>Fuel</b>	<b>Average HP</b>	<b>Equipment Count</b>	<b>Total Annual Hours of Operation</b>	<b>Average Load Factor</b>
<b>Years 2013-2015</b>					
Container Handling Equipment > 175 - 210	Diesel	198	3	5,581	0.59
Fork Lift > 50-120	Diesel	100	10	7,334	0.30
Fork Lift > 120-175	Diesel	138	5	8,185	0.30
Fork Lift > 175-250	Diesel	192	3	5,581	0.30
Loader > 50-120	Diesel	110	1	930	0.55
Loader > 175-210	Diesel	200	1	930	0.55
Other, General Industrial Equipment > 175-250	Diesel	220	2	698	0.51
Power Pack > 200	Diesel	202	2	1,342	0.74
Side Pick > 120-175	Diesel	136	2	1,565	0.59
Sweeper/Scrubber > 50-120	Diesel	60	1	186	0.68
Top Handler > 50-120	Diesel	120	2	1,948	0.59
Tractor/ Loader/Backhoe > 120-175	Diesel	158	4	5,767	0.55
Yard tractor > 210-400	Diesel	250	6	9,230	0.39
Yard Truck > 120-175	Diesel	150	1	930	0.39
Yard Truck > 175-210	Diesel	209	23	33,486	0.39
Yard Truck > 210-400	Diesel	350	1	1,860	0.39
Fork Lift > 50-120	LPG	75	176	336,074	0.30
Top Handler > 50-120	LPG	92	1	1,440	0.30
<b>Years 2016-2046</b>					
Container Handling Equipment > 175 - 210	Diesel	198	3	6,864	0.59
Fork Lift > 50-120	Diesel	100	10	8,600	0.30
Fork Lift > 120-175	Diesel	138	5	10,067	0.30
Fork Lift > 175-250	Diesel	192	3	6,864	0.30
Loader > 50-120	Diesel	110	1	1,144	0.55
Loader > 175-210	Diesel	200	1	1,144	0.55
Other, General Industrial Equipment > 175-250	Diesel	220	2	858	0.51
Power Pack > 200	Diesel	202	2	1,650	0.74
Side Pick > 120-175	Diesel	136	2	1,925	0.59
Sweeper/Scrubber > 50-120	Diesel	60	1	229	0.68
Top Handler > 50-120	Diesel	120	2	2,143	0.59
Tractor/ Loader/Backhoe > 120-175	Diesel	158	4	7,093	0.55
Yard tractor > 210-400	Diesel	250	6	11,352	0.39
Yard Truck > 120-175	Diesel	150	1	1,144	0.39
Yard Truck > 175-210	Diesel	209	23	36,895	0.39
Yard Truck > 210-400	Diesel	350	1	2,288	0.39
Fork Lift > 50-120	LPG	75	176	371,136	0.30
Top Handler > 50-120	LPG	92	1	1,584	0.30

Note: Activity data for year 2066 are identical to those for 2046.

**Table C1.2-NP-18. Emission Factors for Existing Business CHE - No Project Alternative**

Year 2013	Cargo Handling Equipment	Fuel	Emission Factors (grams/hp-hr)					
			VOC	CO	NOx	SOx	PM10	PM2.5
Container Handling Equipment > 175 - 210	Diesel		0.09	0.92	2.45	0.01	0.11	0.10
Fork Lift > 50-120	Diesel		0.10	3.06	3.11	0.01	0.19	0.17
Fork Lift > 120-175	Diesel		0.09	2.70	2.45	0.01	0.14	0.13
Fork Lift > 175-250	Diesel		0.07	0.92	1.36	0.01	0.01	0.01
Loader > 50-120	Diesel		0.09	3.05	2.89	0.06	0.20	0.18
Loader > 175-210	Diesel		0.09	0.92	2.45	0.06	0.11	0.10
Other, General Industrial Equipment > 175-250	Diesel		0.09	0.92	2.45	0.01	0.11	0.10
Power Pack > 200	Diesel		0.41	1.17	4.48	0.01	0.12	0.11
Side Pick > 120-175	Diesel		0.09	2.70	2.45	0.01	0.14	0.13
Sweeper/Scrubber > 50-120	Diesel		0.09	3.05	2.89	0.01	0.20	0.18
Top Handler > 50-120	Diesel		0.09	3.05	2.89	0.01	0.20	0.18
Tractor/ Loader/Backhoe > 120-175	Diesel		0.09	2.70	2.45	0.01	0.14	0.13
Yard tractor > 210-400	Diesel		0.07	0.76	2.67	0.03	0.09	0.09
Yard Truck > 120-175	Diesel		0.09	2.70	2.45	0.01	0.14	0.13
Yard Truck > 175-210	Diesel		0.09	0.92	2.45	0.01	0.11	0.10
Yard Truck > 210-400	Diesel		0.09	0.92	2.45	0.01	0.11	0.10
Fork Lift > 50-120	LPG		0.20	28.84	0.89	0.00	0.06	0.06
Top Handler > 50-120	LPG		0.20	30.41	0.89	0.00	0.06	0.06
Year 2014			VOC	CO	NOx	SOx	PM10	PM2.5
Container Handling Equipment > 175 - 210	Diesel		0.09	0.92	2.45	0.01	0.11	0.10
Fork Lift > 50-120	Diesel		0.10	3.06	3.11	0.01	0.19	0.17
Fork Lift > 120-175	Diesel		0.09	2.70	2.45	0.01	0.14	0.13
Fork Lift > 175-250	Diesel		0.07	0.92	1.36	0.01	0.01	0.01
Loader > 50-120	Diesel		0.09	3.05	2.89	0.06	0.20	0.18
Loader > 175-210	Diesel		0.09	0.92	2.45	0.06	0.11	0.10
Other, General Industrial Equipment > 175-250	Diesel		0.09	0.92	2.45	0.01	0.11	0.10
Power Pack > 200	Diesel		0.38	1.14	4.08	0.01	0.11	0.10
Side Pick > 120-175	Diesel		0.09	2.70	2.45	0.01	0.14	0.13
Sweeper/Scrubber > 50-120	Diesel		0.09	3.05	2.89	0.01	0.20	0.18
Top Handler > 50-120	Diesel		0.09	3.05	2.89	0.01	0.20	0.18
Tractor/ Loader/Backhoe > 120-175	Diesel		0.09	2.70	2.45	0.01	0.14	0.13
Yard tractor > 210-400	Diesel		0.07	0.76	2.67	0.03	0.09	0.09
Yard Truck > 120-175	Diesel		0.09	2.70	2.45	0.01	0.14	0.13
Yard Truck > 175-210	Diesel		0.09	0.92	2.45	0.01	0.11	0.10
Yard Truck > 210-400	Diesel		0.09	0.92	2.45	0.01	0.11	0.10
Fork Lift > 50-120	LPG		0.20	28.84	0.89	0.00	0.06	0.06
Top Handler > 50-120	LPG		0.20	30.41	0.89	0.00	0.06	0.06
Year 2015			VOC	CO	NOx	SOx	PM10	PM2.5
Container Handling Equipment > 175 - 210	Diesel		0.09	0.92	2.45	0.01	0.11	0.10
Fork Lift > 50-120	Diesel		0.10	3.06	3.11	0.01	0.19	0.17
Fork Lift > 120-175	Diesel		0.09	2.70	2.45	0.01	0.14	0.13
Fork Lift > 175-250	Diesel		0.07	0.92	1.36	0.01	0.01	0.01
Loader > 50-120	Diesel		0.09	3.05	2.89	0.06	0.20	0.18
Loader > 175-210	Diesel		0.09	0.92	2.45	0.06	0.11	0.10
Other, General Industrial Equipment > 175-250	Diesel		0.09	0.92	2.45	0.01	0.11	0.10
Power Pack > 200	Diesel		0.29	1.11	3.68	0.01	0.10	0.09
Side Pick > 120-175	Diesel		0.09	2.70	2.45	0.01	0.14	0.13
Sweeper/Scrubber > 50-120	Diesel		0.09	3.05	2.89	0.01	0.20	0.18
Top Handler > 50-120	Diesel		0.09	3.05	2.89	0.01	0.20	0.18
Tractor/ Loader/Backhoe > 120-175	Diesel		0.09	2.70	2.45	0.01	0.14	0.13
Yard tractor > 210-400	Diesel		0.07	0.76	2.67	0.03	0.09	0.09
Yard Truck > 120-175	Diesel		0.09	2.70	2.45	0.01	0.14	0.13
Yard Truck > 175-210	Diesel		0.09	0.92	2.45	0.01	0.11	0.10
Yard Truck > 210-400	Diesel		0.09	0.92	2.45	0.01	0.11	0.10
Fork Lift > 50-120	LPG		0.20	28.85	0.89	0.00	0.06	0.06
Top Handler > 50-120	LPG		0.20	30.42	0.89	0.00	0.06	0.06
Year 2016			VOC	CO	NOx	SOx	PM10	PM2.5
Container Handling Equipment > 175 - 210	Diesel		0.09	0.92	2.45	0.06	0.11	0.10
Fork Lift > 50-120	Diesel		0.10	3.06	3.11	0.06	0.19	0.17
Fork Lift > 120-175	Diesel		0.09	2.70	2.45	0.06	0.14	0.13
Fork Lift > 175-250	Diesel		0.07	0.92	1.36	0.06	0.01	0.01
Loader > 50-120	Diesel		0.09	3.05	2.89	0.06	0.20	0.18
Loader > 175-210	Diesel		0.09	0.92	2.45	0.06	0.11	0.10
Other, General Industrial Equipment > 175-250	Diesel		0.09	0.92	2.45	0.06	0.11	0.10
Power Pack > 200	Diesel		0.32	1.09	3.30	0.01	0.09	0.08
Side Pick > 120-175	Diesel		0.09	2.70	2.45	0.06	0.14	0.13
Sweeper/Scrubber > 50-120	Diesel		0.09	3.05	2.89	0.06	0.20	0.18

Top Handler > 50-120	Diesel	0.09	3.05	2.89	0.06	0.20	0.18
Tractor/ Loader/Backhoe > 120-175	Diesel	0.09	2.70	2.45	0.06	0.14	0.13
Yard tractor > 210-400	Diesel	0.06	0.76	2.03	0.06	0.08	0.07
Yard Truck > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Yard Truck > 175-210	Diesel	0.07	0.92	1.31	0.06	0.06	0.05
Yard Truck > 210-400	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Fork Lift > 50-120	LPG	0.20	28.85	0.89	0.00	0.06	0.06
Top Handler > 50-120	LPG	0.20	30.42	0.89	0.00	0.06	0.06
<b>Year 2023</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.09	0.92	2.45	0.06	0.11	0.10
Fork Lift > 50-120	Diesel	0.10	3.06	3.11	0.06	0.19	0.17
Fork Lift > 120-175	Diesel	0.09	2.70	2.45	0.06	0.14	0.13
Fork Lift > 175-250	Diesel	0.07	0.92	1.36	0.06	0.01	0.01
Loader > 50-120	Diesel	0.09	3.05	2.89	0.06	0.20	0.18
Loader > 175-210	Diesel	0.09	0.92	2.45	0.06	0.11	0.10
Other, General Industrial Equipment > 175-250	Diesel	0.09	0.92	2.45	0.06	0.11	0.10
Power Pack > 200	Diesel	0.20	1.01	1.35	0.01	0.04	0.04
Side Pick > 120-175	Diesel	0.09	2.70	2.45	0.06	0.14	0.13
Sweeper/Scrubber > 50-120	Diesel	0.09	3.05	2.89	0.06	0.20	0.18
Top Handler > 50-120	Diesel	0.09	3.05	2.89	0.06	0.20	0.18
Tractor/ Loader/Backhoe > 120-175	Diesel	0.09	2.70	2.45	0.06	0.14	0.13
Yard tractor > 210-400	Diesel	0.04	0.76	0.29	0.06	0.01	0.01
Yard Truck > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Yard Truck > 175-210	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Yard Truck > 210-400	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Fork Lift > 50-120	LPG	0.11	15.03	0.48	0.00	0.06	0.06
Top Handler > 50-120	LPG	0.11	15.40	0.48	0.00	0.06	0.06
<b>Year 2035</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Fork Lift > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
Fork Lift > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Fork Lift > 175-250	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Loader > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
Loader > 175-210	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Other, General Industrial Equipment > 175-250	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Power Pack > 200	Diesel	0.13	1.00	0.33	0.01	0.01	0.01
Side Pick > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Sweeper/Scrubber > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
Top Handler > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
Tractor/ Loader/Backhoe > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Yard tractor > 210-400	Diesel	0.04	0.76	0.29	0.06	0.01	0.01
Yard Truck > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Yard Truck > 175-210	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Yard Truck > 210-400	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Fork Lift > 50-120	LPG	0.11	15.03	0.48	0.00	0.06	0.06
Top Handler > 50-120	LPG	0.11	15.40	0.48	0.00	0.06	0.06
<b>Year 2046</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Fork Lift > 50-120	Diesel	0.06	3.01	1.26	0.06	0.01	0.01
Fork Lift > 120-175	Diesel	0.05	2.41	0.50	0.06	0.01	0.01
Fork Lift > 175-250	Diesel	0.05	1.51	0.27	0.06	0.01	0.01
Loader > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
Loader > 175-210	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Other, General Industrial Equipment > 175-250	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Power Pack > 200	Diesel	0.13	1.00	0.28	0.01	0.01	0.01
Side Pick > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Sweeper/Scrubber > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
Top Handler > 50-120	Diesel	0.07	3.05	1.40	0.06	0.01	0.01
Tractor/ Loader/Backhoe > 120-175	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Yard tractor > 210-400	Diesel	0.04	0.76	0.29	0.06	0.01	0.01
Yard Truck > 120-175	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Yard Truck > 175-210	Diesel	0.05	0.92	0.27	0.06	0.01	0.01
Yard Truck > 210-400	Diesel	0.05	2.70	0.27	0.06	0.01	0.01
Fork Lift > 50-120	LPG	0.11	15.03	0.48	0.00	0.06	0.06
Top Handler > 50-120	LPG	0.11	15.40	0.48	0.00	0.06	0.06

Notes:

- 1) Emission factors were estimated using the use of ARB CHE calculator.
- 2) Emission factors for year 2066 are identical to those for 2046.

