Appendix E
Air Quality Supporting Information

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RAMBOLL

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A. AIR QUALITY APPENDIX TABLES

Table AQ-1a
Project Construction Phasing
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase[1]	Description	Start Year	End Year	# of Work Days
0	Demolition, Site preparation, and Rough Grading for the entire Project	January 2020	December 2022	782
0.1	Tank farm area subject to future PG&E remediation efforts	July 2024	October 2024	87
1	Grading, Building Construction (Blocks 8, 9, 12), Paving, Architectural Coating	July 2022	June 2025	782
2	Building Construction (Blocks 7, 11), Paving, Architectural Coating	January 2024	April 2026	607
3	Grading, Building Construction (Blocks 3, 4), Paving, Architectural Coating	January 2025	September 2028	977
4	Grading, Building Construction (Blocks 5, 6, 10), Paving, Architectural Coating	January 2027	July 2031	1194
5	Grading, Building Construction (Blocks 1, 2, 14), Paving, Architectural Coating	January 2030	August 2032	695
6	Grading, Building Construction (Block 13), Paving, Architectural Coating	January 2030	September 2034	1238

Notes:

1. Project construction schedule provided by the Project Sponsor. Phase 0.1 is included within the boundary of Phase 0 but is subject to PG&E remediation efforts which could impact schedule for completion of work in this area.

Table AQ-1b
Project Construction Equipment List
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Subphase	Equipment Type	CalEEMod Equipment[1,2]	Number[2]	Horsepower[2]	Hours/day[2]	Fraction of Phase[3]
0	Demolition	Concrete/Industrial Saws	Concrete/Industrial Saws	8	81	2	1
0	Demolition	Excavators	Excavators	4	158	6	1
0	Demolition	Rubber Tired/Track Dozers	Rubber Tired Dozers	2	247	4	1
0	Demolition	Aerial Lifts	Aerial Lifts	4	63	2	1
0	Demolition	Forklifts	Forklifts	2	89	2	1
0	Demolition	Roll-Off Trucks	Off-Highway Trucks	2	402	0.5	1
0	Demolition	Loader	Tractors/Loaders/Backhoes	4	97	6	1
0	Demolition	Concrete Crusher	Crushing/Proc. Equipment	4	85	4	1
0	Demolition	Dump Trucks	Off-Highway Trucks	4	402	1	1
0	Demolition	Water Trucks	Off-Highway Trucks	2	402	4	1
0	Demolition	Skid-Steer Loader	Skid Steer Loaders	4	65	6	1
0	Demolition	Sweepers/Scrubbers	Sweepers/Scrubbers	2	64	3	1
0	Demolition	Air Compressors	Air Compressors	4	78	2	1
0	Demolition	Generator Sets	Generator Sets	4	84	4	1
0	Demolition	Welders	Welders	4	46	4	1
0	Demolition	Pressure Washer	Pressure Washers	2	13	1	1
0	Site Preparation	Rubber Tired/Track Dozers	Rubber Tired Dozers	2	247	6	1
0	Site Preparation	Loader	Tractors/Loaders/Backhoes	2	97	6	1
0	Site Preparation	Excavators	Excavators	3	158	6	1
0	Site Preparation	Dump Trucks	Off-Highway Trucks	3	402	4	1
0	Site Preparation	Water Trucks	Off-Highway Trucks	2	402	4	1
0	Site Preparation	Drill Rig	Bore/Drill Rigs	4	221	4	1
0	Site Preparation	Cranes	Cranes	3	231	4	1
0	Site Preparation	Air Compressors	Air Compressors	2	78	2	1
0	Site Preparation	Pressure Washer	Pressure Washers	2	13	2	1
0	Site Preparation	Pavers	Pavers	1	130	2	1
0	Site Preparation	Paving Equipment	Paving Equipment	1	132	2	1
0	Site Preparation	Rollers	Rollers	1	80	2	1
0	Site Preparation	Skid-Steer Loader	Skid Steer Loaders	1	65	2	1
0	Site Preparation	Compactor	Plate Compactors	1	8	2	1
0	Site Preparation	Pump	Pumps	4	84	2	1
0	Grading	Excavators	Excavators	2	158	4	1
0	Grading	Skid Steer Loader	Skid Steer Loaders	1	65	4	1
0	Grading	Dump Trucks	Off-Highway Trucks	1	402	2	1
0	Grading	Water Trucks	Off-Highway Trucks	1	402	4	1
0	Grading	Compactor	Plate Compactors	1	8	2	1
0	Grading	Pole Trucks	Off-Highway Trucks	2	402	4	1
0	Grading	Air Compressors	Air Compressors	2	78	2	1
0	Grading	Pressure Washer	Pressure Washers	2	13	1	1
0	Grading	Manlift	Aerial Lifts	1	63	2	1
0	Grading	Excavators	Excavators	2	158	2	1
0	Grading	Graders	Graders	4	187	6	1
0	Grading	Rubber Tired/Track Dozers	Rubber Tired Dozers	2	247	6	1
0	Grading	Scrapers	Scrapers	4	367	6	1
0	Grading	Tractors	Tractors/Loaders/Backhoes	2	97	4	1
0	Grading	Loader	Tractors/Loaders/Backhoes	2	97	6	1
0	Grading	Skid Steer Loader	Skid Steer Loaders	2	65	4	1
0	Grading	Dump Trucks	Off-Highway Trucks	2	402	4	1
0	Grading	Water Trucks	Off-Highway Trucks	2	402	4	1
0	Grading	Compactor	Plate Compactors	2	8	6	1
0	Grading	Air Compressors	Air Compressors	2	78	2	1
0	Grading	Pressure Washer	Pressure Washers	2	13	1	1
0.1	Grading	Excavators	Excavators	1	158	4	1
0.1	Grading	Graders	Graders	1	187	6	1
0.1	Grading	Rubber Tired/Track Dozers	Rubber Tired Dozers	1	247	6	1
0.1	Grading	Scrapers	Scrapers	1	367	6	1
0.1	Grading	Tractors	Tractors/Loaders/Backhoes	1	97	4	1
0.1	Grading	Loader	Tractors/Loaders/Backhoes	1	97	6	1
0.1	Grading	Skid Steer Loader	Skid Steer Loaders	1	65	4	1
0.1	Grading	Dump Trucks	Off-Highway Trucks	1	402	4	1
0.1	Grading	Water Trucks	Off-Highway Trucks	1	402	4	1
0.1	Grading	Compactor	Plate Compactors	1	8	6	1
0.1	Grading	Air Compressors	Air Compressors	1	78	2	1
0.1	Grading	Pressure Washer	Pressure Washers	1	13	1	1
1	Grading	Excavators	Excavators	2	158	6	1
1	Grading	Backhoes	Tractors/Loaders/Backhoes	2	97	6	1
1	Grading	Loader	Tractors/Loaders/Backhoes	1	97	6	1
1	Grading	Skid Steer Loader	Skid Steer Loaders	1	65	6	1
1	Grading	Dump Trucks	Off-Highway Trucks	1	402	2	1
1	Grading	Water Trucks	Off-Highway Trucks	1	402	2	1
1	Grading	Compactor	Plate Compactors	1	8	4	1
1	Grading	Trenchers	Trenchers	2	78	6	1
1	Grading	Pumps	Pumps	1	84	2	1
1	Grading	Generator Sets	Generator Sets	1	84	6	1
1	Grading	Pressure Washer	Pressure Washers	1	13	1	1
1	Building Construction	Cranes	Cranes	6	231	5	1
1	Building Construction	Forklifts	Forklifts	6	89	4	1
1	Building Construction	Generator Sets	Generator Sets	6	84	4	1
1	Building Construction	Backhoes	Tractors/Loaders/Backhoes	4	97	4	1
1	Building Construction	Loader	Tractors/Loaders/Backhoes	4	97	4	1
1	Building Construction	Welders	Welders	6	46	4	1
1	Building Construction	Aerial Lifts	Aerial Lifts	6	63	2	1
1	Building Construction	Excavators	Excavators	4	158	4	1
1	Building Construction	Dump Trucks	Off-Highway Trucks	4	402	2	1
1	Building Construction	Water Trucks	Off-Highway Trucks	2	402	4	1
1	Building Construction	Pile Driver	Cranes	4	300	4	1