**Table C1.2-NP-19. Annual Existing Business CHE Emissions - No Project Alternative**

Year 2013	Cargo Handling Equipment	Fuel	Annual Emissions (tons/year)					
			VOC	CO	NOx	SOx	PM10	PM2.5
Container Handling Equipment > 175 - 210	Diesel		0.07	0.70	1.76	0.00	0.07	0.07
Fork Lift > 50-120	Diesel		0.10	0.71	1.39	0.00	0.05	0.05
Fork Lift > 120-175	Diesel		0.04	0.98	1.01	0.00	0.04	0.04
Fork Lift > 175-250	Diesel		0.02	0.47	0.52	0.00	0.01	0.01
Loader > 50-120	Diesel		0.01	0.20	0.18	0.00	0.01	0.01
Loader > 175-210	Diesel		0.01	0.11	0.28	0.00	0.01	0.01
Other, General Industrial Equipment > 175-250	Diesel		0.01	0.09	0.22	0.00	0.01	0.01
Power Pack > 200	Diesel		0.01	0.28	0.25	0.00	0.02	0.01
Side Pick > 120-175	Diesel		0.01	0.39	0.34	0.00	0.02	0.02
Sweeper/Scrubber > 50-120	Diesel		0.00	0.03	0.02	0.00	0.00	0.00
Top Handler > 50-120	Diesel		0.02	0.48	0.43	0.00	0.03	0.02
Tractor/ Loader/Backhoe > 120-175	Diesel		0.05	1.57	1.34	0.00	0.07	0.06
Yard tractor > 210-400	Diesel		0.06	0.70	2.83	0.05	0.09	0.08
Yard Truck > 120-175	Diesel		0.04	0.31	0.77	0.00	0.04	0.04
Yard Truck > 175-210	Diesel		0.40	3.35	8.22	0.02	0.41	0.37
Yard Truck > 210-400	Diesel		0.01	0.18	0.16	0.00	0.01	0.01
Fork Lift > 50-120	LPG		1.74	219.26	6.96	0.03	0.47	0.43
Top Handler > 50-120	LPG		0.01	1.33	0.04	0.00	0.00	0.00
Year 2014			VOC	CO	NOx	SOx	PM10	PM2.5
Container Handling Equipment > 175 - 210	Diesel		0.07	0.71	1.78	0.00	0.08	0.07
Fork Lift > 50-120	Diesel		0.09	0.71	1.30	0.00	0.05	0.04
Fork Lift > 120-175	Diesel		0.04	0.99	1.02	0.00	0.04	0.04
Fork Lift > 175-250	Diesel		0.02	0.47	0.53	0.00	0.01	0.01
Loader > 50-120	Diesel		0.01	0.20	0.18	0.00	0.01	0.01
Loader > 175-210	Diesel		0.01	0.12	0.29	0.00	0.01	0.01
Other, General Industrial Equipment > 175-250	Diesel		0.01	0.09	0.23	0.00	0.01	0.01
Power Pack > 200	Diesel		0.01	0.29	0.25	0.00	0.02	0.01
Side Pick > 120-175	Diesel		0.01	0.40	0.34	0.00	0.02	0.02
Sweeper/Scrubber > 50-120	Diesel		0.00	0.03	0.02	0.00	0.00	0.00
Top Handler > 50-120	Diesel		0.02	0.49	0.44	0.00	0.03	0.02
Tractor/ Loader/Backhoe > 120-175	Diesel		0.06	1.59	1.36	0.00	0.07	0.07
Yard tractor > 210-400	Diesel		0.06	0.70	2.84	0.05	0.09	0.08
Yard Truck > 120-175	Diesel		0.04	0.32	0.79	0.00	0.04	0.04
Yard Truck > 175-210	Diesel		0.42	3.44	8.41	0.02	0.43	0.39
Yard Truck > 210-400	Diesel		0.01	0.19	0.16	0.00	0.01	0.01
Fork Lift > 50-120	LPG		1.74	219.25	6.96	0.03	0.47	0.43
Top Handler > 50-120	LPG		0.01	1.33	0.04	0.00	0.00	0.00
Year 2015			VOC	CO	NOx	SOx	PM10	PM2.5
Container Handling Equipment > 175 - 210	Diesel		0.08	0.72	1.80	0.00	0.08	0.07
Fork Lift > 50-120	Diesel		0.07	0.71	1.22	0.00	0.05	0.04
Fork Lift > 120-175	Diesel		0.04	1.00	1.02	0.00	0.04	0.04
Fork Lift > 175-250	Diesel		0.03	0.48	0.53	0.00	0.01	0.01
Loader > 50-120	Diesel		0.01	0.20	0.18	0.00	0.01	0.01
Loader > 175-210	Diesel		0.01	0.12	0.29	0.00	0.01	0.01
Other, General Industrial Equipment > 175-250	Diesel		0.01	0.09	0.23	0.00	0.01	0.01
Power Pack > 200	Diesel		0.01	0.29	0.26	0.00	0.02	0.01
Side Pick > 120-175	Diesel		0.01	0.40	0.34	0.00	0.02	0.02
Sweeper/Scrubber > 50-120	Diesel		0.00	0.03	0.02	0.00	0.00	0.00
Top Handler > 50-120	Diesel		0.02	0.49	0.44	0.00	0.03	0.03
Tractor/ Loader/Backhoe > 120-175	Diesel		0.06	1.60	1.37	0.00	0.07	0.07
Yard tractor > 210-400	Diesel		0.06	0.71	2.85	0.05	0.09	0.08
Yard Truck > 120-175	Diesel		0.04	0.33	0.80	0.00	0.04	0.04
Yard Truck > 175-210	Diesel		0.43	3.52	8.59	0.02	0.45	0.41
Yard Truck > 210-400	Diesel		0.01	0.19	0.16	0.00	0.01	0.01
Fork Lift > 50-120	LPG		1.74	219.34	6.96	0.03	0.47	0.43
Top Handler > 50-120	LPG		0.01	1.33	0.04	0.00	0.00	0.00
Year 2016			VOC	CO	NOx	SOx	PM10	PM2.5
Container Handling Equipment > 175 - 210	Diesel		0.10	0.90	2.23	0.01	0.10	0.09
Fork Lift > 50-120	Diesel		0.10	0.90	1.57	0.00	0.06	0.06
Fork Lift > 120-175	Diesel		0.05	1.32	1.13	0.00	0.06	0.05
Fork Lift > 175-250	Diesel		0.03	0.43	0.59	0.00	0.00	0.00
Loader > 50-120	Diesel		0.01	0.25	0.23	0.00	0.01	0.01
Loader > 175-210	Diesel		0.02	0.15	0.36	0.00	0.02	0.02
Other, General Industrial Equipment > 175-250	Diesel		0.01	0.12	0.29	0.00	0.01	0.01
Power Pack > 200	Diesel		0.01	0.36	0.32	0.00	0.02	0.02
Side Pick > 120-175	Diesel		0.02	0.50	0.42	0.00	0.02	0.02
Sweeper/Scrubber > 50-120	Diesel		0.00	0.03	0.03	0.00	0.00	0.00

Top Handler > 50-120	Diesel	0.02	0.55	0.49	0.00	0.03	0.03
Tractor/ Loader/Backhoe > 120-175	Diesel	0.07	1.99	1.70	0.00	0.09	0.08
Yard tractor > 210-400	Diesel	0.06	0.88	1.62	0.06	0.06	0.05
Yard Truck > 120-175	Diesel	0.00	0.20	0.02	0.00	0.00	0.00
Yard Truck > 175-210	Diesel	0.27	3.44	4.12	0.02	0.21	0.19
Yard Truck > 210-400	Diesel	0.02	0.33	0.09	0.00	0.00	0.00
Fork Lift > 50-120	LPG	1.80	242.13	7.69	0.03	0.52	0.48
Top Handler > 50-120	LPG	0.01	1.47	0.04	0.00	0.00	0.00
<b>Year 2023</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.11	0.98	2.40	0.01	0.12	0.11
Fork Lift > 50-120	Diesel	0.08	0.92	1.07	0.00	0.05	0.05
Fork Lift > 120-175	Diesel	0.05	1.39	1.18	0.00	0.07	0.06
Fork Lift > 175-250	Diesel	0.04	0.46	0.63	0.00	0.00	0.00
Loader > 50-120	Diesel	0.01	0.27	0.24	0.00	0.02	0.02
Loader > 175-210	Diesel	0.02	0.16	0.39	0.00	0.02	0.02
Other, General Industrial Equipment > 175-250	Diesel	0.01	0.13	0.31	0.00	0.02	0.01
Power Pack > 200	Diesel	0.01	0.38	0.33	0.00	0.02	0.02
Side Pick > 120-175	Diesel	0.02	0.52	0.44	0.00	0.03	0.02
Sweeper/Scrubber > 50-120	Diesel	0.00	0.04	0.03	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.02	0.58	0.51	0.00	0.04	0.03
Tractor/ Loader/Backhoe > 120-175	Diesel	0.08	2.12	1.79	0.00	0.11	0.10
Yard tractor > 210-400	Diesel	0.04	0.86	0.38	0.06	0.01	0.01
Yard Truck > 120-175	Diesel	0.00	0.23	0.02	0.00	0.00	0.00
Yard Truck > 175-210	Diesel	0.21	3.78	1.02	0.02	0.04	0.04
Yard Truck > 210-400	Diesel	0.02	0.40	0.11	0.00	0.00	0.00
Fork Lift > 50-120	LPG	0.98	128.56	4.19	0.03	0.52	0.48
Top Handler > 50-120	LPG	0.01	0.74	0.02	0.00	0.00	0.00
<b>Year 2035</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.05	0.90	0.25	0.01	0.01	0.01
Fork Lift > 50-120	Diesel	0.04	0.87	0.35	0.00	0.00	0.00
Fork Lift > 120-175	Diesel	0.02	1.30	0.12	0.00	0.00	0.00
Fork Lift > 175-250	Diesel	0.02	0.42	0.12	0.00	0.00	0.00
Loader > 50-120	Diesel	0.00	0.14	0.06	0.00	0.00	0.00
Loader > 175-210	Diesel	0.00	0.08	0.02	0.00	0.00	0.00
Other, General Industrial Equipment > 175-250	Diesel	0.01	0.12	0.03	0.00	0.00	0.00
Power Pack > 200	Diesel	0.01	0.35	0.15	0.00	0.00	0.00
Side Pick > 120-175	Diesel	0.01	0.50	0.05	0.00	0.00	0.00
Sweeper/Scrubber > 50-120	Diesel	0.00	0.03	0.01	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.01	0.55	0.23	0.00	0.00	0.00
Tractor/ Loader/Backhoe > 120-175	Diesel	0.04	2.02	0.19	0.00	0.01	0.01
Yard tractor > 210-400	Diesel	0.03	0.82	0.38	0.06	0.01	0.01
Yard Truck > 120-175	Diesel	0.00	0.21	0.02	0.00	0.00	0.00
Yard Truck > 175-210	Diesel	0.16	3.21	0.89	0.02	0.03	0.03
Yard Truck > 210-400	Diesel	0.02	0.34	0.09	0.00	0.00	0.00
Fork Lift > 50-120	LPG	0.98	128.55	4.19	0.03	0.52	0.48
Top Handler > 50-120	LPG	0.01	0.74	0.02	0.00	0.00	0.00
<b>Year 2046</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.06	1.02	0.28	0.01	0.01	0.01
Fork Lift > 50-120	Diesel	0.04	0.82	0.27	0.00	0.00	0.00
Fork Lift > 120-175	Diesel	0.03	1.33	0.22	0.00	0.01	0.01
Fork Lift > 175-250	Diesel	0.02	0.65	0.12	0.00	0.00	0.00
Loader > 50-120	Diesel	0.00	0.13	0.06	0.00	0.00	0.00
Loader > 175-210	Diesel	0.00	0.07	0.02	0.00	0.00	0.00
Other, General Industrial Equipment > 175-250	Diesel	0.01	0.11	0.03	0.00	0.00	0.00
Power Pack > 200	Diesel	0.01	0.38	0.16	0.00	0.00	0.00
Side Pick > 120-175	Diesel	0.01	0.46	0.04	0.00	0.00	0.00
Sweeper/Scrubber > 50-120	Diesel	0.00	0.03	0.01	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.01	0.58	0.25	0.00	0.00	0.00
Tractor/ Loader/Backhoe > 120-175	Diesel	0.03	1.91	0.18	0.00	0.01	0.01
Yard tractor > 210-400	Diesel	0.07	1.25	0.34	0.01	0.01	0.01
Yard Truck > 120-175	Diesel	0.02	0.36	0.10	0.00	0.00	0.00
Yard Truck > 175-210	Diesel	0.22	3.87	1.04	0.02	0.04	0.04
Yard Truck > 210-400	Diesel	0.00	0.21	0.02	0.00	0.00	0.00
Fork Lift > 50-120	LPG	0.98	128.55	4.19	0.03	0.52	0.48
Top Handler > 50-120	LPG	0.01	0.74	0.02	0.00	0.00	0.00

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-NP-20. Peak Daily Existing Business CHE Emissions - No Project Alternative**

Equipment	Fuel	Peak Daily Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
<b>Year 2013</b>							
Container Handling Equipment > 175 - 210	Diesel	0.52	5.05	12.62	0.03	0.52	0.48
Fork Lift > 50-120	Diesel	0.83	5.33	11.28	0.02	0.39	0.36
Fork Lift > 120-175	Diesel	0.30	7.06	7.25	0.02	0.31	0.28
Fork Lift > 175-250	Diesel	0.17	3.37	3.76	0.02	0.09	0.08
Loader > 50-120	Diesel	0.05	1.73	1.54	0.00	0.10	0.09
Loader > 175-210	Diesel	0.10	0.98	2.43	0.01	0.11	0.10
Other, General Industrial Equipment > 175-250	Diesel	0.07	0.65	1.61	0.00	0.07	0.06
Power Pack > 200	Diesel	0.08	2.44	2.18	0.01	0.13	0.12
Side Pick > 120-175	Diesel	0.12	3.39	2.90	0.01	0.15	0.14
Sweeper/Scrubber > 50-120	Diesel	0.01	0.19	0.17	0.00	0.01	0.01
Top Handler > 50-120	Diesel	0.11	3.27	2.92	0.01	0.18	0.16
Tractor/ Loader/Backhoe > 120-175	Diesel	0.39	11.28	9.65	0.03	0.50	0.46
Yard tractor > 210-400	Diesel	0.50	5.99	24.36	0.42	0.74	0.68
Yard Truck > 120-175	Diesel	0.25	2.25	5.52	0.01	0.28	0.25
Yard Truck > 175-210	Diesel	2.71	22.67	55.66	0.13	2.76	2.53
Yard Truck > 210-400	Diesel	0.05	1.32	1.12	0.00	0.07	0.06
Fork Lift > 50-120	LPG	11.86	1495.58	47.47	0.28	3.22	2.96
Top Handler > 50-120	LPG	0.07	9.01	0.26	0.00	0.02	0.02
<b>Year 2014</b>							
Container Handling Equipment > 175 - 210	Diesel	0.53	5.11	12.76	0.03	0.54	0.50
Fork Lift > 50-120	Diesel	0.73	5.30	10.53	0.02	0.38	0.35
Fork Lift > 120-175	Diesel	0.30	7.12	7.30	0.02	0.31	0.29
Fork Lift > 175-250	Diesel	0.18	3.40	3.79	0.02	0.09	0.08
Loader > 50-120	Diesel	0.05	1.74	1.55	0.00	0.10	0.09
Loader > 175-210	Diesel	0.11	0.99	2.46	0.01	0.11	0.10
Other, General Industrial Equipment > 175-250	Diesel	0.07	0.66	1.63	0.00	0.07	0.07
Power Pack > 200	Diesel	0.08	2.46	2.19	0.01	0.14	0.13
Side Pick > 120-175	Diesel	0.12	3.42	2.92	0.01	0.15	0.14
Sweeper/Scrubber > 50-120	Diesel	0.01	0.19	0.17	0.00	0.01	0.01
Top Handler > 50-120	Diesel	0.11	3.30	2.95	0.01	0.18	0.17
Tractor/ Loader/Backhoe > 120-175	Diesel	0.40	11.38	9.73	0.03	0.51	0.47
Yard tractor > 210-400	Diesel	0.51	6.04	24.46	0.42	0.75	0.69
Yard Truck > 120-175	Diesel	0.26	2.31	5.64	0.01	0.29	0.27
Yard Truck > 175-210	Diesel	2.82	23.26	56.90	0.13	2.90	2.67
Yard Truck > 210-400	Diesel	0.05	1.35	1.14	0.00	0.07	0.06
Fork Lift > 50-120	LPG	11.86	1495.53	47.47	0.26	3.22	2.96
Top Handler > 50-120	LPG	0.07	9.01	0.26	0.00	0.02	0.02
<b>Year 2015</b>							
Container Handling Equipment > 175 - 210	Diesel	0.55	5.18	12.90	0.03	0.56	0.51
Fork Lift > 50-120	Diesel	0.59	5.27	9.79	0.02	0.36	0.33
Fork Lift > 120-175	Diesel	0.31	7.17	7.35	0.02	0.32	0.29
Fork Lift > 175-250	Diesel	0.18	3.43	3.83	0.02	0.09	0.09
Loader > 50-120	Diesel	0.06	1.76	1.56	0.00	0.10	0.09
Loader > 175-210	Diesel	0.11	1.00	2.49	0.01	0.11	0.10
Other, General Industrial Equipment > 175-250	Diesel	0.07	0.66	1.65	0.00	0.07	0.07
Power Pack > 200	Diesel	0.08	2.48	2.21	0.01	0.14	0.13
Side Pick > 120-175	Diesel	0.12	3.44	2.94	0.01	0.16	0.14
Sweeper/Scrubber > 50-120	Diesel	0.01	0.19	0.17	0.00	0.01	0.01
Top Handler > 50-120	Diesel	0.11	3.33	2.97	0.01	0.19	0.17
Tractor/ Loader/Backhoe > 120-175	Diesel	0.41	11.49	9.81	0.03	0.52	0.48
Yard tractor > 210-400	Diesel	0.52	6.08	24.56	0.42	0.76	0.70
Yard Truck > 120-175	Diesel	0.27	2.37	5.76	0.01	0.31	0.28
Yard Truck > 175-210	Diesel	2.93	23.84	58.15	0.13	3.05	2.81
Yard Truck > 210-400	Diesel	0.05	1.37	1.16	0.00	0.07	0.07
Fork Lift > 50-120	LPG	11.86	1496.15	47.47	0.25	3.22	2.96
Top Handler > 50-120	LPG	0.07	9.02	0.26	0.00	0.02	0.02
<b>Year 2016</b>							
Container Handling Equipment > 175 - 210	Diesel	0.69	6.45	16.04	0.04	0.71	0.65
Fork Lift > 50-120	Diesel	0.83	6.75	12.39	0.02	0.46	0.43
Fork Lift > 120-175	Diesel	0.33	9.49	8.10	0.02	0.43	0.39
Fork Lift > 175-250	Diesel	0.22	3.06	4.25	0.02	0.03	0.03
Loader > 50-120	Diesel	0.07	2.18	1.94	0.00	0.13	0.12
Loader > 175-210	Diesel	0.14	1.25	3.10	0.01	0.14	0.13
Other, General Industrial Equipment > 175-250	Diesel	0.09	0.83	2.05	0.01	0.09	0.09
Power Pack > 200	Diesel	0.10	3.07	2.73	0.01	0.17	0.16
Side Pick > 120-175	Diesel	0.15	4.27	3.64	0.01	0.20	0.18
Sweeper/Scrubber > 50-120	Diesel	0.01	0.24	0.21	0.00	0.01	0.01

Top Handler > 50-120	Diesel	0.12	3.69	3.29	0.01	0.21	0.19
Tractor/ Loader/Backhoe > 120-175	Diesel	0.51	14.27	12.17	0.03	0.65	0.60
Yard tractor > 210-400	Diesel	0.51	7.54	13.99	0.52	0.51	0.47
Yard Truck > 120-175	Diesel	0.02	1.46	0.14	0.00	0.00	0.00
Yard Truck > 175-210	Diesel	1.82	23.27	27.86	0.14	1.40	1.29
Yard Truck > 210-400	Diesel	0.12	2.34	0.65	0.02	0.02	0.02
Fork Lift > 50-120	LPG	12.27	1653.13	52.44	0.30	3.55	3.27
Top Handler > 50-120	LPG	0.07	9.92	0.29	0.00	0.02	0.02
<b>Year 2023</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.78	7.02	17.24	0.04	0.85	0.78
Fork Lift > 50-120	Diesel	0.65	6.79	8.04	0.02	0.37	0.34
Fork Lift > 120-175	Diesel	0.36	9.99	8.48	0.02	0.48	0.45
Fork Lift > 175-250	Diesel	0.25	3.31	4.54	0.02	0.03	0.03
Loader > 50-120	Diesel	0.08	2.32	2.05	0.00	0.15	0.14
Loader > 175-210	Diesel	0.16	1.37	3.35	0.01	0.17	0.16
Other, General Industrial Equipment > 175-250	Diesel	0.10	0.91	2.22	0.01	0.11	0.10
Power Pack > 200	Diesel	0.10	3.23	2.86	0.01	0.20	0.18
Side Pick > 120-175	Diesel	0.17	4.52	3.83	0.01	0.23	0.21
Sweeper/Scrubber > 50-120	Diesel	0.01	0.25	0.23	0.00	0.02	0.01
Top Handler > 50-120	Diesel	0.13	3.91	3.46	0.01	0.24	0.22
Tractor/ Loader/Backhoe > 120-175	Diesel	0.56	15.20	12.86	0.03	0.76	0.70
Yard tractor > 210-400	Diesel	0.31	7.42	3.32	0.52	0.08	0.08
Yard Truck > 120-175	Diesel	0.03	1.66	0.15	0.00	0.01	0.01
Yard Truck > 175-210	Diesel	1.45	25.62	6.91	0.14	0.29	0.27
Yard Truck > 210-400	Diesel	0.16	2.84	0.76	0.02	0.03	0.03
Fork Lift > 50-120	LPG	6.69	877.35	28.60	0.29	3.55	3.27
Top Handler > 50-120	LPG	0.04	5.02	0.16	0.00	0.02	0.02
<b>Year 2035</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.34	6.45	1.77	0.04	0.06	0.06
Fork Lift > 50-120	Diesel	0.36	6.46	2.56	0.02	0.04	0.04
Fork Lift > 120-175	Diesel	0.16	9.34	0.88	0.02	0.03	0.03
Fork Lift > 175-250	Diesel	0.15	2.99	0.83	0.02	0.03	0.03
Loader > 50-120	Diesel	0.03	1.21	0.52	0.00	0.00	0.00
Loader > 175-210	Diesel	0.04	0.70	0.19	0.00	0.01	0.01
Other, General Industrial Equipment > 175-250	Diesel	0.05	0.85	0.23	0.01	0.01	0.01
Power Pack > 200	Diesel	0.07	3.02	1.30	0.01	0.01	0.01
Side Pick > 120-175	Diesel	0.08	4.27	0.40	0.01	0.01	0.01
Sweeper/Scrubber > 50-120	Diesel	0.01	0.24	0.10	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.08	3.69	1.59	0.01	0.01	0.01
Tractor/ Loader/Backhoe > 120-175	Diesel	0.26	14.53	1.36	0.03	0.05	0.05
Yard tractor > 210-400	Diesel	0.28	7.07	3.23	0.52	0.08	0.07
Yard Truck > 120-175	Diesel	0.03	1.49	0.14	0.00	0.00	0.00
Yard Truck > 175-210	Diesel	1.12	21.74	6.00	0.14	0.20	0.20
Yard Truck > 210-400	Diesel	0.12	2.41	0.67	0.02	0.02	0.02
Fork Lift > 50-120	LPG	6.69	877.31	28.60	0.29	3.55	3.27
Top Handler > 50-120	LPG	0.04	5.02	0.16	0.00	0.02	0.02
<b>Year 2046</b>		<b>VOC</b>	<b>CO</b>	<b>NOx</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>
Container Handling Equipment > 175 - 210	Diesel	0.42	7.34	1.98	0.04	0.08	0.08
Fork Lift > 50-120	Diesel	0.34	6.09	1.96	0.02	0.03	0.03
Fork Lift > 120-175	Diesel	0.22	9.51	1.60	0.02	0.04	0.04
Fork Lift > 175-250	Diesel	0.17	4.63	0.84	0.02	0.03	0.03
Loader > 50-120	Diesel	0.03	1.15	0.49	0.00	0.00	0.00
Loader > 175-210	Diesel	0.03	0.65	0.18	0.00	0.01	0.01
Other, General Industrial Equipment > 175-250	Diesel	0.04	0.78	0.22	0.01	0.01	0.01
Power Pack > 200	Diesel	0.08	3.28	1.40	0.01	0.01	0.01
Side Pick > 120-175	Diesel	0.07	3.99	0.38	0.01	0.01	0.01
Sweeper/Scrubber > 50-120	Diesel	0.00	0.23	0.10	0.00	0.00	0.00
Top Handler > 50-120	Diesel	0.09	3.91	1.67	0.01	0.01	0.01
Tractor/ Loader/Backhoe > 120-175	Diesel	0.24	13.74	1.30	0.03	0.04	0.04
Yard tractor > 210-400	Diesel	0.57	10.75	2.94	0.07	0.11	0.07
Yard Truck > 120-175	Diesel	0.14	2.55	0.70	0.02	0.03	0.02
Yard Truck > 175-210	Diesel	1.51	26.22	7.05	0.14	0.30	0.30
Yard Truck > 210-400	Diesel	0.03	1.54	0.14	0.00	0.01	0.00
Fork Lift > 50-120	LPG	6.69	877.29	28.60	0.29	3.55	3.27
Top Handler > 50-120	LPG	0.04	5.02	0.16	0.00	0.02	0.02

Note: Emissions for year 2066 are identical to those for 2046.



**Table C1.2-NP-21. Summary of Existing Business Annual CHE Emissions - No Project Alternative**

Project Study Year	Annual Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2013	2.61	231.16	26.74	0.12	1.36	1.25
Year 2014	2.62	231.31	26.92	0.12	1.39	1.28
Year 2015	2.63	231.55	27.11	0.12	1.42	1.31
Year 2016	2.58	255.92	22.92	0.14	1.23	1.13
Year 2023	1.71	142.50	15.08	0.14	1.07	0.98
Year 2035	1.42	141.15	7.17	0.14	0.60	0.56
Year 2046	1.53	142.48	7.35	0.09	0.62	0.58

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-NP-22. Summary of Existing Business Peak Daily CHE Emissions - No Project Alternative**

Project Study Year	Daily Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Year 2013	18.19	1581.54	192.69	0.99	9.63	8.86
Year 2014	18.26	1582.56	193.86	0.97	9.84	9.06
Year 2015	18.28	1584.26	195.04	0.96	10.06	9.25
Year 2016	18.05	1753.21	165.27	1.16	8.76	8.06
Year 2023	12.04	978.73	109.06	1.15	7.60	6.99
Year 2035	9.90	968.82	50.54	1.14	4.14	3.82
Year 2046	10.70	978.67	51.70	0.69	4.30	3.96

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-NP-23. Activity Data for Existing Business Switcher Locomotives - No Project Alternative**

<b>Project Scenario</b>	<b>Number of Trips</b>	<b>Idling Time per Trip (hr)</b>	<b>On-Site Distance per Trip (mi)</b>	<b>Duration of On-Site Movement per Trip (hr)</b>
Years 2013, 2014, 2015	493	0.08	2.00	0.40
Years 2016, 2023, 2035, 2046	572	0.08	2.00	0.40

Notes:

- (1) Assume switcher locomotive movement at notch setting of one and speed of 5mph.
- (2) Activity data for year 2066 are identical to those for 2046.

**Table C1.2-NP-24. Emission Factors for Existing Business Switcher Locomotives - No Project Alternative**

Project Year - Notch Setting	Emission Factors (g/hr)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Idle	93.06	181.00	987.00	24.73	31.00	28.52
Movement	87.65	182.88	1239.84	39.00	23.00	21.16

Note: Assume switcher locomotive movement at notch setting of one and speed of 5mph.

**Table C1.2-NP-25. Annual Emissions for Existing Business Switcher Locomotives - No Project Alternative**

Project Year - Notch Setting	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Years 2013, 2014, 2015</b>						
Idle	0.00	0.01	0.04	0.00	0.00	0.00
Movement	0.02	0.04	0.27	0.01	0.00	0.00
<b>Total</b>	<b>0.02</b>	<b>0.05</b>	<b>0.31</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>
<b>Years 2016, 2023, 2035, 2046</b>						
Idle	0.00	0.01	0.05	0.00	0.00	0.00
Movement	0.02	0.05	0.31	0.01	0.01	0.01
<b>Total</b>	<b>0.03</b>	<b>0.06</b>	<b>0.36</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-NP-26. Peak Daily Emissions for Existing Business Switcher Locomotives - No Project Alternative**

Project Year - Notch Setting	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
<b>Years 2013, 2014, 2015</b>						
Idle	0.03	0.06	0.30	0.01	0.01	0.01
Movement	0.13	0.27	1.84	0.06	0.03	0.03
<b>Total</b>	<b>0.16</b>	<b>0.33</b>	<b>2.14</b>	<b>0.07</b>	<b>0.04</b>	<b>0.04</b>
<b>Years 2016, 2023, 2035, 2046</b>						
Idle	0.03	0.07	0.36	0.01	0.01	0.01
Movement	0.15	0.32	2.15	0.07	0.04	0.04
<b>Total</b>	<b>0.19</b>	<b>0.38</b>	<b>2.50</b>	<b>0.08</b>	<b>0.05</b>	<b>0.05</b>

Note: Emissions for year 2066 are identical to those for 2046.