Table AQ-1b
Project Construction Equipment List
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Subphase	Equipment Type	CalEEMod Equipment[1,2]	Number[2]	Horsepower[2]	Hours/day[2]	Fraction of Phase[3]
1	Building Construction	Drill Rig	Bore/Drill Rigs	4	221	4	1
1	Building Construction	Skid-Steer Loader	Skid Steer Loaders	4	65	6	1
1	Building Construction	Air Compressors	Air Compressors	6	78	3	1
1	Building Construction	Pumps	Pumps	12	84	2	1
1	Building Construction	Cement and Mortar Mixers	Cement and Mortar Mixers	6	9	4	1
1	Building Construction	Pressure Washer	Pressure Washers	6	13	2	1
1	Building Construction	Cement and Mortar Mixers	Cement and Mortar Mixers	1	9	2	1
1	Building Construction	Air Compressors	Air Compressors	1	78	2	1
1	Building Construction	Cranes	Cranes	1	231	2	1
1	Building Construction	Forklifts	Forklifts	1	89	2	1
1	Building Construction	Generator Sets	Generator Sets	1	84	2	1
1	Building Construction	Excavators	Excavators	1	158	2	1
1	Building Construction	Welders	Welders	1	46	2	1
1	Building Construction	Skid-Steer Loader	Skid Steer Loaders	1	65	2	1
1	Paving	Pavers	Pavers	1	130	1	1
1	Paving	Rollers	Rollers	2	80	1	1
1	Paving	Loader	Tractors/Loaders/Backhoes	2	97	4	1
1	Paving	Backhoes	Tractors/Loaders/Backhoes	2	97	4	1
1	Paving	Skid-Steer Loader	Skid Steer Loaders	2	65	6	1
1	Paving	Compactor	Plate Compactors	1	8	4	1
1	Paving	Dump Trucks	Off-Highway Trucks	2	402	6	1
1	Paving	Water Trucks	Off-Highway Trucks	2	402	6	1
1	Paving	Rubber Tired/Track Dozers	Rubber Tired Dozers	2	247	4	1
1	Paving	Air Compressors	Air Compressors	4	78	3	1
1	Paving	Cement and Mortar Mixers	Cement and Mortar Mixers	3	9	4	1
1	Paving	Generator Sets	Generator Sets	3	84	3	1
1	Paving	Pressure Washer	Pressure Washers	2	13	1	1
1	Architectural Coating	Air Compressors	Air Compressors	16	78	6	1
1	Architectural Coating	Skid-Steer Loader	Skid Steer Loaders	8	65	6	1
1	Architectural Coating	Cranes	Cranes	8	231	6	1
1	Architectural Coating	Aerial Lifts	Aerial Lifts	8	63	6	1
1	Architectural Coating	Forklifts	Forklifts	8	89	6	1
1	Architectural Coating	Sweepers/Scrubbers	Sweepers/Scrubbers	2	64	2	1
1	Architectural Coating	Cement and Mortar Mixers	Cement and Mortar Mixers	8	9	4	1
1	Architectural Coating	Welders	Welders	8	46	6	1
1	Architectural Coating	Pressure Washer	Pressure Washers	8	13	4	1
1	Architectural Coating	Generator Sets	Generator Sets	16	84	6	1
2	Building Construction	Cranes	Cranes	4	231	5	1
2	Building Construction	Forklifts	Forklifts	4	89	4	1
2	Building Construction	Generator Sets	Generator Sets	4	84	6	1
2	Building Construction	Backhoes	Tractors/Loaders/Backhoes	2	97	4	1
2	Building Construction	Loader	Tractors/Loaders/Backhoes	2	97	4	1
2	Building Construction	Welders	Welders	4	46	4	1
2	Building Construction	Aerial Lifts	Aerial Lifts	4	63	2	1
2	Building Construction	Excavators	Excavators	4	158	4	1
2	Building Construction	Dump Trucks	Off-Highway Trucks	2	402	2	1
2	Building Construction	Water Trucks	Off-Highway Trucks	2	402	4	1
2	Building Construction	Skid-Steer Loader	Skid Steer Loaders	2	65	6	1
2	Building Construction	Air Compressors	Air Compressors	4	78	3	1
2	Building Construction	Pumps	Pumps	6	84	3	1
2	Building Construction	Cement and Mortar Mixers	Cement and Mortar Mixers	4	9	4	1
2	Building Construction	Pressure Washer	Pressure Washers	4	13	2	1
2	Paving	Loader	Tractors/Loaders/Backhoes	1	97	4	1
2	Paving	Skid-Steer Loader	Skid Steer Loaders	1	65	6	1
2	Paving	Backhoes	Tractors/Loaders/Backhoes	1	97	4	1
2	Paving	Dump Trucks	Off-Highway Trucks	1	402	2	1
2	Paving	Water Trucks	Off-Highway Trucks	1	402	2	1
2	Paving	Rubber Tired/Track Dozers	Rubber Tired Dozers	1	247	2	1
2	Paving	Air Compressors	Air Compressors	1	78	4	1
2	Paving	Generator Sets	Generator Sets	1	84	4	1
2	Paving	Pressure Washer	Pressure Washers	1	13	1	1
2	Architectural Coating	Air Compressors	Air Compressors	8	78	6	1
2	Architectural Coating	Skid-Steer Loader	Skid Steer Loaders	4	65	6	1
2	Architectural Coating	Cranes	Cranes	4	231	6	1
2	Architectural Coating	Aerial Lifts	Aerial Lifts	4	63	6	1
2	Architectural Coating	Forklifts	Forklifts	4	89	6	1
2	Architectural Coating	Sweepers/Scrubbers	Sweepers/Scrubbers	2	64	2	1
2	Architectural Coating	Cement and Mortar Mixers	Cement and Mortar Mixers	4	9	4	1
2	Architectural Coating	Welders	Welders	4	46	6	1
2	Architectural Coating	Pressure Washer	Pressure Washers	4	13	4	1
2	Architectural Coating	Generator Sets	Generator Sets	8	84	6	1
3	Grading	Excavators	Excavators	1	158	6	1
3	Grading	Backhoes	Tractors/Loaders/Backhoes	1	97	6	1
3	Grading	Loader	Tractors/Loaders/Backhoes	1	97	6	1
3	Grading	Skid Steer Loader	Skid Steer Loaders	1	65	6	1
3	Grading	Dump Trucks	Off-Highway Trucks	1	402	2	1
3	Grading	Water Trucks	Off-Highway Trucks	1	402	2	1
3	Grading	Compactor	Plate Compactors	1	8	4	1
3	Grading	Trenchers	Trenchers	1	78	6	1
3	Grading	Pumps	Pumps	1	84	2	1
3	Grading	Pressure Washer	Pressure Washers	1	13	1	1
3	Building Construction	Cranes	Cranes	4	231	5	1
3	Building Construction	Forklifts	Forklifts	4	89	4	1
3	Building Construction	Generator Sets	Generator Sets	4	84	4	1
3	Building Construction	Backhoes	Tractors/Loaders/Backhoes	2	97	4	1
3	Building Construction	Loader	Tractors/Loaders/Backhoes	4	97	4	1

Table AQ-1b
Project Construction Equipment List
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Subphase	Equipment Type	CalEEMod Equipment[1,2]	Number[2]	Horsepower[2]	Hours/day[2]	Fraction of Phase[3]
3	Building Construction	Welders	Welders	4	46	4	1
3	Building Construction	Aerial Lifts	Aerial Lifts	4	63	4	1
3	Building Construction	Excavators	Excavators	4	158	4	1
3	Building Construction	Dump Trucks	Off-Highway Trucks	4	402	4	1
3	Building Construction	Water Trucks	Off-Highway Trucks	2	402	4	1
3	Building Construction	Pile Driver	Cranes	4	300	4	1
3	Building Construction	Drill Rig	Bore/Drill Rigs	4	221	4	1
3	Building Construction	Skid-Steer Loader	Skid Steer Loaders	4	65	6	1
3	Building Construction	Air Compressors	Air Compressors	4	78	3	1
3	Building Construction	Pumps	Pumps	8	84	2	1
3	Building Construction	Cement and Mortar Mixers	Cement and Mortar Mixers	4	9	4	1
3	Building Construction	Pressure Washer	Pressure Washers	4	13	2	1
3	Paving	Pavers	Pavers	1	130	2	1
3	Paving	Rollers	Rollers	1	80	2	1
3	Paving	Loader	Tractors/Loaders/Backhoes	1	97	4	1
3	Paving	Backhoes	Tractors/Loaders/Backhoes	1	97	4	1
3	Paving	Skid-Steer Loader	Skid Steer Loaders	1	65	6	1
3	Paving	Compactor	Plate Compactors	1	8	4	1
3	Paving	Dump Trucks	Off-Highway Trucks	1	402	4	1
3	Paving	Water Trucks	Off-Highway Trucks	1	402	4	1
3	Paving	Rubber Tired/Track Dozers	Rubber Tired Dozers	1	247	2	1
3	Paving	Air Compressors	Air Compressors	1	78	2	1
3	Paving	Cement and Mortar Mixers	Cement and Mortar Mixers	1	9	6	1
3	Paving	Generator Sets	Generator Sets	1	84	4	1
3	Paving	Pressure Washer	Pressure Washers	1	13	1	1
3	Architectural Coating	Air Compressors	Air Compressors	12	78	3	1
3	Architectural Coating	Skid-Steer Loader	Skid Steer Loaders	6	65	6	1
3	Architectural Coating	Cranes	Cranes	6	231	4	1
3	Architectural Coating	Aerial Lifts	Aerial Lifts	6	63	4	1
3	Architectural Coating	Forklifts	Forklifts	6	89	4	1
3	Architectural Coating	Sweepers/Scrubbers	Sweepers/Scrubbers	2	64	2	1
3	Architectural Coating	Cement and Mortar Mixers	Cement and Mortar Mixers	6	9	2	1
3	Architectural Coating	Welders	Welders	6	46	4	1
3	Architectural Coating	Pressure Washer	Pressure Washers	6	13	2	1
3	Architectural Coating	Generator Sets	Generator Sets	12	84	4	1
4	Grading	Excavators	Excavators	1	158	6	1
4	Grading	Backhoes	Tractors/Loaders/Backhoes	1	97	6	1
4	Grading	Loader	Tractors/Loaders/Backhoes	1	97	6	1
4	Grading	Skid Steer Loader	Skid Steer Loaders	1	65	6	1
4	Grading	Dump Trucks	Off-Highway Trucks	1	402	2	1
4	Grading	Water Trucks	Off-Highway Trucks	1	402	2	1
4	Grading	Compactor	Plate Compactors	1	8	4	1
4	Grading	Trenchers	Trenchers	1	78	6	1
4	Grading	Pumps	Pumps	1	84	2	1
4	Grading	Pressure Washer	Pressure Washers	1	13	1	1
4	Building Construction	Cranes	Cranes	7	231	5	1
4	Building Construction	Forklifts	Forklifts	7	89	4	1
4	Building Construction	Generator Sets	Generator Sets	7	84	4	1
4	Building Construction	Backhoes	Tractors/Loaders/Backhoes	4	97	4	1
4	Building Construction	Loader	Tractors/Loaders/Backhoes	3	97	4	1
4	Building Construction	Welders	Welders	7	46	4	1
4	Building Construction	Aerial Lifts	Aerial Lifts	7	63	4	1
4	Building Construction	Excavators	Excavators	4	158	2	1
4	Building Construction	Dump Trucks	Off-Highway Trucks	4	402	4	1
4	Building Construction	Water Trucks	Off-Highway Trucks	2	402	4	1
4	Building Construction	Pile Driver	Cranes	2	300	3	1
4	Building Construction	Drill Rig	Bore/Drill Rigs	2	221	3	1
4	Building Construction	Skid-Steer Loader	Skid Steer Loaders	4	65	6	1
4	Building Construction	Air Compressors	Air Compressors	7	78	3	1
4	Building Construction	Pumps	Pumps	6	84	2	1
4	Building Construction	Cement and Mortar Mixers	Cement and Mortar Mixers	7	9	4	1
4	Building Construction	Pressure Washer	Pressure Washers	7	13	2	1
4	Paving	Pavers	Pavers	1	130	2	1
4	Paving	Rollers	Rollers	1	80	2	1
4	Paving	Loader	Tractors/Loaders/Backhoes	1	97	4	1
4	Paving	Backhoes	Tractors/Loaders/Backhoes	1	97	4	1
4	Paving	Skid-Steer Loader	Skid Steer Loaders	1	65	6	1
4	Paving	Compactor	Plate Compactors	1	8	4	1
4	Paving	Dump Trucks	Off-Highway Trucks	1	402	4	1
4	Paving	Water Trucks	Off-Highway Trucks	1	402	4	1
4	Paving	Rubber Tired/Track Dozers	Rubber Tired Dozers	1	247	2	1
4	Paving	Air Compressors	Air Compressors	1	78	2	1
4	Paving	Cement and Mortar Mixers	Cement and Mortar Mixers	1	9	4	1
4	Paving	Generator Sets	Generator Sets	1	84	4	1
4	Paving	Pressure Washer	Pressure Washers	1	13	1	1
4	Architectural Coating	Air Compressors	Air Compressors	16	78	6	1
4	Architectural Coating	Skid-Steer Loader	Skid Steer Loaders	8	65	6	1
4	Architectural Coating	Cranes	Cranes	8	231	6	1
4	Architectural Coating	Aerial Lifts	Aerial Lifts	8	63	6	1
4	Architectural Coating	Forklifts	Forklifts	8	89	6	1
4	Architectural Coating	Sweepers/Scrubbers	Sweepers/Scrubbers	2	64	2	1