Table C1.2-NP-27. Existing Business Annual Operation Emissions - No Project Alternative

Year	Emission Source	Annual Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Trucks On-Site	2.43	7.70	16.19	0.01	0.87	0.37
	Trucks Off-Site	2.55	10.69	47.58	0.10	4.07	1.68
	Employee Commute On-Site	0.07	0.96	0.07	0.00	0.17	0.04
	Employee Commute Off-Site	0.63	18.95	1.70	0.04	5.78	1.54
	CHE	2.61	231.16	26.74	0.12	1.36	1.25
	Switcher Locomotive	0.02	0.05	0.31	0.01	0.01	0.01
	<b>TOTAL 2013</b>	<b>8.31</b>	<b>269.51</b>	<b>92.59</b>	<b>0.29</b>	<b>12.25</b>	<b>4.89</b>
2014	Trucks On-Site	2.09	6.87	14.94	0.01	0.79	0.30
	Trucks Off-Site	2.50	9.99	46.65	0.10	3.87	1.47
	Employee Commute On-Site	0.06	0.84	0.06	0.00	0.17	0.04
	Employee Commute Off-Site	0.54	16.82	1.48	0.04	5.65	1.51
	CHE	2.62	231.31	26.92	0.12	1.39	1.28
	Switcher Locomotive	0.02	0.05	0.31	0.01	0.01	0.01
	<b>TOTAL 2014</b>	<b>7.84</b>	<b>265.87</b>	<b>90.37</b>	<b>0.29</b>	<b>11.88</b>	<b>4.60</b>
2015	Trucks On-Site	2.04	6.87	13.88	0.01	0.76	0.26
	Trucks Off-Site	2.48	9.73	44.20	0.10	3.79	1.39
	Employee Commute On-Site	0.05	0.74	0.05	0.00	0.17	0.04
	Employee Commute Off-Site	0.45	14.98	1.32	0.04	5.65	1.51
	CHE	2.63	231.55	27.11	0.12	1.42	1.31
	Switcher Locomotive	0.02	0.05	0.31	0.01	0.01	0.01
	<b>TOTAL 2015</b>	<b>7.67</b>	<b>263.92</b>	<b>86.88</b>	<b>0.29</b>	<b>11.78</b>	<b>4.52</b>
2016	Trucks to Hobart Yard	6.30	28.06	96.19	0.27	9.77	3.56
	Linehaul Locomotives from Hobart Yard	2.72	8.11	93.06	0.10	1.92	1.77
	Trucks On-Site	2.25	7.79	14.89	0.02	0.82	0.26
	Trucks Off-Site	2.77	10.76	47.81	0.12	4.27	1.53
	Employee Commute On-Site	0.05	0.77	0.06	0.00	0.19	0.05
	Employee Commute Off-Site	0.45	15.83	1.40	0.05	6.62	1.76
	CHE	2.58	255.92	22.92	0.14	1.23	1.13
	Switcher Locomotive	0.03	0.06	0.36	0.01	0.01	0.01
	<b>TOTAL 2016</b>	<b>17.16</b>	<b>327.29</b>	<b>276.69</b>	<b>0.70</b>	<b>24.84</b>	<b>10.08</b>
2023	Trucks to Hobart Yard	6.30	26.44	60.76	0.37	13.63	4.87
	Linehaul Locomotives from Hobart Yard	2.68	12.77	100.32	0.14	1.41	1.30
	Trucks On-Site	2.04	7.80	8.61	0.02	0.80	0.24
	Trucks Off-Site	2.12	8.01	19.81	0.11	4.20	1.47
	Employee Commute On-Site	0.03	0.43	0.04	0.00	0.20	0.05
	Employee Commute Off-Site	0.19	9.71	0.89	0.05	6.62	1.77
	CHE	1.71	142.50	15.08	0.14	1.07	0.98
	Switcher Locomotive	0.03	0.06	0.36	0.01	0.01	0.01
	<b>TOTAL 2023</b>	<b>15.10</b>	<b>207.72</b>	<b>205.87</b>	<b>0.85</b>	<b>27.92</b>	<b>10.69</b>
2035	Trucks to Hobart Yard	17.14	73.05	164.89	1.14	41.49	14.51
	Linehaul Locomotives from Hobart Yard	2.83	23.17	113.27	0.38	1.57	1.44
	Trucks On-Site	1.98	7.70	8.22	0.02	0.79	0.24
	Trucks Off-Site	1.93	7.36	17.69	0.12	4.16	1.43
	Employee Commute On-Site	0.02	0.35	0.03	0.00	0.20	0.05
	Employee Commute Off-Site	0.14	8.11	0.73	0.05	6.62	1.77
	CHE	1.42	141.15	7.17	0.14	0.60	0.56
	Switcher Locomotive	0.03	0.06	0.36	0.01	0.01	0.01
	<b>TOTAL 2035</b>	<b>25.48</b>	<b>260.95</b>	<b>312.38</b>	<b>1.86</b>	<b>55.44</b>	<b>20.01</b>
2046	Trucks to Hobart Yard	17.11	72.41	192.51	1.14	41.44	14.45
	Linehaul Locomotives from Hobart Yard	1.86	21.54	69.29	0.38	0.93	0.86
	Trucks On-Site	1.98	7.70	8.48	0.02	0.80	0.24
	Trucks Off-Site	1.95	7.33	19.49	0.12	4.15	1.42
	Employee Commute On-Site	0.02	0.35	0.03	0.00	0.20	0.05
	Employee Commute Off-Site	0.14	8.17	0.74	0.05	6.62	1.77
	CHE	1.53	142.48	7.35	0.09	0.62	0.58
	Switcher Locomotive	0.03	0.06	0.36	0.01	0.01	0.01
	<b>TOTAL 2046</b>	<b>24.62</b>	<b>260.03</b>	<b>298.26</b>	<b>1.81</b>	<b>54.77</b>	<b>19.38</b>

Note: Emissions for year 2066 are identical to those for 2046.

**Table C1.2-NP-28. Existing Business Peak Daily Operation Emissions - No Project Alternative**

Year	Emission Source	Peak Daily Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
2013	Business Trucks On-Site	17.19	54.73	114.29	0.10	6.15	2.60
	Business Trucks Off-Site	18.02	75.46	335.08	0.71	28.69	11.81
	Business Employee Commute On-Site	0.50	6.74	0.48	0.01	1.16	0.31
	Business Employee Commute Off-Site	4.38	132.61	11.89	0.31	40.37	10.78
	Business CHE	18.19	1581.54	192.69	0.99	9.63	8.86
	Business Switcher Locomotive	0.16	0.33	2.14	0.07	0.04	0.04
	<b>TOTAL 2013</b>	<b>58.44</b>	<b>1851.40</b>	<b>656.58</b>	<b>2.20</b>	<b>86.04</b>	<b>34.39</b>
2014	Business Trucks On-Site	14.87	49.05	105.63	0.10	5.60	2.09
	Business Trucks Off-Site	17.71	70.68	329.16	0.73	27.36	10.38
	Business Employee Commute On-Site	0.43	5.89	0.43	0.01	1.16	0.31
	Business Employee Commute Off-Site	3.75	117.46	10.36	0.31	39.39	10.51
	Business CHE	18.26	1582.56	193.86	0.97	9.84	9.06
	Business Switcher Locomotive	0.16	0.33	2.14	0.07	0.04	0.04
	<b>TOTAL 2014</b>	<b>55.16</b>	<b>1825.97</b>	<b>641.57</b>	<b>2.18</b>	<b>83.39</b>	<b>32.39</b>
2015	Business Trucks On-Site	14.55	49.07	98.32	0.10	5.34	1.85
	Business Trucks Off-Site	17.56	68.91	312.20	0.73	26.77	9.83
	Business Employee Commute On-Site	0.36	5.17	0.38	0.01	1.16	0.31
	Business Employee Commute Off-Site	3.14	104.67	9.23	0.31	39.38	10.50
	Business CHE	18.28	1584.26	195.04	0.96	10.06	9.25
	Business Switcher Locomotive	0.16	0.33	2.14	0.07	0.04	0.04
	<b>TOTAL 2015</b>	<b>54.05</b>	<b>1812.39</b>	<b>617.31</b>	<b>2.17</b>	<b>82.75</b>	<b>31.79</b>
2016	Trucks to Hobart Yard	39.22	174.52	598.32	1.66	60.79	22.15
	Linehaul Locomotives from Hobart Yard	17.80	61.55	595.06	0.53	10.76	9.90
	Business Trucks On-Site	16.15	55.88	106.00	0.12	5.82	1.85
	Business Trucks Off-Site	19.73	76.59	339.06	0.83	30.25	10.84
	Business Employee Commute On-Site	0.37	5.39	0.41	0.01	1.36	0.36
	Business Employee Commute Off-Site	3.14	111.01	9.80	0.36	46.34	12.35
	Business CHE	18.05	1753.21	165.27	1.16	8.76	8.06
	Business Switcher Locomotive	0.19	0.38	2.50	0.08	0.05	0.05
	<b>TOTAL 2016</b>	<b>114.64</b>	<b>2238.54</b>	<b>1816.41</b>	<b>4.74</b>	<b>164.13</b>	<b>65.56</b>
2023	Trucks to Hobart Yard	39.16	164.43	377.93	2.29	84.76	30.30
	Linehaul Locomotives from Hobart Yard	17.59	97.03	642.33	0.79	7.92	7.28
	Business Trucks On-Site	14.58	55.84	61.50	0.12	5.67	1.71
	Business Trucks Off-Site	15.09	56.97	140.74	0.81	29.77	10.43
	Business Employee Commute On-Site	0.18	3.02	0.28	0.01	1.37	0.37
	Business Employee Commute Off-Site	1.35	68.14	6.22	0.36	46.34	12.36
	Business CHE	12.04	978.73	109.06	1.15	7.60	6.99
	Business Switcher Locomotive	0.19	0.38	2.50	0.08	0.05	0.05
	<b>TOTAL 2023</b>	<b>100.18</b>	<b>1424.54</b>	<b>1340.56</b>	<b>5.61</b>	<b>183.47</b>	<b>69.48</b>
2035	Trucks to Hobart Yard	106.61	454.37	1025.62	7.11	258.09	90.25
	Linehaul Locomotives from Hobart Yard	18.48	174.33	722.69	2.12	8.77	8.07
	Business Trucks On-Site	14.11	55.11	58.74	0.12	5.64	1.69
	Business Trucks Off-Site	13.68	52.32	125.65	0.82	29.46	10.16
	Business Employee Commute On-Site	0.14	2.44	0.23	0.01	1.37	0.37
	Business Employee Commute Off-Site	0.99	56.90	5.15	0.36	46.37	12.38
	Business CHE	9.90	968.82	50.54	1.14	4.14	3.82
	Business Switcher Locomotive	0.19	0.38	2.50	0.08	0.05	0.05
	<b>TOTAL 2035</b>	<b>164.11</b>	<b>1764.67</b>	<b>1991.12</b>	<b>11.75</b>	<b>353.89</b>	<b>126.79</b>
2046	Trucks to Hobart Yard	106.40	450.39	1197.44	7.12	257.77	89.90
	Linehaul Locomotives from Hobart Yard	12.15	161.70	441.17	2.12	5.20	4.79
	Business Trucks On-Site	14.10	55.08	60.69	0.12	5.65	1.70
	Business Trucks Off-Site	13.88	52.07	138.58	0.82	29.40	10.09
	Business Employee Commute On-Site	0.14	2.44	0.23	0.01	1.37	0.37
	Business Employee Commute Off-Site	1.01	57.31	5.17	0.36	46.37	12.39
	Business CHE	10.70	978.67	51.70	0.69	4.30	3.96
	Business Switcher Locomotive	0.19	0.38	2.50	0.08	0.05	0.05
	<b>TOTAL 2046</b>	<b>158.57</b>	<b>1758.05</b>	<b>1897.46</b>	<b>11.31</b>	<b>350.12</b>	<b>123.23</b>

Note: Emissions for year 2066 are identical to those for 2044.



**Table C1.2-NP-29. Average Daily Operational Emissions – No Project Alternative**

Source Category	Average Daily Emissions (lb/day) <sup>a,e, g</sup>					
	VOC	CO	NOx	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Project Year 2013</b>						
Trucks On-Site	15	49	102	0	5	2
Trucks Off-Site <sup>b</sup>	16	67	299	1	26	11
CHE	16	1,413	172	1	9	8
Employee Commute On-Site	1	7	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	4	133	12	0	40	11
Existing Business Locomotive Activities	0	0	2	0	0	0
<b>Total - Project Year 2013 <sup>d</sup></b>	<b>53</b>	<b>1,669</b>	<b>588</b>	<b>2</b>	<b>81</b>	<b>32</b>
<b>CEQA Impacts</b>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline <sup>c</sup>	-25	-70	-143	0	-4	-5
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2014</b>						
Trucks On-Site	13	44	94	0	5	2
Trucks Off-Site <sup>b</sup>	16	63	294	1	24	9
CHE	16	1,414	173	1	9	8
Employee Commute On-Site	0	6	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	4	117	10	0	39	11
Existing Business Locomotive Activities	0	0	2	0	0	0
<b>Total - Project Year 2014 <sup>d</sup></b>	<b>50</b>	<b>1,644</b>	<b>574</b>	<b>2</b>	<b>79</b>	<b>30</b>
<b>CEQA Impacts</b>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline <sup>c</sup>	-28	-95	-156	0	-7	-7
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2015</b>						
Trucks On-Site	13	44	88	0	5	2
Trucks Off-Site <sup>b</sup>	16	62	279	1	24	9
CHE	16	1,415	174	1	9	8
Employee Commute On-Site	0	5	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	3	105	9	0	39	10
Existing Business Locomotive Activities	0	0	2	0	0	0
<b>Total - Project Year 2015 <sup>d</sup></b>	<b>49</b>	<b>1,631</b>	<b>553</b>	<b>2</b>	<b>78</b>	<b>30</b>
<b>CEQA Impacts</b>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline <sup>c</sup>	-29	-108	-178	0	-7	-7
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2016</b>						
Trucks On-Site	14	50	95	0	5	2
Trucks Off-Site <sup>b,f</sup>	53	224	837	2	81	29
CHE	16	1,566	148	1	8	7
Employee Commute On-Site	0	5	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	3	111	10	0	46	12
Existing Business Locomotive Activities	0	0	3	0	0	0
Locomotives Off-site <sup>b</sup>	15	45	517	1	11	10
<b>Total - Project Year 2016 <sup>d</sup></b>	<b>102</b>	<b>2,002</b>	<b>1,609</b>	<b>4</b>	<b>153</b>	<b>61</b>
<b>CEQA Impacts</b>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline	-38	44	-566	-17	-25	-23
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2023</b>						
Trucks On-Site	13	50	55	0	5	2
Trucks Off-Site <sup>b,f</sup>	48	198	463	3	102	36
CHE	11	874	97	1	7	6
Employee Commute On-Site	0	3	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	1	68	6	0	46	12
Existing Business Locomotive Activities	0	0	3	0	0	0
Locomotives Off-site <sup>b</sup>	15	71	557	1	8	7
<b>Total - Project Year 2023 <sup>d</sup></b>	<b>89</b>	<b>1,264</b>	<b>1,182</b>	<b>5</b>	<b>170</b>	<b>64</b>

<b>CEQA Impacts</b>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline	-51	-694	-993	-16	-8	-20
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2035</b>						
Trucks On-Site	13	49	52	0	5	2
Trucks Off-Site <sup>b,f</sup>	82	344	782	5	195	68
CHE	9	865	45	1	4	3
Employee Commute On-Site	0	2	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	1	57	5	0	46	12
Existing Business Locomotive Activities	0	0	3	0	0	0
Locomotives Off-site <sup>b</sup>	12	97	472	2	7	6
<b>Total - Project Year 2035 <sup>d</sup></b>	<b>116</b>	<b>1,414</b>	<b>1,360</b>	<b>9</b>	<b>258</b>	<b>92</b>
<b>CEQA Impacts</b>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline	-24	-543	-815	-13	80	8
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2046</b>						
Trucks On-Site	13	49	54	0	5	2
Trucks Off-Site <sup>b,f</sup>	82	341	906	5	195	68
CHE	10	874	46	1	4	4
Employee Commute On-Site	0	2	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	1	57	5	0	46	12
Existing Business Locomotive Activities	0	0	3	0	0	0
Locomotives Off-site <sup>b</sup>	8	90	289	2	4	4
<b>Total - Project Year 2046 <sup>d</sup></b>	<b>113</b>	<b>1,414</b>	<b>1,303</b>	<b>8</b>	<b>255</b>	<b>89</b>
<b>CEQA Impacts</b>						
CEQA Baseline Emissions	140	1,958	2,175	21	178	84
Proposed Project minus CEQA Baseline	-27	-544	-872	-13	78	5
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Notes:

- a) Emissions represent annual emissions divided by 365 days per year of operation.
- b) Truck, train, and worker commute emissions include transport within the South Coast Air Basin.
- c) By definition, the No Project minus Baseline increment in 2013, 2014 and 2015 does not account for both the truck travel between port terminals to Hobart railyard and the rail travel from Hobart railyard to the South Coast Air Basin boundary as they are not a part of the Project and Alternatives during this period.
- d) Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
- e) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
- f) Off-site trucks include business trucks and trucks that should have gone to SCIG but instead going to Hobart Yard.
- g) Emissions for year 2066 are identical to those for 2046.

**Table C1.2-NP-30. Peak Daily Operational Emissions – No Project Alternative**

Source Category	Peak Daily Emissions (lb/day) <sup>a,e,g</sup>					
	VOC	CO	NOx	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Project Year 2013</b>						
Trucks On-Site	17	55	114	0	6	3
Trucks Off-Site <sup>b</sup>	18	75	335	1	29	12
CHE	18	1,582	193	1	10	9
Employee Commute On-Site	1	7	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	4	133	12	0	40	11
Existing Business Locomotive Activities	0	0	2	0	0	0
<b>Total - Project Year 2013 <sup>d</sup></b>	<b>58</b>	<b>1,851</b>	<b>657</b>	<b>2</b>	<b>86</b>	<b>34</b>
<b>CEQA Impacts</b>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline <sup>c</sup>	-27	-67	-159	0	-5	-6
Thresholds	55	550	55	150	150	55
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2014</b>						
Trucks On-Site	15	49	106	0	6	2
Trucks Off-Site <sup>b</sup>	18	71	329	1	27	10
CHE	18	1,583	194	1	10	9
Employee Commute On-Site	0	6	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	4	117	10	0	39	11
Existing Business Locomotive Activities	0	0	2	0	0	0
<b>Total - Project Year 2014 <sup>d</sup></b>	<b>55</b>	<b>1,826</b>	<b>642</b>	<b>2</b>	<b>83</b>	<b>32</b>
<b>CEQA Impacts</b>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline <sup>c</sup>	-30	-92	-174	0	-7	-8
Thresholds	55	550	55	150	150	55
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2015</b>						
Trucks On-Site	15	49	98	0	5	2
Trucks Off-Site <sup>b</sup>	18	69	312	1	27	10
CHE	18	1,584	195	1	10	9
Employee Commute On-Site	0	5	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	3	105	9	0	39	10
Existing Business Locomotive Activities	0	0	2	0	0	0
<b>Total - Project Year 2015 <sup>d</sup></b>	<b>54</b>	<b>1,812</b>	<b>617</b>	<b>2</b>	<b>83</b>	<b>32</b>
<b>CEQA Impacts</b>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline <sup>c</sup>	-31	-106	-198	0	-8	-8
Thresholds	55	550	55	150	150	55
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2016</b>						
Trucks On-Site	16	56	106	0	6	2
Trucks Off-Site <sup>b,f</sup>	59	251	937	2	91	33
CHE	18	1,753	165	1	9	8
Employee Commute On-Site	0	5	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	3	111	10	0	46	12
Existing Business Locomotive Activities	0	0	3	0	0	0
Locomotives Off-site <sup>b</sup>	18	62	595	1	11	10
<b>Total - Project Year 2016 <sup>d</sup></b>	<b>115</b>	<b>2,239</b>	<b>1,816</b>	<b>5</b>	<b>164</b>	<b>66</b>
<b>CEQA Impacts</b>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline	-42	59	-642	-17	-28	-25
Thresholds	55	550	55	150	150	55
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2023</b>						
Trucks On-Site	15	56	62	0	6	2
Trucks Off-Site <sup>b,f</sup>	54	221	519	3	115	41
CHE	12	979	109	1	8	7
Employee Commute On-Site	0	3	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	1	68	6	0	46	12
Existing Business Locomotive Activities	0	0	3	0	0	0
Locomotives Off-site <sup>b</sup>	18	97	642	1	8	7
<b>Total - Project Year 2023 <sup>d</sup></b>	<b>100</b>	<b>1,425</b>	<b>1,341</b>	<b>6</b>	<b>183</b>	<b>69</b>

<b>CEQA Impacts</b>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline	-57	-755	-1,118	-16	-8	-21
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
Significant?	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2035</b>						
Trucks On-Site	14	55	59	0	6	2
Trucks Off-Site <sup>b,f</sup>	92	385	876	6	218	76
CHE	10	969	51	1	4	4
Employee Commute On-Site	0	2	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	1	57	5	0	46	12
Existing Business Locomotive Activities	0	0	3	0	0	0
Locomotives Off-site <sup>b</sup>	14	131	542	2	7	6
<b>Total - Project Year 2035<sup>d</sup></b>	<b>131</b>	<b>1,599</b>	<b>1,535</b>	<b>9</b>	<b>282</b>	<b>101</b>
<b>CEQA Impacts</b>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline	-26	-581	-923	-12	91	10
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
Significant?	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Project Year 2046</b>						
Trucks On-Site	14	55	61	0	6	2
Trucks Off-Site <sup>b,f</sup>	92	382	1,014	6	218	76
CHE	11	979	52	1	4	4
Employee Commute On-Site	0	2	0	0	1	0
Employee Commute Off-Site <sup>b</sup>	1	57	5	0	46	12
Existing Business Locomotive Activities	0	0	3	0	0	0
Locomotives Off-site <sup>b</sup>	9	121	331	2	4	4
<b>Total - Project Year 2046<sup>d</sup></b>	<b>127</b>	<b>1,597</b>	<b>1,466</b>	<b>9</b>	<b>280</b>	<b>98</b>
<b>CEQA Impacts</b>						
CEQA Baseline Emissions	157	2,180	2,458	21	192	91
Proposed Project minus CEQA Baseline	-30	-583	-993	-13	88	7
Thresholds	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
Significant?	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Notes:

- Peak emissions assume the simultaneous occurrence of maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day operations.
- Truck, train, and worker commute emissions include transport within the South Coast Air Basin.
- By definition, the No Project minus Baseline increment in 2013, 2014 and 2015 does not account for both the truck travel between port terminals to Hobart railyard and the rail travel from Hobart railyard to the South Coast Air Basin boundary as they are not a part of the Project and Alternatives during this period.
- Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
- The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.
- Off-site trucks include business trucks and trucks that should have gone to SCIG but instead going to Hobart Yard.
- Emissions for year 2066 are identical to those for 2046.

**Table C1.2-BL-1. Activity Data for Drayage Trucks Traveling to Hobart Yard - 2010 Baseline**

<b>Project Year</b>	<b>Roundtrip Distance per Trip (mi)</b>	<b>Truck Roundtrips per Year</b>
Year 2010 Baseline	38.3	466,818

**Table C1.2-BL-2. Emission Factors for Drayage Trucks Traveling to Hobart Yard - 2010 Baseline**

Year 2010 Baseline Mode of Truck Travel	Speed (mph)	Emission Factors (Grams/Mile)							
		VOC	CO	NOx	SOx	PM10	PM2.5	DPM10	DPM2.5
On-road Truck - Idle (g/hr)	0	7.74	42.30	50.12	0.07	0.30	0.28	0.30	0.28
On-road Truck Transport	5	4.00	7.30	19.89	0.02	0.99	0.57	0.46	0.43
On-road Truck Transport	10	2.34	4.85	14.46	0.02	0.86	0.45	0.33	0.31
On-road Truck Transport	15	1.19	3.09	10.56	0.02	0.76	0.36	0.23	0.21
On-road Truck Transport	20	0.46	1.71	7.78	0.02	0.67	0.28	0.14	0.13
On-road Truck Transport	25	0.42	1.67	7.30	0.02	0.66	0.27	0.13	0.12
On-road Truck Transport	30	0.36	1.51	6.75	0.02	0.65	0.25	0.12	0.11
On-road Truck Transport	35	0.30	1.38	6.29	0.02	0.64	0.24	0.11	0.10
On-road Truck Transport	40	0.26	1.29	5.94	0.02	0.64	0.24	0.11	0.10
On-road Truck Transport	45	0.23	1.24	5.69	0.02	0.64	0.25	0.11	0.10
On-road Truck Transport	50	0.21	1.23	5.54	0.02	0.65	0.25	0.12	0.11
On-road Truck Transport	55	0.21	1.25	5.50	0.02	0.67	0.27	0.14	0.13
On-road Truck Transport	60	0.21	1.31	5.56	0.02	0.69	0.29	0.16	0.15
On-road Truck Transport	65	0.23	1.41	5.72	0.02	0.72	0.32	0.19	0.17

Notes:

- (1) EMFAC2011 with modified fleet age distribution based on Port-wide inventory (Starcrest)
- (2) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.

**Table C1.2-BL-3. Annual Emissions for Drayage Trucks Traveling to Hobart Yard - 2010 Baseline**

Project Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
Year 2010 Baseline	5.91	27.25	120.50	0.33	12.81	5.02

Note: Annual emissions estimates for trips between port terminals and Hobart Yard during the baseline year.

**Table C1.2-BL-4. Peak Daily Emissions for Drayage Trucks Traveling to Hobart Yard - 2010 Baseline**

Project Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
Year 2010 Baseline	36.76	169.50	749.50	2.07	79.69	31.25

Note: Peak daily emissions estimates for trips between port terminals and Hobart Yard during the baseline year.



**Table C1.2-BL-5. Activity Data for Linehaul Locomotives Traveling from Hobart Yard to South Coast Air Basin Boundary - 2010 Baseline**

Off-site Activities	Roundtrip Distance (mi)	Trains per Year
From Hobart Yard to SCAB Boundary	163.8	1033

Notes:

- (1) Round trip distance between Hobart Railyard and the South Coast Air Basin boundary.
- (2) Source: train trips are derived from TEU throughput

**Table C1.2-BL-6. Annual Average Emission Factors for Linehaul Locomotives  
Traveling from Hobart Yard to South Coast Air Basin Boundary - 2010 Baseline**

Project Year	Emission Factors (grams/mile)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
Year 2010 Baseline	28.68	65.28	748.13	16.48	20.39	18.76

Notes:

- (1) Assume sulfur content of 340ppm for PM EF estimates
- (2) Line-haul locomotive fleet fractions for Hobart provided by BNSF.

**Table C1.2-BL-6b. Peak Day Emission Factors for Linehaul Locomotives Traveling from Hobart Yard to South Coast Air Basin Boundary - 2010 Baseline**

Project Year	Emission Factors (grams/mile)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
Year 2010 Baseline	33.90	89.28	862.58	16.48	20.52	18.88

Notes:

- (1) Assume sulfur content of 340ppm for PM EF estimates
- (2) Line-haul locomotive fleet fractions for Hobart provided by BNSF.

**Table C1.2-BL-7. Annual Emissions for Linehaul Locomotives Traveling from Hobart Yard to South Coast Air Basin Boundary - 2010 Baseline**

Project Year	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
Year 2010 Baseline	5.35	12.18	139.54	3.07	3.80	3.50

**Table C1.2-BL-8. Peak Daily Emissions for Linehaul Locomotives Traveling from Hobart Yard to South Coast Air Basin Boundary - 2010 Baseline**

Project Year	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM 10	PM 2.5
Year 2010 Baseline	35.12	92.51	893.81	17.07	21.27	19.57

**Table C1.2-BL-9. Activity Data for Existing Business On-Road Vehicles - 2010 Baseline**

<b>Year 2010 Baseline Type of Vehicle</b>	<b>Number of Trips</b>	<b>Average Idling Time per Trip (hr)</b>	<b>Average On-Site Distance per Trip (mi)</b>	<b>Average Off-Site Round- Trip Distance to Port Terminals (mi)</b>	<b>Average Off-Site Round- Trip Distance Outside of Harbor District (mi)</b>
Port Drayage Trucks	276,523	0.33	0.98	10.58	N/A
Vendor Vehicles	238,361	0.31	0.94	N/A	11.51
Employee Commute Vehicles	422,229	0.11	0.22	N/A	25.40
Medium Duty Trucks	465	0.33	0.20	N/A	12.40

Note:

- (1) On-road vehicle activity represent data averaged across all existing businesses.
- (2) Employee commute trips include light-duty gasoline vehicles and light-duty gasoline trucks

**Table C1.2-BL-10. Emission Factors for Existing Business Port Drayage Trucks - 2010 Baseline**

Vehicle Type	Speed (mph)	Emission Factors (Grams/Mile)									
		VOC	CO	NOx	SOx	PM10 w/ On-site Road Dust	PM2.5 w/ On-site Road Dust	PM10 w/ Off-site Road Dust	PM2.5 w/ Off-site Road Dust	DPM10	DPM2.5
On-road Truck - Idle (g/hr)	0	7.74	42.30	50.12	0.07	0.30	0.28	0.30	0.28	0.30	0.28
On-road Truck Transport	5	4.00	7.30	19.89	0.02	2.11	0.85	0.99	0.57	0.46	0.43
On-road Truck Transport	7.5	3.17	6.07	17.17	0.02	2.04	0.79	0.93	0.51	0.40	0.37
On-road Truck Transport	10	2.34	4.85	14.46	0.02	1.98	0.73	0.86	0.45	0.33	0.31
On-road Truck Transport	15	1.19	3.09	10.56	0.02	1.88	0.64	0.76	0.36	0.23	0.21
On-road Truck Transport	20	0.46	1.71	7.78	0.02	1.79	0.55	0.67	0.28	0.14	0.13
On-road Truck Transport	25	0.42	1.67	7.30	0.02	1.78	0.55	0.66	0.27	0.13	0.12
On-road Truck Transport	30	0.36	1.51	6.75	0.02	1.76	0.53	0.65	0.25	0.12	0.11
On-road Truck Transport	35	0.30	1.38	6.29	0.02	1.76	0.52	0.64	0.24	0.11	0.10
On-road Truck Transport	40	0.26	1.29	5.94	0.02	1.75	0.52	0.64	0.24	0.11	0.10
On-road Truck Transport	45	0.23	1.24	5.69	0.02	1.76	0.52	0.64	0.25	0.11	0.10
On-road Truck Transport	50	0.21	1.23	5.54	0.02	1.77	0.53	0.65	0.25	0.12	0.11
On-road Truck Transport	55	0.21	1.25	5.50	0.02	1.78	0.55	0.67	0.27	0.14	0.13
On-road Truck Transport	60	0.21	1.31	5.56	0.02	1.81	0.57	0.69	0.29	0.16	0.15
On-road Truck Transport	65	0.23	1.41	5.72	0.02	1.84	0.60	0.72	0.32	0.19	0.17

Notes:

- (1) On-site travel speed was assumed at 7.5 mph.
- (2) Emission factors were derived from EMFAC2011 with modified fleet age distribution based on Port-wide inventory (Starcrest)
- (3) PM emissions factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.