Table AQ-1b
Project Construction Equipment List
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Subphase	Equipment Type	CalEEMod Equipment[1,2]	Number[2]	Horsepower[2]	Hours/day[2]	Fraction of Phase[3]
4	Architectural Coating	Cement and Mortar Mixers	Cement and Mortar Mixers	8	9	4	1
4	Architectural Coating	Welders	Welders	8	46	6	1
4	Architectural Coating	Pressure Washer	Pressure Washers	8	13	4	1
4	Architectural Coating	Generator Sets	Generator Sets	16	84	6	1
5	Building Construction	Cranes	Cranes	5	231	5	1
5	Building Construction	Forklifts	Forklifts	5	89	4	1
5	Building Construction	Generator Sets	Generator Sets	5	84	6	1
5	Building Construction	Backhoes	Tractors/Loaders/Backhoes	3	97	4	1
5	Building Construction	Loader	Tractors/Loaders/Backhoes	3	97	4	1
5	Building Construction	Welders	Welders	5	46	4	1
5	Building Construction	Aerial Lifts	Aerial Lifts	5	63	2	1
5	Building Construction	Excavators	Excavators	3	158	4	1
5	Building Construction	Dump Trucks	Off-Highway Trucks	2	402	2	1
5	Building Construction	Water Trucks	Off-Highway Trucks	2	402	4	1
5	Building Construction	Skid-Steer Loader	Skid Steer Loaders	3	65	6	1
5	Building Construction	Air Compressors	Air Compressors	5	78	3	1
5	Building Construction	Pumps	Pumps	6	84	3	1
5	Building Construction	Cement and Mortar Mixers	Cement and Mortar Mixers	5	9	4	1
5	Building Construction	Pressure Washer	Pressure Washers	5	13	2	1
5	Paving	Pavers	Pavers	1	130	2	1
5	Paving	Rollers	Rollers	1	80	2	1
5	Paving	Loader	Tractors/Loaders/Backhoes	1	97	4	1
5	Paving	Skid-Steer Loader	Skid Steer Loaders	1	65	6	1
5	Paving	Compactor	Plate Compactors	1	8	4	1
5	Paving	Dump Trucks	Off-Highway Trucks	1	402	4	1
5	Paving	Water Trucks	Off-Highway Trucks	1	402	4	1
5	Paving	Rubber Tired/Track Dozers	Rubber Tired Dozers	1	247	2	1
5	Paving	Air Compressors	Air Compressors	1	78	2	1
5	Paving	Cement and Mortar Mixers	Cement and Mortar Mixers	1	9	4	1
5	Paving	Pressure Washer	Pressure Washers	1	13	1	1
5	Architectural Coating	Air Compressors	Air Compressors	12	78	6	1
5	Architectural Coating	Skid-Steer Loader	Skid Steer Loaders	6	65	6	1
5	Architectural Coating	Cranes	Cranes	6	231	6	1
5	Architectural Coating	Aerial Lifts	Aerial Lifts	6	63	6	1
5	Architectural Coating	Forklifts	Forklifts	6	89	6	1
5	Architectural Coating	Sweepers/Scrubbers	Sweepers/Scrubbers	2	64	2	1
5	Architectural Coating	Cement and Mortar Mixers	Cement and Mortar Mixers	6	9	4	1
5	Architectural Coating	Welders	Welders	6	46	6	1
5	Architectural Coating	Pressure Washer	Pressure Washers	6	13	4	1
5	Architectural Coating	Generator Sets	Generator Sets	12	84	6	1
6	Grading	Excavators	Excavators	1	158	6	1
6	Grading	Backhoes	Tractors/Loaders/Backhoes	1	97	6	1
6	Grading	Loader	Tractors/Loaders/Backhoes	1	97	6	1
6	Grading	Skid Steer Loader	Skid Steer Loaders	1	65	6	1
6	Grading	Dump Trucks	Off-Highway Trucks	1	402	2	1
6	Grading	Water Trucks	Off-Highway Trucks	1	402	2	1
6	Grading	Compactor	Plate Compactors	1	8	4	1
6	Grading	Trenchers	Trenchers	1	78	6	1
6	Grading	Pumps	Pumps	1	84	2	1
6	Grading	Pressure Washer	Pressure Washers	1	13	1	1
6	Building Construction	Cranes	Cranes	2	231	6	1
6	Building Construction	Forklifts	Forklifts	2	89	4	1
6	Building Construction	Generator Sets	Generator Sets	2	84	6	1
6	Building Construction	Backhoes	Tractors/Loaders/Backhoes	1	97	4	1
6	Building Construction	Loader	Tractors/Loaders/Backhoes	1	97	4	1
6	Building Construction	Welders	Welders	2	46	4	1
6	Building Construction	Aerial Lifts	Aerial Lifts	2	63	2	1
6	Building Construction	Excavators	Excavators	1	158	4	1
6	Building Construction	Dump Trucks	Off-Highway Trucks	1	402	2	1
6	Building Construction	Water Trucks	Off-Highway Trucks	1	402	4	1
6	Building Construction	Skid-Steer Loader	Skid Steer Loaders	1	65	6	1
6	Building Construction	Air Compressors	Air Compressors	2	78	3	1
6	Building Construction	Pumps	Pumps	4	84	3	1
6	Building Construction	Cement and Mortar Mixers	Cement and Mortar Mixers	2	9	4	1
6	Building Construction	Pressure Washer	Pressure Washers	2	13	2	1
6	Paving	Pavers	Pavers	1	130	2	1
6	Paving	Rollers	Rollers	1	80	2	1
6	Paving	Loader	Tractors/Loaders/Backhoes	1	97	4	1
6	Paving	Skid-Steer Loader	Skid Steer Loaders	1	65	6	1
6	Paving	Compactor	Plate Compactors	1	8	4	1
6	Paving	Dump Trucks	Off-Highway Trucks	1	402	4	1
6	Paving	Water Trucks	Off-Highway Trucks	1	402	4	1
6	Paving	Rubber Tired/Track Dozers	Rubber Tired Dozers	1	247	2	1
6	Paving	Air Compressors	Air Compressors	1	78	2	1
6	Paving	Cement and Mortar Mixers	Cement and Mortar Mixers	1	9	4	1
6	Paving	Pressure Washer	Pressure Washers	1	13	1	1

Table AQ-1b
Project Construction Equipment List
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Subphase	Equipment Type	CalEEMod Equipment[1,2]	Number[2]	Horsepower[2]	Hours/day[2]	Fraction of Phase[3]
6	Architectural Coating	Air Compressors	Air Compressors	4	78	6	1
6	Architectural Coating	Skid-Steer Loader	Skid Steer Loaders	2	65	6	1
6	Architectural Coating	Cranes	Cranes	2	231	6	1
6	Architectural Coating	Aerial Lifts	Aerial Lifts	2	63	6	1
6	Architectural Coating	Forklifts	Forklifts	2	89	6	1
6	Architectural Coating	Sweepers/Scrubbers	Sweepers/Scrubbers	1	64	2	1
6	Architectural Coating	Cement and Mortar Mixers	Cement and Mortar Mixers	2	9	4	1
6	Architectural Coating	Welders	Welders	2	46	6	1
6	Architectural Coating	Pressure Washer	Pressure Washers	2	13	4	1
6	Architectural Coating	Generator Sets	Generator Sets	4	84	6	1

Notes:
1 The equipment provided by the Project Sponsor was mapped to CalEEMod default equipment.
2 Equipment quantity and usage hours are provided by the Project Sponsor. Horsepower (HP) is based on CalEEMod defaults except for pile drivers and tugboats where specific HP was provided by the Project Sponsor.
3 The duration of the construction related to the installation of the recreational dock during Phase 1 is assumed to be one month only.

Table AQ-1c
Project Construction Trip Assumptions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Trip Category	Total Trips[1]	Trip Length (mi)[2]
0	Worker	89,961	10.8
0.1		2,266	
1		193,594	
2		68,683	
3		111,537	
4		183,156	
5		97,730	
6		69,054	
0	Vendor	5,203	7.3
0.1		523	
1		25,197	
2		5,977	
3		11,706	
4		20,216	
5		14,581	
6		11,677	
0	Hauling	24,570	20
0.1		8,700	
1		12,549	
2		5,604	
3		6,865	
4		9,793	
5		8,211	
6		4,554	

Notes:
[1] Total number of worker, vendor and haul trips are provided by the Project Sponsor.
[2] Trip lengths for worker, vendor, and hauling trips are CalEEMod® defaults.

Abbreviations:
CalEEMod® - California Emissions Estimator MODel
mi - Miles

Table AQ-2
Emissions Calculation Methodology
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Type	Source	Methodology and Formula	Reference
Construction Equipment	Off-Road Equipment[1]	$Ec = \Sigma(EFc * HP * LF * Hr * C)$	OFFROAD2011 and ARB/USEPA Engine Standards
	Harbor Craft (barges and tugs)[2]	$E_b = EF_0 * F * (1+D*A/UL) * HP * LF * Hr$	ARB Commercial Harborcraft (CHC) Inventory
Construction On-Road Mobile Sources[3]	Exhaust – Running	$E_R = \Sigma(EF_R * VMT * C)$, where VMT = Trip Length * Trip Number	EMFAC2014
	Exhaust - Idling	$E_I = \Sigma(EF_I * \text{Trip Number} * T_I * C)$	EMFAC2014
Operational Generator Emissions[4]	Stationary Source	$E_{SS} = EF_{SS} * HP * Hr * C$	--
Operational On-Road Mobile Sources[3]	Exhaust - Running	$E_R = \Sigma(EF_R * VMT * C)$, where VMT = Trip Length * Trip Number	EMFAC2014
Operational TRU[5]	TRU Engine Exhaust	$E_t = \Sigma(EF_t * HP * LF * Hr)$	OFFROAD2017
Operational Area Sources[6]	Area sources including architectural coating, hearths, landscaping equipment, consumer products, and building energy use.	Various CalEEMod Methods, see User's Guide.	CalEEMod 2016.3.2

Notes:

1. E_c: off-road equipment exhaust emissions (lb).
EFc: emission factor (g/hp-hr) CalEEMod default emission factors used
HP: equipment horsepower OFFROAD2011
LF: equipment load factor OFFROAD2011
Hr: equipment hours
C: unit conversion factor
2. Eb: harbor craft exhaust emissions (lb)
EF_0: Engine-specific zero-hour emission factor (g/hp-hr) from the CHC Inventory
F: fuel correction factor from the CHC Inventory
D: engine deterioration factor from the CHC Inventory
A: engine age provided by the construction contractor
UL: engine useful life from the CHC Inventory
HP: equipment horsepower provided by the construction contractor
LF: equipment load factor from the CHC Inventory
Hr: hours of operation per day provided by the construction contractor

Table AQ-2
Emissions Calculation Methodology
Potrero Power Station Mixed-Use Development Project
San Francisco, California

[3.] On-road mobile sources include truck and passenger vehicle trips. Emissions associated with mobile sources were calculated using the following formulas.

E_R: running exhaust and running losses emissions (lb).

EF_R: running emission factor (g/mile). From EMFAC2014.

VMT: vehicle miles traveled

C: unit conversion factor

The calculation involves the following assumptions:

a. All material transporting and soil hauling trucks are heavy-heavy duty trucks.

b. Trip Length: The one-way trip length as calculated based on the truck route or the default length from CalEEMod or construction contractor.

c. Trip Number: provided by the construction contractor or estimated in CalEEMod.

E_I: vehicle idling emissions (lb).

EF_I: vehicle idling emission factor (g/hr-trip). From EMFAC2014.

T_I: idling time.

C: unit conversion factor.

[4.] Operational emissions from the generator were calculated using the following formulas:

E_{SS}: Stationary Source emissions.

EF_{SS}: Stationary Source emission factor (g/bhp-hr)

HP: equipment horsepower

Hr: hours of operation per year (hr)

C: unit conversion factor

[5.] E_t: TRU exhaust emissions (lb).

EF_t: emission factor (g/hp-hr) from ARB OFFROAD2017 model for TRU

HP: equipment load factor from the CARB TRU inventory

LF: equipment load factor from the CARB TRU inventory

Hr: equipment running hours, including travel and unloading time where travel hours = trip length/travel speed, trip length from CalEEMod default, travel speed = 10 miles/hour, unloading time is based on average delivery time of 27 minutes from McCormack et al. (2010) "Truck Trip Generation by Grocery Stores", prepared by University of Washington.

[6.] Emissions for the various area sources were calculated using CalEEMod®. See Tables AQ-8a and AQ-8b for additional details.

Abbreviations:

ARB: California Air Resources Board
CHC: Commercial Harborcraft
EF: Emission Factor
EMFAC: EMission FACtor Model
g: gram
HP: horsepower
TRU: transport refrigeration unit
lb: pound
LF: Load Factor
mi: mile
USEPA: United States Environmental Protection Agency
VMT: vehicle miles traveled

References:

ARB (2007). Emissions Estimation Methodology for Commercial Harbor Craft Operating in California. Available online at: https://www.arb.ca.gov/regact/2010/chc10/appc.pdf

ARB/USEPA. 2013. Table 1: ARB and USEPA Off-Road Compression-Ignition (Diesel) Engine Standards. Available online at: http://www.arb.ca.gov/msprog/ordiesel/documents/Off-Road_Diesel_Stds.xls

ARB. 2014. EMission FACtors Model, 2014 (EMFAC2014). Available online at: http://www.arb.ca.gov/emfac/2014/

CalEEMod® 2016.3.2. Available Online at: http://www.caleemod.com

McCormack et al. (2010). "Truck Trip Generation by Grocery Stores", prepared by University of Washington for Transportation Northwest (TransNow) and Washington State Department of Transportation. Available online at: http://www.wsdot.wa.gov/NR/rdonlyres/E7164661-25E6-421B-B828-C2EF5F909180/0/TruckTripGenerationGroceryStoresreportAugust2010.pdf

Table AQ-3
Architectural Coating Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Coating Category	Interior	Exterior	
VOC Content (g/L)[1]	100	150	
Emission Factor (lb/ft^2)[2]	0.0046	0.0069	
Land Use	**Fraction of Surface Area Painted[2] (%)**		**Painted Area Multiplier[2]**
Residential	75%	25%	2.7
Non-Residential	75%	25%	2
Parking	0%	6%	--

SCENARIO[3]: MAX RESIDENTIAL / MIN OFFICE / MIN HOTEL

Construction Phase	Block	Building Square Footage[4]			Painted Areas		ROG Emissions
		Residential Area	Non-residential Area	Parking Area	Interior	Exterior	
		ft^2	ft^2	ft^2	ft^2	ft^2	tons
1	8	361,142	11,814	129,999	749,034	257,478	2.6
	9	146,808	4,120	25,593	303,466	102,691	1.1
	12	185,141	39,571	5,357	434,267	145,077	1.5
2	7	406,527	25,051	32,209	860,794	288,864	3.0
	11	0	220,590	30,357	330,885	112,116	1.2
3	3	0	320,640	55,436	480,960	163,646	1.7
	4	163,000	7,757	50,917	341,711	116,959	1.2
4	5	252,860	46,537	287,933	581,847	211,225	2.1
	6	388,916	6,400	33,000	797,155	267,698	2.8
	10	0	248,299	38,457	372,449	126,457	1.3
5	1	386,571	20,363	33,937	813,351	273,153	2.8
	2	0	344,170	51,003	516,255	175,145	1.8
	14	77,760	0	9,720	157,464	53,071	0.55
6	13A	256,160	0	20,037	518,724	174,110	1.8
	13B	389,491	50,795	127,659	864,912	295,963	3.0
						Total	28.4

Notes:

1. VOC content of paint is assumed to be consistent with BAAQMD Regulation 8, Rule 3. ROG and VOC can be used interchangeably for CEQA analysis.
2. CalEEMod default architectural coating emissions parameters.
3. The max. residential/min. office/min. hotel scenario results in the highest ROG emissions, although the differences between scenarios are very small.
4. Building footprint provided by the Project Sponsor.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
CalEEMod® - California Emissions Estimator MODel
CEQA - California Environmental Quality Act
g - gram
gal - gallons
L - liters
lb - pounds
ROG - reactive organic gas
ft^2 - square feet
VOC - volatile organic compound

References:

BAAQMD. 2009. Regulation 8 Rule 3 Architectural Coatings. July.
California Air Pollution Control Officers Association (CAPCOA). 2016. Appendix A. Available at: http://www.caleemod.com

Table AQ-4
Asphalt Paving Off-Gassing Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Construction Phase	Building	Parking Area[1]		ROG Emission Factor[2]	ROG Emissions[2]
		ft²	acres	lb/acre	lb
1	8	129,999	3.0	2.6	7.8
	9	25,593	0.59		1.5
	12	5,357	0.12		0
2	7	32,209	0.74		1.9
	11	30,357	0.70		1.8
3	3	55,436	1.3		3.3
	4	50,917	1.2		3
4	5	287,933	6.6		17
	6	33,000	0.76		2.0
	10	38,457	0.88		2.3
5	1	33,937	0.78		2.0
	2	51,003	1.2		3.1
	14	9,720	0.22		0.58
6	13A	20,037	0.46		1.2
	13B	127,659	2.9		7.7
Total		**931,614**	**21**		**56**

Notes:

1. Parking areas based on total garage square footage provided by the Project Sponsor.
2. ROG emissions from paving the parking areas were calculated consistent with CalEEMod® methodology.