**Table C1.2-BL-11. Emission Factors for Existing Business Vendor Vehicles - 2010 Baseline**

Vehicle Type	Speed (mph)	Emission Factors (Grams/Mile)									
		VOC	CO	NOx	SOx	PM10 w/ On-site Road Dust	PM2.5 w/ On-site Road Dust	PM10 w/ Off-site Road Dust	PM2.5 w/ Off-site Road Dust	DPM10	DPM2.5
On-road Truck - Idle (g/hr)	0	8.83	43.91	94.57	0.07	1.01	0.93	1.01	0.93	1.01	0.93
On-road Truck Transport	5	7.88	13.55	37.70	0.02	3.11	1.77	1.99	1.49	1.47	1.35
On-road Truck Transport	7.5	6.26	11.49	32.29	0.02	2.91	1.58	1.79	1.30	1.26	1.16
On-road Truck Transport	10	4.65	9.44	26.88	0.02	2.71	1.40	1.59	1.12	1.06	0.98
On-road Truck Transport	15	2.39	6.39	19.31	0.02	2.39	1.11	1.28	0.83	0.75	0.69
On-road Truck Transport	20	0.97	4.37	14.96	0.02	2.19	0.92	1.07	0.64	0.54	0.50
On-road Truck Transport	25	0.81	3.62	13.56	0.02	2.08	0.83	0.97	0.55	0.44	0.40
On-road Truck Transport	30	0.68	3.17	12.72	0.02	2.04	0.78	0.92	0.50	0.39	0.36
On-road Truck Transport	35	0.57	2.81	12.03	0.02	2.01	0.76	0.89	0.48	0.36	0.33
On-road Truck Transport	40	0.48	2.53	11.52	0.02	2.00	0.75	0.88	0.47	0.36	0.33
On-road Truck Transport	45	0.43	2.34	11.17	0.02	2.01	0.76	0.89	0.48	0.37	0.34
On-road Truck Transport	50	0.40	2.23	10.99	0.02	2.04	0.79	0.92	0.51	0.40	0.36
On-road Truck Transport	55	0.41	2.22	10.97	0.02	2.09	0.83	0.97	0.55	0.45	0.41
On-road Truck Transport	60	0.44	2.28	11.13	0.02	2.16	0.90	1.04	0.62	0.51	0.47
On-road Truck Transport	65	0.50	2.44	11.45	0.02	2.25	0.98	1.13	0.70	0.60	0.55

Notes:

- (1) On-site travel speed was assumed at 7.5 mph.
- (2) Emission factors were generated by EMFAC2011 model with SCAB default age distributions.
- (3) PM emissions factors include those from vehicle exhaust, tire wear, brake wear, and paved road dust.



**Table C1.2-BL-12. Emission Factors for Existing Business Employee Commute Vehicles - 2010 Baseline**

Project Year/Mode	Speed (mph)	Emission Factors (Grams/Mile)							
		VOC	CO	NOx	SOx	PM10 w/ On-site Road Dust	PM2.5 w/ On-site Road Dust	PM10 w/ Off-site Road Dust	PM2.5 w/ Off-site Road Dust
On-road Truck - Idle (g/hr)	0	2.02	24.29	1.68	0.02	0.10	0.09	0.10	0.09
On-road Truck Transport	5	0.40	4.86	0.34	0.00	1.61	0.42	0.50	0.14
On-road Truck Transport	7.5	0.34	4.44	0.31	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	10	0.27	4.02	0.29	0.00	1.61	0.42	0.49	0.14
On-road Truck Transport	15	0.19	3.42	0.26	0.00	1.60	0.41	0.49	0.13
On-road Truck Transport	20	0.14	2.99	0.24	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	25	0.11	2.67	0.22	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	30	0.09	2.42	0.21	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	35	0.07	2.22	0.20	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	40	0.07	2.08	0.20	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	45	0.06	1.99	0.19	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	50	0.06	1.92	0.19	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	55	0.06	1.90	0.20	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	60	0.07	1.94	0.21	0.00	1.60	0.41	0.48	0.13
On-road Truck Transport	65	0.08	2.07	0.23	0.00	1.60	0.41	0.48	0.13

Notes:

- (1) On-site travel speed was assumed at 7.5 mph.
- (2) Emission factors were generated by EMFAC2011 model with SCAB default age distributions.
- (3) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.

**Table C1.2-BL-13. Existing Business Annual Truck Emissions - 2010 Baseline**

Mode	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
On-Site	3.06	8.93	19.96	0.01	1.13	0.59
Off-Site	2.93	13.41	55.72	0.10	4.73	2.29
<b>2010 Baseline Total</b>	6.00	22.34	75.68	0.12	5.86	2.88

Notes:

- (1) Trucks include Port drayage trucks, vendor trucks, and other medium-duty trucks.
- (2) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.

**Table C1.2-BL-14. Existing Business Peak Daily Truck Emissions - 2010 Baseline**

Mode	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
On-Site	21.56	63.22	140.68	0.10	7.92	4.15
Off-Site	20.61	94.13	391.57	0.72	33.30	16.07
<b>2010 Baseline Total</b>	42.18	157.35	532.25	0.82	41.22	20.22

Notes:

- (1) Trucks include Port drayage trucks, vendor trucks, and other medium-duty trucks.
- (2) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.

**Table C1.2-BL-15. Existing Business Annual Employee Commute Emissions - 2010 Baseline**

Mode	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
On-Site	0.12	1.43	0.10	0.00	0.17	0.05
Off-Site	1.50	32.47	2.85	0.05	5.56	1.51
<b>2010 Baseline Total</b>	1.62	33.90	2.96	0.05	5.73	1.56

Note: PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.

**Table C1.2-BL-16. Existing Business Peak Daily Employee Commute Emissions - 2010 Baseline**

Mode	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
On-Site	0.81	9.99	0.70	0.01	1.18	0.33
Off-Site	10.85	230.89	20.19	0.34	38.73	10.53
<b>2010 Baseline Total</b>	11.66	240.89	20.90	0.34	39.90	10.86

Notes:

- (1) PM emissions include emissions from vehicle exhaust, tire wear, brake wear, and paved road dust.
- (2) Peak daily emissions are equivalent to the average daily emissions.

**Table C1.2-BL-17. Activity Data for Existing Business CHE - 2010 Baseline**

<b>Year 2010 Baseline Cargo Handling Equipment</b>	<b>Fuel</b>	<b>Average HP</b>	<b>Equipment Total</b>	<b>Annual Hours of Operation</b>	<b>Average Load Factor</b>
Container Handling Equipment > 175 - 210	Diesel	198	3	5,581	0.59
Fork Lift > 50-120	Diesel	100	10	7,334	0.30
Fork Lift > 120-175	Diesel	138	5	8,185	0.30
Fork Lift > 175-250	Diesel	192	3	5,581	0.30
Loader > 50-120	Diesel	110	1	930	0.55
Loader > 175-210	Diesel	200	1	930	0.55
Other, General Industrial Equipment > 175-250	Diesel	220	2	698	0.51
Power Pack > 200	Diesel	202	2	1,342	0.74
Side Pick > 120-175	Diesel	136	2	1,565	0.59
Sweeper/Scrubber > 50-120	Diesel	60	1	186	0.68
Top Handler > 50-120	Diesel	120	2	1,948	0.59
Tractor/ Loader/Backhoe > 120-175	Diesel	158	4	5,767	0.55
Yard tractor > 210-400	Diesel	250	6	9,230	0.39
Yard Truck > 120-175	Diesel	150	1	930	0.39
Yard Truck > 175-210	Diesel	209	23	33,486	0.39
Yard Truck > 210-400	Diesel	350	1	1,860	0.39
Fork Lift > 50-120	LPG	75	176	336,074	0.30
Top Handler > 50-120	LPG	92	1	1,440	0.30

**Table C1.2-BL-18. Emission Factors for Existing Business CHE - 2010 Baseline**

Year 2010 Baseline Cargo Handling Equipment	Fuel	Emission Factors (grams/hp-hr)					
		VOC	CO	NOx	SOx	PM10	PM2.5
Container Handling Equipment > 175 - 210	Diesel	0.09	0.92	2.45	0.06	0.11	0.10
Fork Lift > 50-120	Diesel	0.31	3.17	4.16	0.06	0.33	0.30
Fork Lift > 120-175	Diesel	0.20	2.70	3.34	0.06	0.19	0.17
Fork Lift > 175-250	Diesel	0.23	0.92	4.98	0.06	0.14	0.13
Loader > 50-120	Diesel	0.09	3.05	2.89	0.06	0.20	0.18
Loader > 175-210	Diesel	0.09	0.92	2.45	0.06	0.11	0.10
Other, General Industrial Equipment > 175-250	Diesel	0.20	0.92	4.35	0.06	0.13	0.12
Power Pack > 200	Diesel	0.43	1.34	5.54	0.01	0.17	0.15
Side Pick > 120-175	Diesel	0.09	2.70	2.45	0.06	0.14	0.13
Sweeper/Scrubber > 50-120	Diesel	0.93	3.49	6.90	0.06	0.69	0.63
Top Handler > 50-120	Diesel	0.51	3.27	4.90	0.06	0.44	0.41
Tractor/ Loader/Backhoe > 120-175	Diesel	0.09	2.70	2.45	0.06	0.14	0.13
Yard tractor > 210-400	Diesel	0.07	0.76	2.67	0.06	0.09	0.09
Yard Truck > 120-175	Diesel	0.09	2.70	2.45	0.06	0.14	0.13
Yard Truck > 175-210	Diesel	0.09	0.92	2.45	0.06	0.11	0.10
Yard Truck > 210-400	Diesel	0.09	0.92	2.45	0.06	0.11	0.10
Fork Lift > 50-120	LPG	0.45	28.88	1.93	0.00	0.06	0.06
Top Handler > 50-120	LPG	0.45	30.45	1.93	0.00	0.06	0.06

**Table C1.2-BL-19. Existing Business Annual CHE Emissions - 2010 Baseline**

Year 2010 Baseline Cargo Handling Equipment	Fuel	Annual Emissions (tons/year)					
		VOC	CO	NOx	SOx	PM10	PM2.5
Container Handling Equipment > 175 - 210	Diesel	0.07	0.68	1.70	0.00	0.07	0.06
Fork Lift > 50-120	Diesel	0.04	0.80	0.88	0.00	0.05	0.05
Fork Lift > 120-175	Diesel	0.09	1.05	1.28	0.00	0.07	0.06
Fork Lift > 175-250	Diesel	0.10	0.35	1.83	0.00	0.05	0.04
Loader > 50-120	Diesel	0.01	0.19	0.17	0.00	0.01	0.01
Loader > 175-210	Diesel	0.01	0.11	0.27	0.00	0.01	0.01
Other, General Industrial Equipment > 175-250	Diesel	0.02	0.09	0.33	0.00	0.01	0.01
Power Pack > 200	Diesel	0.10	0.30	1.22	0.00	0.04	0.03
Side Pick > 120-175	Diesel	0.01	0.38	0.33	0.00	0.02	0.02
Sweeper/Scrubber > 50-120	Diesel	0.01	0.03	0.06	0.00	0.01	0.01
Top Handler > 50-120	Diesel	0.02	0.47	0.44	0.00	0.03	0.02
Tractor/ Loader/Backhoe > 120-175	Diesel	0.05	1.54	1.32	0.00	0.07	0.06
Yard tractor > 210-400	Diesel	0.06	0.68	2.80	0.05	0.08	0.08
Yard Truck > 120-175	Diesel	0.01	0.17	0.15	0.00	0.01	0.01
Yard Truck > 175-210	Diesel	0.33	3.09	7.67	0.02	0.34	0.31
Yard Truck > 210-400	Diesel	0.03	0.29	0.72	0.00	0.03	0.03
Fork Lift > 50-120	LPG	3.55	210.41	15.20	0.04	0.47	0.43
Top Handler > 50-120	LPG	0.02	1.33	0.08	0.00	0.00	0.00
<b>Total</b>		<b>4.51</b>	<b>221.98</b>	<b>36.45</b>	<b>0.13</b>	<b>1.35</b>	<b>1.25</b>



**Table C1.2-BL-20. Existing Business Peak Daily CHE Emissions - 2010 Baseline**

Year 2010 Baseline Cargo Handling Equipment	Fuel	Daily Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	PM2.5
Container Handling Equipment > 175 - 210	Diesel	0.49	4.85	12.20	0.03	0.47	0.44
Fork Lift > 50-120	Diesel	0.32	5.99	6.52	0.01	0.39	0.36
Fork Lift > 120-175	Diesel	0.63	7.52	9.16	0.02	0.47	0.43
Fork Lift > 175-250	Diesel	0.68	2.53	13.13	0.02	0.34	0.31
Loader > 50-120	Diesel	0.05	1.68	1.50	0.00	0.09	0.08
Loader > 175-210	Diesel	0.10	0.93	2.34	0.01	0.09	0.09
Other, General Industrial Equipment > 175-250	Diesel	0.11	0.64	2.34	0.00	0.08	0.07
Power Pack > 200	Diesel	0.82	2.55	10.55	0.01	0.31	0.29
Side Pick > 120-175	Diesel	0.11	3.30	2.83	0.01	0.14	0.13
Sweeper/Scrubber > 50-120	Diesel	0.06	0.23	0.43	0.00	0.04	0.04
Top Handler > 50-120	Diesel	0.12	3.21	2.97	0.01	0.18	0.17
Tractor/ Loader/Backhoe > 120-175	Diesel	0.38	11.05	9.48	0.03	0.47	0.43
Yard tractor > 210-400	Diesel	0.49	5.89	24.16	0.42	0.71	0.66
Yard Truck > 120-175	Diesel	0.04	1.25	1.07	0.00	0.06	0.05
Yard Truck > 175-210	Diesel	2.23	20.91	51.93	0.13	2.31	2.13
Yard Truck > 210-400	Diesel	0.22	2.08	5.15	0.01	0.23	0.21
Fork Lift > 50-120	LPG	24.23	1435.75	103.58	0.38	3.22	2.96
Top Handler > 50-120	LPG	0.13	9.03	0.57	0.00	0.02	0.02
<b>Total</b>		<b>31.23</b>	<b>1519.40</b>	<b>259.90</b>	<b>1.09</b>	<b>9.63</b>	<b>8.86</b>

**Table C1.2-BL-21. Summary of Existing Business Annual CHE Emissions - 2010 Baseline**

Year 2010 Baseline Type of Emissions	Annual Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Cargo Handling Equipment	4.51	221.98	36.45	0.13	1.35	1.25

**Table C1.2-BL-22. Summary of Existing Business Peak Daily CHE Emissions - 2010 Baseline**

Year 2010 Baseline Type of Emissions	Daily Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Cargo Handling Equipment	31.23	1519.40	259.90	1.09	9.63	8.86

**Table C1.2-BL-23. Activity Data for Existing Business Switcher Locomotives - 2010 Baseline**

<b>Project Scenario</b>	<b>Number of Trips</b>	<b>Idling Time per Trip (hr)</b>	<b>On-Site Distance per Trip (mi)</b>	<b>Duration of On-Site Movement per Trip (hr)</b>
Year 2010 Baseline	493	0.08	2.00	0.40

Note: Assume switcher locomotive movement at notch setting of one and speed of 5mph.

**Table C1.2-BL-24. Emission Factors for Existing Business Switcher Locomotives - 2010 Baseline**

Year 2010 Baseline Notch Setting	Emission Factors (g/hr)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Idle	93.06	181.00	987.00	24.73	31.00	28.52
Movement	87.65	182.88	1239.84	39.00	23.00	21.16

Note: Assume switcher locomotive movement at notch setting of one and speed of 5mph.