Abbreviations:

CalEEMod® - California Emissions Estimator MODel
CAPCOA - California Air Pollution Control Officers Association
CEQA - California Environmental Quality Act
lb - pound
ft² - square feet
ROG - Reactive Organic Gases

References:

California Air Pollution Control Officers Association (CAPCOA). 2016. Appendix A. Available at: http://www.caleemod.com

Table AQ-5a
Construction CAP Emissions - Uncontrolled
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Total CAP Emissions					
Phase	**Source**	**Emissions[2]**			
		ROG	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
		(lbs)			
0	Off-road Equipment[3]	7,337	70,604	3,270	3,084
0.1		196	1,838	74	68
1		9,211	81,046	3,615	3,441
2		3,236	27,233	1,141	1,097
3		4,807	40,046	1,576	1,490
4		7,517	58,774	2,070	1,979
5		3,969	23,478	531	531
6		2,853	16,294	383	383
0	On-road Trucks and Vehicles[4]	354	6,271	32	30
0.1		45	1,241	4.2	4.1
1		425	3,369	23	22
2		135	1,013	6.9	6.5
3		190	1,247	9.6	9.0
4		274	1,718	13	13
5		146	1,225	7.6	7.1
6		95	743	4.8	4.5
0	Architectural Coating Off-Gassing[5]	0	--	--	--
0.1		0	--	--	--
1		10,396	--	--	--
2		8,305	--	--	--
3		5,760	--	--	--
4		12,318	--	--	--
5		10,371	--	--	--
6		9,674	--	--	--
0	Paving Off-Gassing[6]	0	--	--	--
0.1		0	--	--	--
1		9.7	--	--	--
2		3.8	--	--	--
3		6.4	--	--	--
4		22	--	--	--
5		5.7	--	--	--
6		8.9	--	--	--
Total Emissions (lbs)		97,670	336,138	12,760	12,169

Table AQ-5a
Construction CAP Emissions - Uncontrolled
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Average Daily Emissions					
Phase	**Days of Construction per Phase**[7]	**Emissions**[2]			
		ROG	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
		lbs/day			
0	782	9.8	98	4.2	4.0
0.1	87	2.8	35	0.90	0.83
1	782	26	108	4.7	4.4
2	607	19	47	1.9	1.8
3	977	11	42	1.6	1.5
4	1194	17	51	1.7	1.7
5	695	21	36	0.77	0.77
6	1238	10	14	0.31	0.31

Maximum Yearly Emissions					
Phase	**Maximum Annual Construction days per Phase**[8]	**Emissions**[2]			
		ROG	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
		tons/yr			
0	260	1.3	13	0.55	0.52
0.1	87	0.12	1.5	0.039	0.036
1	260	3.3	14	0.60	0.58
2	260	2.5	6.0	0.25	0.24
3	260	1.4	5.5	0.21	0.20
4	260	2.2	6.6	0.23	0.22
5	260	2.7	4.6	0.10	0.10
6	260	1.3	1.8	0.041	0.041

Notes:

1. Emissions are calculated based on default CalEEMod® off-road construction equipment tiers for each piece of equipment in the emissions year being modeled.
2. Emissions were estimated using methodology consistent with CalEEMod® and Table AQ-2.
3. A construction equipment list and hours of operation for each piece of equipment for each phase were provided by the Project Sponsor.
4. Total number of worker, vendor and hauling trips was provided by the Project Sponsor for each Phase. Trip distances for worker, vendor and hauling trips were assumed to be CalEEMod defaults.
5. Architectural Coating emissions are calculated in Table AQ-3.
6. Paving emissions are calculated in Table AQ-4.

Table AQ-5a
Construction CAP Emissions - Uncontrolled
Potrero Power Station Mixed-Use Development Project
San Francisco, California

7. Days of construction per phase shown are the number of work days for each phase and were provided by the Project Sponsor. Total length of construction for the Project does not equal the sum of the total of days in each phase since there are overlapping phases.
8. Maximum Annual Construction Days per Phase shown represent the maximum number of work days expected over a 365-day timeframe for each Phase. Phase 0.1 Construction lasts for four months only, whereas all other Phases span multiple years.

Abbreviations:

CAP - criteria air pollutant

CalEEMod® - California Emissions Estimator Model

CAPCOA - California Air Pollution Control Officers Association

CEQA - California Environmental Quality Act

lb - pound

NOx - nitrogen oxide compounds ($NO + NO_2$)

PM_{10} - particulate matter less than 10 micrometers

$PM_{2.5}$ - particulate matter less than 2.5 micrometers

ROG - reactive organic gas

References:

California Air Pollution Control Officers Association (CAPCOA). 2016. CalEEMod.
Available at: http://www.caleemod.com.

Table AQ-5b
Construction CAP Emissions - Controlled
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Total CAP Emissions					
Phase	**Source**	**Emissions[2]**			
		ROG	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
		lbs			
0	Off-road Equipment[3]	1,731	12,149	389	389
0.1		49	264	6.3	6.3
1		2,037	17,069	264	264
2		674	6,417	77	77
3		1,347	11,136	161	161
4		1,856	18,571	210	210
5		931	9,368	105	105
6		686	6,314	79	79
0	On-road Trucks and Vehicles[4]	285	2,690	14	13
0.1		37	686	2.2	2.1
1		401	2,083	17	16
2		129	655	5.6	5.2
3		184	886	8.3	7.7
4		268	1,296	12	11
5		142	941	6.5	6.1
6		93	601	4.3	4.0
0	Architectural Coating[5] Off-Gassing	0	--	--	--
0.1		0	--	--	--
1		10,396	--	--	--
2		8,305	--	--	--
3		5,760	--	--	--
4		12,318	--	--	--
5		10,371	--	--	--
6		9,674	--	--	--
0	Paving[6] Off-Gassing	0	--	--	--
0.1		0	--	--	--
1		10	--	--	--
2		3.8	--	--	--
3		6.4	--	--	--
4		22	--	--	--
5		5.7	--	--	--
6		8.9	--	--	--
Total Emissions (lbs)		**67,732**	**91,126**	**1,361**	**1,357**

Table AQ-5b
Construction CAP Emissions - Controlled
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Average Daily Emissions					
Phase	Days of Construction per Phase[7]	Emissions[2]			
		ROG	NO_x	PM_{10}	$PM_{2.5}$
		lbs/day			
0	782	2.6	19	0.52	0.51
0.1	87	1.0	11	0.10	0.10
1	782	16	24	0.36	0.36
2	607	15	12	0.14	0.14
3	977	7.5	12	0.17	0.17
4	1194	12	17	0.19	0.18
5	695	16	15	0.16	0.16
6	1238	8.5	5.6	0.068	0.067

Maximum Yearly Emissions					
Phase	Maximum Annual Construction days per Phase[8]	Emissions[2]			
		ROG	NO_x	PM_{10}	$PM_{2.5}$
		tons/yr			
0	260	0.34	2.5	0.067	0.067
0.1	87	0.043	0.47	0.0043	0.0042
1	260	2.1	3.2	0.047	0.047
2	260	2.0	1.5	0.018	0.018
3	260	1.0	1.6	0.022	0.022
4	260	1.6	2.2	0.024	0.024
5	260	2.1	1.9	0.021	0.021
6	260	1.1	0.7	0.0088	0.0088

Notes:

1. Mitigated emissions are calculated based on Tier 4 emission factors for off-road construction equipment and Tier 3 for in-water equipment.
2. Emissions were estimated using methodology consistent with CalEEMod® and Table AQ-2.
3. A construction equipment list and hours of operation for each piece of equipment for each phase were provided by the Project Sponsor.
4. Total number of worker, vendor and hauling trips was provided by the Project Sponsor for each Phase. Trip distances for worker, vendor and hauling trips were assumed to be CalEEMod defaults. Mitigated emissions are calculated assuming 2010 or newer haul trucks are used.
5. Architectural Coating emissions are calculated in Table AQ-3.
6. Paving emissions are calculated in Table AQ-4.
7. Days of construction per phase shown are the number of work days for each phase and were provided by the Project Sponsor. Total length of construction for the Project does not equal the sum of the total of days in each phase since there are overlapping phases.
8. Maximum Annual Construction Days per Phase shown represent the maximum number of work days expected over a 365-day timeframe for each Phase. Phase 0.1 Construction lasts for four months only, whereas all other Phases span multiple years.

Table AQ-5b
Construction CAP Emissions - Controlled
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Abbreviations:

CAP - criteria air pollutant
CalEEMod® - California Emissions Estimator Model
CAPCOA - California Air Pollution Control Officers Association
CEQA - California Environmental Quality Act
lb - pound
NOx - nitrogen oxide compounds ($NO + NO_2$)
PM_{10} - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - reactive organic gas

References:

California Air Pollution Control Officers Association (CAPCOA). 2016. CalEEMod.
Available at: http://www.caleemod.com.