**Table C1.2-BL-25. Annual Emissions for Existing Business Switcher Locomotives - 2010 Baseline**

Notch Setting	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Idle	0.00	0.01	0.04	0.00	0.00	0.00
Movement	0.02	0.04	0.27	0.01	0.00	0.00
<b>Year 2010 Baseline</b>	<b>0.02</b>	<b>0.05</b>	<b>0.31</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>

**Table C1.2-BL-26. Peak Daily Emissions for Existing Business Switcher Locomotives - 2010 Baseline**

Notch Setting	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Idle	0.03	0.06	0.30	0.01	0.01	0.01
Movement	0.13	0.27	1.84	0.06	0.03	0.03
<b>Year 2010 Baseline</b>	<b>0.16</b>	<b>0.33</b>	<b>2.14</b>	<b>0.07</b>	<b>0.04</b>	<b>0.04</b>

**Table C1.2-BL-27. Existing Business Annual Operation Emissions - 2010 Baseline**

Emission Source	Annual Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Trucks to Hobart Yard	5.91	27.25	120.50	0.33	12.81	5.02
Linehaul Locomotives from Hobart Yard	5.35	12.18	139.54	3.07	3.80	3.50
Existing Business Trucks On-Site	3.06	8.93	19.96	0.01	1.13	0.59
Existing Business Trucks Off-Site	2.93	13.41	55.72	0.10	4.73	2.29
Existing Business Employee Commute On-Site	0.12	1.43	0.10	0.00	0.17	0.05
Existing Business Employee Commute Off-Site	1.50	32.47	2.85	0.05	5.56	1.51
Existing Business CHE	4.51	221.98	36.45	0.13	1.35	1.25
Existing Business Switcher Locomotive	0.02	0.05	0.31	0.01	0.01	0.01
<b>Total 2010 Baseline</b>	<b>23.41</b>	<b>317.69</b>	<b>375.44</b>	<b>3.71</b>	<b>29.57</b>	<b>14.21</b>



**Table C1.2-BL-28. Existing Business Peak Daily Operation Emissions - 2010 Baseline**

Emission Source	Peak Daily Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Trucks to Hobart Yard	36.76	169.50	749.50	2.07	79.69	31.25
Linehaul Locomotives from Hobart Yard	35.12	92.51	893.81	17.07	21.27	19.57
Existing Business Trucks On-Site	21.56	63.22	140.68	0.10	7.92	4.15
Existing Business Trucks Off-Site	20.61	94.13	391.57	0.72	33.30	16.07
Existing Business Employee Commute On-Site	0.81	9.99	0.70	0.01	1.18	0.33
Existing Business Employee Commute Off-Site	10.85	230.89	20.19	0.34	38.73	10.53
Existing Business CHE	31.23	1,519.40	259.90	1.09	9.63	8.86
Existing Business Switcher Locomotive	0.16	0.33	2.14	0.07	0.04	0.04
<b>Total 2010 Baseline</b>	<b>157.12</b>	<b>2,179.97</b>	<b>2,458.50</b>	<b>21.47</b>	<b>191.76</b>	<b>90.80</b>

**Table C1.2-BL-29. Average Daily Operational Emissions - 2010 Baseline**

Source Category	Average Daily Emissions (lb/day) <sup>a, f</sup>					
	VOC	CO	NO <sub>x</sub>	SO <sub>x</sub>	PM10	PM2.5
Trucks On-Site <sup>b</sup>	19	56	126	0	7	4
Trucks Off-Site <sup>b, c</sup>	51	235	1,019	2	101	42
Locomotives Off-Site <sup>d</sup>	30	68	775	17	21	19
Employee Commute On-Site	1	10	1	0	1	0
Employee Commute Off-Site	11	231	20	0	39	11
CHE	28	1,357	232	1	9	8
Existing Business Locomotive Activities	0	0	2	0	0	0
<b>Total – Baseline <sup>e</sup></b>	<b>140</b>	<b>1,958</b>	<b>2,175</b>	<b>21</b>	<b>178</b>	<b>84</b>

Notes:

- a) Emissions represent annual emissions divided by the annual operating day for each existing business.
- b) Trucks include medium and heavy duty trucks.
- c) Off-site trucks emissions include trips originating from existing business facilities and trips between port terminals and Hobart Yard.
- d) Locomotives off-site refer to trips from the Hobart Yard to the SCAB boundary.
- e) Emissions might not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1.
- f) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

**Table C1.2-BL-30. Peak Daily Operational Emissions - 2010 Baseline**

Source Category	Peak Daily Emissions (lb/day) <sup>a, f</sup>					
	VOC	CO	NOx	SOx	PM10	PM2.5
Trucks On-Site <sup>b</sup>	22	63	141	0	8	4
Trucks Off-Site <sup>b, c</sup>	57	264	1,141	3	113	47
Locomotives Off-Site <sup>d</sup>	35	93	894	17	21	20
Employee Commute On-Site	1	10	1	0	1	0
Employee Commute Off-Site	11	231	20	0	39	11
CHE	31	1,519	260	1	10	9
Existing Business Locomotive Activities	0	0	2	0	0	0
<b>Total – Baseline<sup>e</sup></b>	<b>157</b>	<b>2,180</b>	<b>2,458</b>	<b>21</b>	<b>192</b>	<b>91</b>

Notes:

- a) Emissions assume maximum theoretical daily equipment activity levels. Such levels would rarely occur during day-to-day terminal operations.
- b) Trucks include medium and heavy duty trucks.
- c) Off-site trucks emissions include trips originating from existing business facilities and trips between port terminals and Hobart Yard.
- d) Locomotives off-site refer to trips from the Hobart Yard to the SCAB boundary.
- e) Emissions might not add precisely due to rounding. For more explanation, refer to the discussion in Section 3.2.4.1.
- f) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

## **Appendix C1.3**

# **Greenhouse Gas Emission Calculations**

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**Table C1.3-1. Global Warming Potentials**

<b>Greenhouse Gas</b>	<b>Global Warming Potentials (GWP)</b>
CO <sub>2</sub>	1
CH <sub>4</sub>	21
N <sub>2</sub> O	310

Source: California Climate Action Registry General Reporting Protocol v3.1 Table C.1

**Table C1.3-2. GHG Emission Factors for Liquid Fuels**

Fuel	Fuel Density	Emission Factor		
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
Propane (LPG)	4.24 lb/gal <sup>a</sup>	5.74 kg/gal	0.00009 kg/gal	0.00041 kg/gal
Diesel	7.46 bbl/metric ton	10.15 kg/gal	0.00074 kg/gal <sup>b</sup> 0.00080 kg/gal <sup>c</sup> 0.00058 kg/gal <sup>d</sup>	0.00026 kg/gal <sup>b, c, d</sup>
Liquefied Natural Gas (LNG)	11.6 bbl/metric ton	4.46 kg/gal	0.005 kg/MMBtu	0.0001 kg/MMBtu
Distillate Fuel Oil [#1, 2, 4, Diesel]	7.46 bbl/metric ton	10.15 kg/gal	0.0015 kg/gal	0.0001 kg/gal
Residual Fuel Oil [#5, 6]	6.66 bbl/metric ton	11.80 kg/gal	0.0016 kg/gal	0.0001 kg/gal

Source: California Climate Action Registry, General Reporting Protocol v3.1, January 2009. Tables C.3, C.6, C.8 and C.9

<sup>a</sup> Source: AP-42 Appendix A (January 1995).

<sup>b</sup> Diesel fuel for ships and boats

<sup>c</sup> Diesel fuel for locomotives

<sup>d</sup> Diesel fuel for construction

**Table C1.3-3. GHG Indirect Emission Factors for Electricity Generation**

Region	Emission Factor (lbs/MWh)		
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
Los Angeles	724.12	0.0302	0.0081

Source: eGRID2007 Version 1.1, December 2008 (Year 2005 data), as cited in California Climate Action Registry, General Reporting Protocol v3.1, January 2009. Tables C.2.



**Table C1.3-4. CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for On-Road Mobile Sources**

Vehicle Types/Model Years	Emission Factor (g/mile)	
	N <sub>2</sub> O (g/mile)	CH <sub>4</sub> (g/mile)
<b>Gasoline Passenger Cars</b>		
Model Years 1984-1993	0.0647	0.0704
Model Year 1994	0.0560	0.0531
Model Year 1995	0.0473	0.0358
Model Year 1996	0.0426	0.0272
Model Year 1997	0.0422	0.0268
Model Year 1998	0.0393	0.0249
Model Year 1999	0.0337	0.0216
Model Year 2000	0.0273	0.0178
Model Year 2001	0.0158	0.0110
Model Year 2002	0.0153	0.0107
Model Year 2003	0.0135	0.0114
Model Year 2004	0.0083	0.0145
Model Year 2005 - Present	0.0079	0.0147
<b>Gasoline Light Trucks (Vans, Pickup Trucks, SUVs)</b>		
Model Years 1987-1993	0.1035	0.0813
Model Year 1994	0.0982	0.0646
Model Year 1995	0.0908	0.0517
Model Year 1996	0.0871	0.0452
Model Year 1997	0.0871	0.0452
Model Year 1998	0.0728	0.0391
Model Year 1999	0.0564	0.0321
Model Year 2000	0.0621	0.0346
Model Year 2001	0.0164	0.0151
Model Year 2002	0.0228	0.0178
Model Year 2003	0.0114	0.0155
Model Year 2004	0.0132	0.0152
Model Year 2005 - Present	0.0101	0.0157
<b>Diesel Heavy-Duty Vehicles</b>		
All Model Years	0.0048	0.0051

Source: California Climate Action Registry, General Reporting Protocol v3.1, January 2009. Tables C.4.

**Table C1.3-5. Construction GHG Emissions by Project Element and Project Scenario**

Project Construction Element	Total Project Construction Emissions 2013-2015 (MT)											
	Proposed Project				Alternative 1 - No Project				Alternative 2 - Reduced Project			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
<b>On-Site</b>												
Primary SCIG Project Site Construction	17,867	1	0	18,034	0	0	0	0	17,867	1	0	18,034
Alternate Business Locations Construction	388	0	0	396	0	0	0	0	388	0	0	396
Wall Construction	209	0	0	209	0	0	0	0	209	0	0	209
SCE Tower Relocation	168	0	0	168	0	0	0	0	168	0	0	168
<b>Off-Site<sup>a</sup></b>												
Primary SCIG Project Site Construction	7,853	0	0	7,957	0	0	0	0	7,853	0	0	7,957
Alternate Business Locations Construction	2,349	0	0	2,375	0	0	0	0	2,349	0	0	2,375
Wall Construction	18	0	0	18	0	0	0	0	18	0	0	18
SCE Tower Relocation	37	0	0	37	0	0	0	0	37	0	0	37
<b>Total Project Construction Emissions</b>	<b>28,888</b>	<b>2</b>	<b>1</b>	<b>29,195</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>28,888</b>	<b>2</b>	<b>1</b>	<b>29,195</b>

Note: <sup>a</sup> Off-site locomotive emissions were estimated to the California State line.

**Table C1.3-6. Construction GHG Emissions including Alternate Business Locations Operations by Project Element and Project Scenario**

Project Construction Element	Total Project Construction Emissions 2013-2015 (MT)											
	Proposed Project				Alternative 1 - No Project				Alternative 2 - Reduced Project			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
<b>On-site</b>												
Primary SCIG Project Site Construction	17,867	1	0	18,034	0	0	0	0	17,867	1	0	18,034
Alternate Business Locations Construction	388	0	0	396	0	0	0	0	388	0	0	396
Wall Construction	209	0	0	209	0	0	0	0	209	0	0	209
SCE Tower Relocation	168	0	0	168	0	0	0	0	168	0	0	168
Alternate Business Locations Operation	22,066	8	0	22,251	0	0	0	0	22,066	8	0	22,251
<b>Off-site <sup>a</sup></b>												
Primary SCIG Project Site Construction	7,853	0	0	7,957	0	0	0	0	7,853	0	0	7,957
Alternate Business Locations Construction	2,349	0	0	2,375	0	0	0	0	2,349	0	0	2,375
Wall Construction	18	0	0	18	0	0	0	0	18	0	0	18
SCE Tower Relocation	37	0	0	37	0	0	0	0	37	0	0	37
Alternate Business Locations Operation	22,738	0	1	22,950	0	0	0	0	22,738	0	1	22,950
<b>Total Project Construction Emissions</b>	<b>73,692</b>	<b>10</b>	<b>2</b>	<b>74,396</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>73,692</b>	<b>10</b>	<b>2</b>	<b>74,396</b>

Note: <sup>a</sup> Off-site locomotive emissions were estimated to the California State line.

**Table C1.3-7. Baseline GHG Emissions**

Source Category	Annual Emissions (MT)			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
Trucks On-Site	2,069	0	0	2,078
Trucks Off-Site <sup>a</sup>	41,303	0	1	41,505
Employee Commute On-Site	289	0	0	291
Employee Commute Off-Site	4,962	0	0	5,000
CHE	8,634	7	0	8,777
Locomotives Off-Site <sup>b</sup>	37,436	3	1	37,802
Existing Business Activities	13	0	0	13
Electricity	2,383	0	0	2,394
<b>Total – Baseline</b>	<b>97,089</b>	<b>11</b>	<b>2</b>	<b>97,859</b>

Notes:

<sup>a</sup> Off-site trucks emissions include trips originating from existing business facilities and trips between port terminals and Hobart Yard.

<sup>b</sup> Off-site locomotives includes linehaul locomotive travel from Hobart Yard to the California State line.

**Table C1.3-8. Annual GHG Emissions for Electricity Consumption by Project Scenario**

Year	Electricity Usage [MWh]	Annual Emissions [MT]			
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
<b>Proposed Project</b> <sup>a, d</sup>					
2016	1,790	588	0	0	590
2023	2,532	832	0	0	835
2035	8,700	2,858	0	0	2,870
2046	8,700	2,858	0	0	2,870
<b>Alternative 1 - No Project</b> <sup>b</sup>					
2016	8,121	2,667	0	0	2,679
2023	8,121	2,667	0	0	2,679
2035	8,121	2,667	0	0	2,679
2046	8,121	2,667	0	0	2,679
<b>Alternative 2 - Reduced Project</b> <sup>c, d</sup>					
2016	1,790	588	0	0	590
2023	2,532	832	0	0	835
2035	5,800	1,905	0	0	1,913
2046	5,800	1,905	0	0	1,913

Notes:

<sup>a</sup> Expected electricity consumption for the facility at full build-out provided by BNSF. For years before the full build-out, electricity usage were scaled by the throughput of the analysis years to that of the full build-out year.

<sup>b</sup> Electricity consumption assumed 10% growth in baseline activity level.

<sup>c</sup> Electricity consumption scaled by the throughput of the facility in each year.

<sup>d</sup> Emissions do not include those from alternate business locations operations

**Table C1.3-9. Annual GHG Emissions for Electricity Consumption for Alternate Business Locations Operations**

Year	Electricity Usage [MWh]	Annual Emissions [MT]			
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
<b>Proposed Project - Alternate Business Location Operations <sup>a</sup></b>					
2016	1,989	653	0	0	656
2023	1,989	653	0	0	656
2035	1,989	653	0	0	656
2046	1,989	653	0	0	656
<b>Alternative 2 - Reduced Project - Alternate Business Locations Operations <sup>a</sup></b>					
2016	1,989	653	0	0	656
2023	1,989	653	0	0	656
2035	1,989	653	0	0	656
2046	1,989	653	0	0	656

Notes:

<sup>a</sup> Electricity consumptions are either identical to those in the baseline for businesses moving to similarly sized sites or are scaled by the acreage of the alternate sites to those of the original sites.

**Table C1.3-10. Proposed Project GHG Emissions**

Source Category	Annual Emissions (metric tons/year) <sup>a, e, f</sup>				
	CO2	CH4	N2O	HFC	CO2e
<b>Project Year 2016</b>					
Locomotives On-Site	439	0	0	0	444
Locomotives Off-Site <sup>b</sup>	28,545	2	1	0	28,823
Trucks On-Site	2,763	0	0	0	2,780
Trucks Off-Site <sup>b</sup>	4,190	0	0	0	4,233
Railyard Equipment	219	0	0	0	224
TRU	5	0	0	0	16
Employee Commute On-Site	24	0	0	0	24
Employee Commute Off-Site <sup>b</sup>	303	0	0	0	304
Refueling Trucks On-Site	6	0	0	0	6
Refueling Trucks Off-Site <sup>b</sup>	27	0	0	0	27
Electricity	588	0	0	0	590
<u>Alternate Business Location Sources</u>					
Trucks On-Site	1,119	0	0	0	1,123
Trucks Off-Site <sup>b</sup>	4,579	0	0	0	4,626
CHE	3,233	1	0	0	3,258
Employee Commute On-Site	83	0	0	0	84
Employee Commute Off-Site <sup>b</sup>	1,019	0	0	0	1,023
Alternate Business Location Locomotive Activities	2	0	0	0	2
Electricity	653	0	0	0	656
<u>Displaced Businesses</u> <sup>c</sup>	20,310	4	0	0	20,484
<b>Total - Project Year 2016</b> <sup>d</sup>	<b>68,107</b>	<b>8</b>	<b>1</b>	<b>0</b>	<b>68,727</b>
<b>Project Year 2023</b>					
Locomotives On-Site	601	0	0	0	607
Locomotives Off-Site <sup>b</sup>	42,817	3	1	0	43,235
Trucks On-Site	3,832	0	0	0	3,855
Trucks Off-Site <sup>b</sup>	5,560	0	0	0	5,616
Railyard Equipment	220	0	0	0	226
TRU	7	0	0	0	22
Employee Commute On-Site	34	0	0	0	34
Employee Commute Off-Site <sup>b</sup>	422	0	0	0	423
Refueling Trucks On-Site	9	0	0	0	9
Refueling Trucks Off-Site <sup>b</sup>	40	0	0	0	40
Electricity	832	0	0	0	835
<u>Alternate Business Location Sources</u>					
Trucks On-Site	1,107	0	0	0	1,110
Trucks Off-Site <sup>b</sup>	4,492	0	0	0	4,538
CHE	3,233	1	0	0	3,256
Employee Commute On-Site	84	0	0	0	84
Employee Commute Off-Site <sup>b</sup>	1,002	0	0	0	1,004
Alternate Business Location Locomotive Activities	2	0	0	0	2
Electricity	653	0	0	0	656
<u>Displaced Businesses</u> <sup>c</sup>	20,262	4	0	0	20,426
<b>Total - Project Year 2023</b> <sup>d</sup>	<b>85,207</b>	<b>9</b>	<b>2</b>	<b>0</b>	<b>85,979</b>

<b>Project Year 2035</b>					
Locomotives On-Site	1,392	0	0	0	1,406
Locomotives Off-Site <sup>b</sup>	114,178	9	3	0	115,294
Trucks On-Site	13,159	0	0	0	13,237
Trucks Off-Site <sup>b</sup>	18,597	0	1	0	18,785
Railyard Equipment	228	0	0	0	247
TRU	7	0	0	0	22
Employee Commute On-Site	115	0	0	0	115
Employee Commute Off-Site <sup>b</sup>	1,476	0	0	0	1,479
Refueling Trucks On-Site	25	0	0	0	25
Refueling Trucks Off-Site <sup>b</sup>	107	0	0	0	108
Electricity	2,858	0	0	0	2,870
<u>Alternate Business Location Sources</u>					
Trucks On-Site	1,107	0	0	0	1,111
Trucks Off-Site <sup>b</sup>	4,540	0	0	0	4,586
CHE	3,233	1	0	0	3,256
Employee Commute On-Site	84	0	0	0	84
Employee Commute Off-Site <sup>b</sup>	1,027	0	0	0	1,029
Alternate Business Location Locomotive Activities	2	0	0	0	2
Electricity	653	0	0	0	656
<u>Displaced Businesses<sup>c</sup></u>	20,120	4	0	0	20,282
<b>Total - Project Year 2035<sup>d</sup></b>	<b>182,907</b>	<b>15</b>	<b>4</b>	<b>0</b>	<b>184,595</b>
<b>Project Year 2046</b>					
Locomotives On-Site	1,393	0	0	0	1,407
Locomotives Off-Site <sup>b</sup>	114,178	9	3	0	115,294
Trucks On-Site	13,176	0	0	0	13,255
Trucks Off-Site <sup>b</sup>	18,555	0	1	0	18,743
Railyard Equipment	228	0	0	0	247
TRU	7	0	0	0	22
Employee Commute On-Site	115	0	0	0	115
Employee Commute Off-Site <sup>b</sup>	1,459	0	0	0	1,462
Refueling Trucks On-Site	25	0	0	0	25
Refueling Trucks Off-Site <sup>b</sup>	106	0	0	0	107
Electricity	2,858	0	0	0	2,870
<u>Alternate Business Location Sources</u>					
Trucks On-Site	1,107	0	0	0	1,111
Trucks Off-Site <sup>b</sup>	4,516	0	0	0	4,562
CHE	3,233	1	0	0	3,256
Employee Commute On-Site	84	0	0	0	84
Employee Commute Off-Site <sup>b</sup>	1,022	0	0	0	1,024
Alternate Business Location Locomotive Activities	2	0	0	0	2
Electricity	653	0	0	0	656
<u>Displaced Businesses<sup>c</sup></u>	20,227	4	0	0	20,389
<b>Total - Project Year 2046<sup>d</sup></b>	<b>182,944</b>	<b>15</b>	<b>4</b>	<b>0</b>	<b>184,632</b>



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Notes:

- a) Emissions represent annual emissions.
- b) Truck, train, and worker commute emissions include transport within the Stateline
- c) On-site emissions from businesses displaced by the Project
- d) Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
- e) 2066 emissions are assumed to be identical to those modeled for 2046
- f) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

**Table C1.3-11. Alternative 1 - No Project GHG Emissions**

Source Category	Annual Emissions (metric tons/year) <sup>a, c, e</sup>			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
<b>Project Year 2016</b>				
Trucks On-Site	2,392	0	0	2,401
Trucks Off-Site <sup>b, f</sup>	37,131	0	1	37,530
CHE	9,750	5	0	9,848
Employee Commute On-Site	340	0	0	341
Employee Commute Off-Site <sup>b</sup>	4,539	0	0	4,559
Existing Business Locomotive Activities	15	0	0	15
Locomotives Off-Site <sup>b</sup>	26,320	2	1	26,577
Electricity	2,667	0	0	2,679
<b>Total - Project Year 2016 <sup>d</sup></b>	<b>83,154</b>	<b>8</b>	<b>2</b>	<b>83,950</b>
<b>Project Year 2023</b>				
Trucks On-Site	2,363	0	0	2,373
Trucks Off-Site <sup>b, f</sup>	47,211	0	2	47,713
CHE	9,792	4	0	9,886
Employee Commute On-Site	341	0	0	341
Employee Commute Off-Site <sup>b</sup>	4,504	0	0	4,517
Existing Business Locomotive Activities	15	0	0	15
Locomotives Off-Site <sup>b</sup>	39,480	3	1	39,866
Electricity	2,667	0	0	2,679
<b>Total - Project Year 2023 <sup>d</sup></b>	<b>106,374</b>	<b>8</b>	<b>3</b>	<b>107,389</b>
<b>Project Year 2035</b>				
Trucks On-Site	2,362	0	0	2,371
Trucks Off-Site <sup>b, f</sup>	120,719	1	4	122,029
CHE	9,742	4	0	9,834
Employee Commute On-Site	341	0	0	341
Employee Commute Off-Site <sup>b</sup>	4,493	0	0	4,504
Existing Business Locomotive Activities	15	0	0	15
Locomotives Off-Site <sup>b</sup>	105,281	8	3	106,309
Electricity	2,667	0	0	2,679
<b>Total - Project Year 2035 <sup>d</sup></b>	<b>245,620</b>	<b>14</b>	<b>7</b>	<b>248,083</b>
<b>Project Year 2046</b>				
Trucks On-Site	2,363	0	0	2,372
Trucks Off-Site <sup>b, f</sup>	121,264	1	4	122,578
CHE	9,742	4	0	9,834
Employee Commute On-Site	341	0	0	341
Employee Commute Off-Site <sup>b</sup>	4,529	0	0	4,540
Existing Business Locomotive Activities	15	0	0	15
Locomotives Off-Site <sup>b</sup>	105,281	8	3	106,309
Electricity	2,667	0	0	2,679
<b>Total - Project Year 2046 <sup>d</sup></b>	<b>246,201</b>	<b>14</b>	<b>7</b>	<b>248,668</b>

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Notes:

- a) Emissions represent annual emissions.
- b) Truck, train, and worker commute emissions include transport within the Stateline
- c) 2066 emissions are assumed to be identical to those modeled for 2046
- d) Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
- e) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

**Table C1.3-12. Alternative 2 - Reduced Project GHG Emissions**

Source Category	Annual Emissions (metric tons/year) <sup>a, e, f</sup>				
	CO2	CH4	N2O	HFC	CO2e
<b>Project Year 2016</b>					
Locomotives On-Site	439	0	0	0	444
Locomotives Off-Site <sup>b</sup>	28,545	2	1	0	28,823
Trucks On-Site	2,763	0	0	0	2,780
Trucks Off-Site <sup>b</sup>	4,190	0	0	0	4,233
Railyard Equipment	219	0	0	0	224
TRU	5	0	0	0	15
Employee Commute On-Site	24	0	0	0	24
Employee Commute Off-Site <sup>b</sup>	303	0	0	0	304
Refueling Trucks On-Site	6	0	0	0	6
Refueling Trucks Off-Site <sup>b</sup>	27	0	0	0	27
Electricity	588	0	0	0	590
<u>Alternate Business Location Sources</u>					
Trucks On-Site	1,119	0	0	0	1,123
Trucks Off-Site <sup>b</sup>	4,579	0	0	0	4,626
CHE	3,233	1	0	0	3,258
Employee Commute On-Site	83	0	0	0	84
Employee Commute Off-Site <sup>b</sup>	1,019	0	0	0	1,023
Alternate Business Location Locomotive Activities	2	0	0	0	2
Electricity	653	0	0	0	656
Displaced Businesses <sup>c</sup>	20,310	4	0	0	20,484
<b>Total - Project Year 2016 <sup>d</sup></b>	<b>68,107</b>	<b>8</b>	<b>1</b>	<b>0</b>	<b>68,726</b>
<b>Project Year 2023</b>					
Locomotives On-Site	601	0	0	0	607
Locomotives Off-Site <sup>b</sup>	42,817	3	1	0	43,235
Trucks On-Site	3,832	0	0	0	3,855
Trucks Off-Site <sup>b</sup>	5,560	0	0	0	5,616
Railyard Equipment	220	0	0	0	226
TRU	7	0	0	0	17
Employee Commute On-Site	34	0	0	0	34
Employee Commute Off-Site <sup>b</sup>	422	0	0	0	423
Refueling Trucks On-Site	9	0	0	0	9
Refueling Trucks Off-Site <sup>b</sup>	40	0	0	0	40
Electricity	832	0	0	0	835
<u>Alternate Business Location Sources</u>					
Trucks On-Site	1,107	0	0	0	1,110
Trucks Off-Site <sup>b</sup>	4,492	0	0	0	4,538
CHE	3,233	1	0	0	3,256
Employee Commute On-Site	84	0	0	0	84
Employee Commute Off-Site <sup>b</sup>	1,002	0	0	0	1,004
Alternate Business Location Locomotive Activities	2	0	0	0	2
Electricity	653	0	0	0	656
Displaced Businesses <sup>c</sup>	20,262	4	0	0	20,426

<b>Total - Project Year 2023<sup>d</sup></b>	<b>85,207</b>	<b>9</b>	<b>2</b>	<b>0</b>	<b>85,974</b>
<b>Project Year 2035</b>					
Locomotives On-Site	1,075	0	0	0	1,086
Locomotives Off-Site <sup>b</sup>	85,634	7	2	0	86,470
Trucks On-Site	8,773	0	0	0	8,825
Trucks Off-Site <sup>b</sup>	12,398	0	0	0	12,523
Railyard Equipment	224	0	0	0	237
TRU	7	0	0	0	17
Employee Commute On-Site	77	0	0	0	77
Employee Commute Off-Site <sup>b</sup>	984	0	0	0	986
Refueling Trucks On-Site	19	0	0	0	19
Refueling Trucks Off-Site <sup>b</sup>	80	0	0	0	81
Electricity	1,905	0	0	0	1,913
<u>Alternate Business Location Sources</u>					
Trucks On-Site	1,107	0	0	0	1,111
Trucks Off-Site <sup>b</sup>	4,540	0	0	0	4,586
CHE	3,233	1	0	0	3,256
Employee Commute On-Site	84	0	0	0	84
Employee Commute Off-Site <sup>b</sup>	1,027	0	0	0	1,029
Alternate Business Location Locomotive Activities	2	0	0	0	2
Electricity	653	0	0	0	656
<u>Displaced Businesses<sup>c</sup></u>	20,120	4	0	0	20,282
<b>Total - Project Year 2035<sup>d</sup></b>	<b>141,941</b>	<b>12</b>	<b>3</b>	<b>0</b>	<b>143,241</b>
<b>Project Year 2046</b>					
Locomotives On-Site	1,076	0	0	0	1,087
Locomotives Off-Site <sup>b</sup>	85,634	7	2	0	86,470
Trucks On-Site	8,784	0	0	0	8,837
Trucks Off-Site <sup>b</sup>	12,370	0	0	0	12,495
Railyard Equipment	224	0	0	0	237
TRU	7	0	0	0	17
Employee Commute On-Site	77	0	0	0	77
Employee Commute Off-Site <sup>b</sup>	973	0	0	0	975
Refueling Trucks On-Site	19	0	0	0	19
Refueling Trucks Off-Site <sup>b</sup>	80	0	0	0	80
Electricity	1,905	0	0	0	1,913
<u>Alternate Business Location Sources</u>					
Trucks On-Site	1,107	0	0	0	1,111
Trucks Off-Site <sup>b</sup>	4,516	0	0	0	4,562
CHE	3,233	1	0	0	3,256
Employee Commute On-Site	84	0	0	0	84
Employee Commute Off-Site <sup>b</sup>	1,022	0	0	0	1,024
Alternate Business Location Locomotive Activities	2	0	0	0	2
Electricity	653	0	0	0	656
<u>Displaced Businesses<sup>c</sup></u>	20,227	4	0	0	20,389
<b>Total - Project Year 2046<sup>d</sup></b>	<b>141,991</b>	<b>12</b>	<b>3</b>	<b>0</b>	<b>143,292</b>

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Notes:

- a) Emissions represent annual emissions.
- b) Truck, train, and worker commute emissions include transport within the Stateline
- c) On-site emissions from businesses displaced by the Project
- d) Emissions might not precisely add due to rounding. For further explanation, refer to the discussion in Section 3.2.4.1.
- e) 2066 emissions are assumed to be identical to those modeled for 2046
- f) The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.