Table AQ-5c
Project Construction Equipment List, Uncontrolled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

									CalEEMod Emission Factor (g/bhp-hr)				Uncontrolled Emissions (lb)			
Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
0	Demolition	325	Aerial Lifts	4	63	0.31	2	1	1.9	0.042	0.038	0.11	208	4.6	4.3	13
0	Demolition	325	Air Compressors	4	78	0.48	2	1	3.4	0.22	0.22	0.49	730	48	48	105
0	Demolition	325	Concrete Crusher	4	85	0.78	4	1	3.2	0.21	0.21	0.47	2,469	157	157	360
0	Demolition	325	Concrete/Industrial Saws	8	81	0.73	2	1	3.2	0.19	0.19	0.40	2,144	129	129	272
0	Demolition	325	Dump Trucks	4	402	0.38	1	1	2.3	0.086	0.079	0.25	1,033	38	35	108
0	Demolition	325	Excavators	4	158	0.38	6	1	2.3	0.11	0.10	0.23	2,364	115	105	240
0	Demolition	325	Forklifts	2	89	0.20	2	1	4.1	0.31	0.28	0.46	212	16	15	24
0	Demolition	325	Generator Sets	4	84	0.74	4	1	3.2	0.18	0.18	0.36	2,261	128	128	259
0	Demolition	325	Loader	4	97	0.37	6	1	3.3	0.21	0.19	0.33	2,044	129	119	203
0	Demolition	325	Pressure Washer	2	13	0.30	1	1	4.5	0.21	0.21	0.65	25	1.2	1.2	3.6
0	Demolition	325	Roll-Off Trucks	2	402	0.38	0.5	1	2.3	0.086	0.079	0.25	258	9.4	8.7	27
0	Demolition	325	Rubber Tired/Track Dozers	2	247	0.40	4	1	6.5	0.32	0.29	0.62	3,640	178	164	347
0	Demolition	325	Skid-Steer Loader	4	65	0.37	6	1	2.5	0.11	0.100	0.19	1,032	45	41	78
0	Demolition	325	Sweepers/Scrubbers	2	64	0.46	3	1	4.5	0.36	0.33	0.52	562	45	42	65
0	Demolition	325	Water Trucks	2	402	0.38	4	1	2.3	0.086	0.079	0.25	2,065	75	69	217
0	Demolition	325	Welders	4	46	0.45	4	1	4.3	0.24	0.24	0.94	1,021	56	56	222
0	Site Preparation	260	Air Compressors	2	78	0.48	2	1	3.1	0.19	0.19	0.44	265	16	16	38
0	Site Preparation	260	Compactor	1	8	0.43	2	1	4.1	0.16	0.16	0.66	16	0.63	0.63	2.6
0	Site Preparation	260	Cranes	3	231	0.29	4	1	4.1	0.17	0.15	0.35	1,879	76	70	160
0	Site Preparation	260	Drill Rig	4	221	0.50	4	1	1.6	0.047	0.043	0.13	1,580	48	44	135
0	Site Preparation	260	Dump Trucks	3	402	0.38	4	1	2.0	0.072	0.066	0.22	2,063	76	70	237
0	Site Preparation	260	Excavators	3	158	0.38	6	1	2.0	0.099	0.091	0.22	1,266	61	56	135
0	Site Preparation	260	Loader	2	97	0.37	6	1	3.0	0.18	0.16	0.30	736	43	40	73
0	Site Preparation	260	Pavers	1	130	0.42	2	1	2.7	0.13	0.12	0.26	167	8.1	7.4	16
0	Site Preparation	260	Paving Equipment	1	132	0.36	2	1	2.3	0.11	0.11	0.23	124	6.1	5.7	12
0	Site Preparation	260	Pressure Washer	2	13	0.30	2	1	4.4	0.20	0.20	0.63	40	1.8	1.8	5.7
0	Site Preparation	260	Pump	4	84	0.74	2	1	2.9	0.16	0.16	0.35	835	46	46	99
0	Site Preparation	260	Rollers	1	80	0.38	2	1	3.6	0.22	0.20	0.35	123	7.5	6.9	12
0	Site Preparation	260	Rubber Tired/Track Dozers	2	247	0.40	6	1	6.3	0.31	0.28	0.60	4,229	205	189	403
0	Site Preparation	260	Skid-Steer Loader	1	65	0.37	2	1	2.4	0.096	0.089	0.18	65	2.6	2.4	4.9
0	Site Preparation	260	Water Trucks	2	402	0.38	4	1	2.0	0.072	0.066	0.22	1,375	50	46	158
0	Grading	282	Air Compressors	4	78	0.48	2	1	3.1	0.19	0.19	0.44	574	35	35	82
0	Grading	282	Compactor	1	8	0.43	2	1	4.1	0.16	0.16	0.66	18	0.69	0.69	2.8
0	Grading	282	Compactor	2	8	0.43	6	1	4.1	0.16	0.16	0.66	106	4.1	4.1	17
0	Grading	282	Dump Trucks	1	402	0.38	2	1	2.0	0.072	0.066	0.22	373	14	13	43
0	Grading	282	Dump Trucks	2	402	0.38	4	1	2.0	0.072	0.066	0.22	1,492	55	50	172
0	Grading	282	Excavators	2	158	0.38	2	1	2.0	0.099	0.091	0.22	305	15	14	32
0	Grading	282	Excavators	2	158	0.38	4	1	2.0	0.099	0.091	0.22	611	30	27	65
0	Grading	282	Graders	4	187	0.41	6	1	4.4	0.14	0.13	0.33	4,999	158	146	382
0	Grading	282	Loader	2	97	0.37	6	1	3.0	0.18	0.16	0.30	799	47	43	79
0	Grading	282	Manlift	1	63	0.31	2	1	1.7	0.033	0.031	0.11	42	0.80	0.74	2.6
0	Grading	282	Pole Trucks	2	402	0.38	4	1	2.0	0.072	0.066	0.22	1,492	55	50	172
0	Grading	282	Pressure Washer	4	13	0.30	1	1	4.4	0.20	0.20	0.63	43	2.0	2.0	6.2
0	Grading	282	Rubber Tired/Track Dozers	2	247	0.40	6	1	6.3	0.31	0.28	0.60	4,589	223	205	438
0	Grading	282	Scrapers	4	367	0.48	6	1	3.4	0.13	0.12	0.30	9,104	354	326	791
0	Grading	282	Skid Steer Loader	1	65	0.37	4	1	2.4	0.096	0.089	0.18	141	5.7	5.3	11
0	Grading	282	Skid Steer Loader	2	65	0.37	4	1	2.4	0.096	0.089	0.18	282	11	11	21
0	Grading	282	Tractors	2	97	0.37	4	1	3.0	0.18	0.16	0.30	533	31	29	53

Table AQ-5c
Project Construction Equipment List, Uncontrolled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

									CalEEMod Emission Factor (g/bhp-hr)				Uncontrolled Emissions (lb)			
Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
0	Grading	282	Water Trucks	1	402	0.38	4	1	2.0	0.072	0.066	0.22	746	27	25	86
0	Grading	282	Water Trucks	2	402	0.38	4	1	2.0	0.072	0.066	0.22	1,492	55	50	172
0.1	Grading	87	Air Compressors	1	78	0.48	2	1	2.5	0.12	0.12	0.37	35	1.8	1.8	5.3
0.1	Grading	87	Compactor	1	8	0.43	6	1	4.1	0.16	0.16	0.66	16	0.64	0.64	2.6
0.1	Grading	87	Dump Trucks	1	402	0.38	4	1	1.2	0.044	0.041	0.18	146	5.2	4.8	22
0.1	Grading	87	Excavators	1	158	0.38	4	1	1.3	0.065	0.060	0.17	61	3.0	2.8	7.9
0.1	Grading	87	Graders	1	187	0.41	6	1	3.1	0.100	0.092	0.26	271	8.8	8.1	23
0.1	Grading	87	Loader	1	97	0.37	6	1	2.3	0.11	0.097	0.23	94	4.3	4.0	9.4
0.1	Grading	87	Pressure Washer	1	13	0.30	1	1	4.3	0.18	0.18	0.61	3.2	0.14	0.14	0.46
0.1	Grading	87	Rubber Tired/Track Dozers	1	247	0.40	6	1	4.1	0.18	0.17	0.40	460	21	19	45
0.1	Grading	87	Scrapers	1	367	0.48	6	1	2.5	0.098	0.090	0.24	505	20	18	50
0.1	Grading	87	Skid Steer Loader	1	65	0.37	4	1	1.9	0.063	0.058	0.15	36	1.2	1.1	2.7
0.1	Grading	87	Tractors	1	97	0.37	4	1	2.3	0.11	0.097	0.23	63	2.9	2.7	6.2
0.1	Grading	87	Water Trucks	1	402	0.38	4	1	1.2	0.044	0.041	0.18	146	5.2	4.8	22
1	Grading	194	Backhoes	2	97	0.37	6	1	2.4	0.12	0.11	0.24	446	22	20	44
1	Grading	194	Compactor	1	8	0.43	4	1	4.1	0.16	0.16	0.66	24	0.95	0.95	3.9
1	Grading	194	Dump Trucks	1	402	0.38	2	1	1.3	0.048	0.044	0.19	174	6.3	5.8	25
1	Grading	194	Excavators	2	158	0.38	6	1	1.5	0.072	0.066	0.18	454	22	20	55
1	Grading	194	Generator Sets	1	84	0.74	6	1	2.5	0.12	0.12	0.28	396	19	19	45
1	Grading	194	Loader	1	97	0.37	6	1	2.4	0.12	0.11	0.24	223	11	10	22
1	Grading	194	Pressure Washer	1	13	0.30	1	1	4.3	0.19	0.19	0.62	7.3	0.31	0.31	1.0
1	Grading	194	Pumps	1	84	0.74	2	1	2.5	0.12	0.12	0.30	134	6.5	6.5	16
1	Grading	194	Skid Steer Loader	1	65	0.37	6	1	2.0	0.069	0.063	0.15	125	4.2	3.9	9.4
1	Grading	194	Trenchers	2	78	0.50	6	1	4.7	0.33	0.30	0.50	947	66	60	102
1	Grading	194	Water Trucks	1	402	0.38	2	1	1.3	0.048	0.044	0.19	174	6.3	5.8	25
1	Building Construction	653	Aerial Lifts	6	63	0.31	2	1	1.6	0.030	0.028	0.10	545	10	9.3	35
1	Building Construction	653	Air Compressors	1	78	0.48	2	1	2.8	0.17	0.17	0.41	307	18	18	45
1	Building Construction	653	Air Compressors	6	78	0.48	3	1	2.8	0.17	0.17	0.41	2,759	160	160	401
1	Building Construction	653	Backhoes	4	97	0.37	4	1	2.6	0.14	0.13	0.26	2,179	117	108	214
1	Building Construction	653	Cement and Mortar Mixers	1	9	0.56	2	1	4.1	0.16	0.16	0.66	60	2.3	2.3	9.6
1	Building Construction	653	Cement and Mortar Mixers	6	9	0.56	4	1	4.1	0.16	0.16	0.66	721	28	28	115
1	Building Construction	653	Cranes	1	231	0.29	2	1	3.5	0.15	0.14	0.32	678	28	26	60
1	Building Construction	653	Cranes	6	231	0.29	5	1	3.5	0.15	0.14	0.32	10,177	423	389	907
1	Building Construction	653	Drill Rig	4	221	0.50	4	1	1.2	0.037	0.034	0.11	2,974	95	88	294
1	Building Construction	653	Dump Trucks	4	402	0.38	2	1	1.5	0.054	0.050	0.20	2,633	96	88	347
1	Building Construction	653	Excavators	1	158	0.38	2	1	1.7	0.081	0.075	0.19	291	14	13	33
1	Building Construction	653	Excavators	4	158	0.38	4	1	1.7	0.081	0.075	0.19	2,332	113	104	266
1	Building Construction	653	Forklifts	1	89	0.20	2	1	3.4	0.22	0.20	0.36	173	11	11	19
1	Building Construction	653	Forklifts	6	89	0.20	4	1	3.4	0.22	0.20	0.36	2,076	138	127	224
1	Building Construction	653	Generator Sets	1	84	0.74	2	1	2.7	0.13	0.13	0.30	478	24	24	54
1	Building Construction	653	Generator Sets	6	84	0.74	4	1	2.7	0.13	0.13	0.30	5,735	288	288	646
1	Building Construction	653	Loader	4	97	0.37	4	1	2.6	0.14	0.13	0.26	2,179	117	108	214
1	Building Construction	653	Pile Driver	4	300	0.29	4	1	2.9	0.12	0.11	0.26	5,760	233	215	519
1	Building Construction	653	Pressure Washer	6	13	0.30	2	1	4.4	0.19	0.19	0.63	296	13	13	42
1	Building Construction	653	Pumps	12	84	0.74	2	1	2.7	0.14	0.14	0.32	5,815	305	305	689
1	Building Construction	653	Skid-Steer Loader	1	65	0.37	2	1	2.2	0.081	0.075	0.16	151	5.6	5.2	11
1	Building Construction	653	Skid-Steer Loader	4	65	0.37	6	1	2.2	0.081	0.075	0.16	1,811	67	62	136
1	Building Construction	653	Water Trucks	2	402	0.38	4	1	1.5	0.054	0.050	0.20	2,633	96	88	347

Table AQ-5c
Project Construction Equipment List, Uncontrolled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

									CalEEMod Emission Factor (g/bhp-hr)				Uncontrolled Emissions (lb)			
Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
1	Building Construction	653	Welders	1	46	0.45	2	1	4.0	0.18	0.18	0.76	239	10	10	45
1	Building Construction	653	Welders	6	46	0.45	4	1	4.0	0.18	0.18	0.76	2,865	125	125	542
1	Paving	347	Air Compressors	4	78	0.48	3	1	2.5	0.12	0.12	0.37	846	42	42	126
1	Paving	347	Backhoes	2	97	0.37	4	1	2.3	0.11	0.097	0.23	501	23	21	50
1	Paving	347	Cement and Mortar Mixers	3	9	0.56	4	1	4.1	0.16	0.16	0.66	192	7.5	7.5	31
1	Paving	347	Compactor	1	8	0.43	4	1	4.1	0.16	0.16	0.66	44	1.7	1.7	7.0
1	Paving	347	Dump Trucks	2	402	0.38	6	1	1.2	0.044	0.041	0.18	1,742	63	58	260
1	Paving	347	Generator Sets	3	84	0.74	3	1	2.3	0.10	0.10	0.26	994	43	43	111
1	Paving	347	Loader	2	97	0.37	4	1	2.3	0.11	0.097	0.23	501	23	21	50
1	Paving	347	Pavers	1	130	0.42	1	1	1.8	0.084	0.078	0.19	75	3.5	3.2	7.9
1	Paving	347	Pressure Washer	2	13	0.30	1	1	4.3	0.18	0.18	0.61	26	1.1	1.1	3.7
1	Paving	347	Rollers	2	80	0.38	1	1	2.8	0.15	0.14	0.27	131	6.9	6.4	12
1	Paving	347	Rubber Tired/Track Dozers	2	247	0.40	4	1	4.1	0.18	0.17	0.40	2,445	110	101	238
1	Paving	347	Skid-Steer Loader	2	65	0.37	6	1	1.9	0.063	0.058	0.15	429	14	13	32
1	Paving	347	Water Trucks	2	402	0.38	6	1	1.2	0.044	0.041	0.18	1,742	63	58	260
1	Architectural Coating	129	Aerial Lifts	8	63	0.31	6	1	1.5	0.026	0.024	0.099	399	6.8	6.3	26
1	Architectural Coating	129	Air Compressors	16	78	0.48	6	1	2.3	0.10	0.10	0.35	2,356	106	106	351
1	Architectural Coating	129	Cement and Mortar Mixers	8	9	0.56	4	1	4.1	0.16	0.16	0.66	189	7.4	7.4	30
1	Architectural Coating	129	Cranes	8	231	0.29	6	1	2.7	0.11	0.10	0.26	2,428	103	95	240
1	Architectural Coating	129	Forklifts	8	89	0.20	6	1	2.6	0.14	0.13	0.28	635	34	31	67
1	Architectural Coating	129	Generator Sets	16	84	0.74	6	1	2.2	0.087	0.087	0.24	3,696	147	147	411
1	Architectural Coating	129	Pressure Washer	8	13	0.30	4	1	4.3	0.18	0.18	0.61	151	6.3	6.3	21
1	Architectural Coating	129	Skid-Steer Loader	8	65	0.37	6	1	1.9	0.057	0.052	0.14	609	18	17	46
1	Architectural Coating	129	Sweepers/Scrubbers	2	64	0.46	2	1	2.8	0.16	0.15	0.30	93	5.3	4.9	10
1	Architectural Coating	129	Welders	8	46	0.45	6	1	3.7	0.11	0.11	0.60	1,035	32	32	170
2	Building Construction	434	Aerial Lifts	4	63	0.31	2	1	1.5	0.026	0.024	0.10	227	3.9	3.6	15
2	Building Construction	434	Air Compressors	4	78	0.48	3	1	2.5	0.12	0.12	0.37	1,059	53	53	157
2	Building Construction	434	Backhoes	2	97	0.37	4	1	2.3	0.11	0.097	0.23	626	29	26	62
2	Building Construction	434	Cement and Mortar Mixers	4	9	0.56	4	1	4.1	0.16	0.16	0.66	320	12	12	51
2	Building Construction	434	Cranes	4	231	0.29	5	1	3.0	0.12	0.11	0.28	3,780	157	145	358
2	Building Construction	434	Dump Trucks	2	402	0.38	2	1	1.2	0.044	0.041	0.18	726	26	24	108
2	Building Construction	434	Excavators	4	158	0.38	4	1	1.3	0.065	0.060	0.17	1,225	60	55	157
2	Building Construction	434	Forklifts	4	89	0.20	4	1	2.8	0.16	0.15	0.30	771	45	41	82
2	Building Construction	434	Generator Sets	4	84	0.74	6	1	2.3	0.10	0.10	0.26	3,315	144	144	371
2	Building Construction	434	Loader	2	97	0.37	4	1	2.3	0.11	0.097	0.23	626	29	26	62
2	Building Construction	434	Pressure Washer	4	13	0.30	2	1	4.3	0.18	0.18	0.61	129	5.4	5.4	18
2	Building Construction	434	Pumps	6	84	0.74	3	1	2.4	0.11	0.11	0.28	2,520	115	115	299
2	Building Construction	434	Skid-Steer Loader	2	65	0.37	6	1	1.9	0.063	0.058	0.15	536	17	16	40
2	Building Construction	434	Water Trucks	2	402	0.38	4	1	1.2	0.044	0.041	0.18	1,452	52	48	217
2	Building Construction	434	Welders	4	46	0.45	4	1	3.8	0.13	0.13	0.65	1,199	41	41	205
2	Paving	129	Air Compressors	1	78	0.48	4	1	2.3	0.10	0.10	0.35	98	4.4	4.4	15
2	Paving	129	Backhoes	1	97	0.37	4	1	2.1	0.085	0.079	0.21	85	3.5	3.2	8.5
2	Paving	129	Dump Trucks	1	402	0.38	2	1	1.1	0.038	0.035	0.18	93	3.3	3.0	15
2	Paving	129	Generator Sets	1	84	0.74	4	1	2.2	0.087	0.087	0.24	154	6.1	6.1	17
2	Paving	129	Loader	1	97	0.37	4	1	2.1	0.085	0.079	0.21	85	3.5	3.2	8.5
2	Paving	129	Pressure Washer	1	13	0.30	1	1	4.3	0.18	0.18	0.61	4.7	0.20	0.20	0.67
2	Paving	129	Rubber Tired/Track Dozers	1	247	0.40	2	1	3.8	0.17	0.15	0.37	211	9.2	8.5	21
2	Paving	129	Skid-Steer Loader	1	65	0.37	6	1	1.9	0.057	0.052	0.14	76	2.3	2.1	5.7

Table AQ-5c
Project Construction Equipment List, Uncontrolled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

									CalEEMod Emission Factor (g/bhp-hr)				Uncontrolled Emissions (lb)			
Phase	**Description**	**Phase Length (Days)**	**Equipment[1,2]**	**Quantity[2]**	**Horsepower (HP)[3]**	**Load Factor[3]**	**Daily Usage (Hours)[2]**	**Fraction of Phase**	**NOx**	**PM10**	**PM2.5**	**ROG**	**NOx**	**PM10**	**PM2.5**	**ROG**
2	Paving	129	Water Trucks	1	402	0.38	2	1	1.1	0.038	0.035	0.18	93	3.3	3.0	15
2	Architectural Coating	172	Aerial Lifts	4	63	0.31	6	1	1.5	0.026	0.024	0.099	267	4.6	4.2	17
2	Architectural Coating	172	Air Compressors	8	78	0.48	6	1	2.3	0.10	0.10	0.35	1,578	71	71	235
2	Architectural Coating	172	Cement and Mortar Mixers	4	9	0.56	4	1	4.1	0.16	0.16	0.66	127	4.9	4.9	20
2	Architectural Coating	172	Cranes	4	231	0.29	6	1	2.7	0.11	0.10	0.26	1,625	69	64	160
2	Architectural Coating	172	Forklifts	4	89	0.20	6	1	2.6	0.14	0.13	0.28	425	23	21	45
2	Architectural Coating	172	Generator Sets	8	84	0.74	6	1	2.2	0.087	0.087	0.24	2,474	99	99	275
2	Architectural Coating	172	Pressure Washer	4	13	0.30	4	1	4.3	0.18	0.18	0.61	101	4.2	4.2	14
2	Architectural Coating	172	Skid-Steer Loader	4	65	0.37	6	1	1.9	0.057	0.052	0.14	407	12	11	30
2	Architectural Coating	172	Sweepers/Scrubbers	2	64	0.46	2	1	2.8	0.16	0.15	0.30	125	7.1	6.5	13
2	Architectural Coating	172	Welders	4	46	0.45	6	1	3.7	0.11	0.11	0.60	693	21	21	114
3	Grading	64	Backhoes	1	97	0.37	6	1	2.1	0.085	0.079	0.21	63	2.6	2.4	6.3
3	Grading	64	Compactor	1	8	0.43	4	1	4.1	0.16	0.16	0.66	8.0	0.31	0.31	1.3
3	Grading	64	Dump Trucks	1	402	0.38	2	1	1.1	0.038	0.035	0.18	46	1.6	1.5	7.6
3	Grading	64	Excavators	1	158	0.38	6	1	1.2	0.057	0.052	0.16	59	2.9	2.6	8.0
3	Grading	64	Loader	1	97	0.37	6	1	2.1	0.085	0.079	0.21	63	2.6	2.4	6.3
3	Grading	64	Pressure Washer	1	13	0.30	1	1	4.3	0.18	0.18	0.61	2.3	0.097	0.097	0.33
3	Grading	64	Pumps	1	84	0.74	2	1	2.2	0.092	0.092	0.26	39	1.6	1.6	4.5
3	Grading	64	Skid Steer Loader	1	65	0.37	6	1	1.9	0.057	0.052	0.14	38	1.1	1.1	2.8
3	Grading	64	Trenchers	1	78	0.50	6	1	4.3	0.28	0.26	0.46	141	9.4	8.6	15
3	Grading	64	Water Trucks	1	402	0.38	2	1	1.1	0.038	0.035	0.18	46	1.6	1.5	7.6
3	Building Construction	607	Aerial Lifts	4	63	0.31	4	1	1.5	0.026	0.024	0.099	628	11	9.9	41
3	Building Construction	607	Air Compressors	4	78	0.48	3	1	2.3	0.10	0.10	0.35	1,391	63	63	207
3	Building Construction	607	Backhoes	2	97	0.37	4	1	2.1	0.085	0.079	0.21	807	33	30	80
3	Building Construction	607	Cement and Mortar Mixers	4	9	0.56	4	1	4.1	0.16	0.16	0.66	447	17	17	71
3	Building Construction	607	Cranes	4	231	0.29	5	1	2.7	0.11	0.10	0.26	4,777	203	187	472
3	Building Construction	607	Drill Rig	4	221	0.50	4	1	0.96	0.031	0.029	0.11	2,276	75	69	255
3	Building Construction	607	Dump Trucks	4	402	0.38	4	1	1.1	0.038	0.035	0.18	3,498	125	115	583
3	Building Construction	607	Excavators	4	158	0.38	4	1	1.2	0.057	0.052	0.16	1,491	73	67	204
3	Building Construction	607	Forklifts	4	89	0.20	4	1	2.6	0.14	0.13	0.28	999	53	49	106
3	Building Construction	607	Generator Sets	4	84	0.74	4	1	2.2	0.087	0.087	0.24	2,909	116	116	323
3	Building Construction	607	Loader	4	97	0.37	4	1	2.1	0.085	0.079	0.21	1,615	65	60	160
3	Building Construction	607	Pile Driver	4	300	0.29	4	1	2.2	0.088	0.081	0.22	3,988	163	150	404
3	Building Construction	607	Pressure Washer	4	13	0.30	2	1	4.3	0.18	0.18	0.61	178	7.4	7.4	25
3	Building Construction	607	Pumps	8	84	0.74	2	1	2.2	0.092	0.092	0.26	2,946	122	122	347
3	Building Construction	607	Skid-Steer Loader	4	65	0.37	6	1	1.9	0.057	0.052	0.14	1,437	44	40	108
3	Building Construction	607	Water Trucks	2	402	0.38	4	1	1.1	0.038	0.035	0.18	1,749	63	58	291
3	Building Construction	607	Welders	4	46	0.45	4	1	3.7	0.11	0.11	0.60	1,630	50	50	267
3	Paving	217	Air Compressors	1	78	0.48	2	1	2.3	0.10	0.10	0.35	83	3.7	3.7	12
3	Paving	217	Backhoes	1	97	0.37	4	1	2.1	0.085	0.079	0.21	144	5.8	5.4	14
3	Paving	217	Cement and Mortar Mixers	1	9	0.56	6	1	4.1	0.16	0.16	0.66	60	2.3	2.3	9.6
3	Paving	217	Compactor	1	8	0.43	4	1	4.1	0.16	0.16	0.66	27	1.1	1.1	4.4
3	Paving	217	Dump Trucks	1	402	0.38	4	1	1.1	0.038	0.035	0.18	313	11	10	52
3	Paving	217	Generator Sets	1	84	0.74	4	1	2.2	0.087	0.087	0.24	260	10	10	29
3	Paving	217	Loader	1	97	0.37	4	1	2.1	0.085	0.079	0.21	144	5.8	5.4	14
3	Paving	217	Pavers	1	130	0.42	2	1	1.6	0.077	0.071	0.18	85	4.0	3.7	9.3
3	Paving	217	Pressure Washer	1	13	0.30	1	1	4.3	0.18	0.18	0.61	8.0	0.33	0.33	1.1
3	Paving	217	Rollers	1	80	0.38	2	1	2.7	0.14	0.12	0.26	77	3.9	3.6	7.3

Table AQ-5c
Project Construction Equipment List, Uncontrolled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

									CalEEMod Emission Factor (g/bhp-hr)				Uncontrolled Emissions (lb)			
Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
3	Paving	217	Rubber Tired/Track Dozers	1	247	0.40	2	1	3.8	0.17	0.15	0.37	356	16	14	35
3	Paving	217	Skid-Steer Loader	1	65	0.37	6	1	1.9	0.057	0.052	0.14	128	3.9	3.6	9.6
3	Paving	217	Water Trucks	1	402	0.38	4	1	1.1	0.038	0.035	0.18	313	11	10	52
3	Architectural Coating	109	Aerial Lifts	6	63	0.31	4	1	1.5	0.026	0.024	0.099	169	2.9	2.7	11
3	Architectural Coating	109	Air Compressors	12	78	0.48	3	1	2.3	0.10	0.10	0.35	746	34	34	111
3	Architectural Coating	109	Cement and Mortar Mixers	6	9	0.56	2	1	4.1	0.16	0.16	0.66	60	2.3	2.3	9.6
3	Architectural Coating	109	Cranes	6	231	0.29	4	1	2.7	0.11	0.10	0.26	1,025	44	40	101
3	Architectural Coating	109	Forklifts	6	89	0.20	4	1	2.6	0.14	0.13	0.28	268	14	13	28
3	Architectural Coating	109	Generator Sets	12	84	0.74	4	1	2.2	0.087	0.087	0.24	1,560	62	62	174
3	Architectural Coating	109	Pressure Washer	6	13	0.30	2	1	4.3	0.18	0.18	0.61	48	2.0	2.0	6.8
3	Architectural Coating	109	Skid-Steer Loader	6	65	0.37	6	1	1.9	0.057	0.052	0.14	385	12	11	29
3	Architectural Coating	109	Sweepers/Scrubbers	2	64	0.46	2	1	2.8	0.16	0.15	0.30	79	4.5	4.1	8.5
3	Architectural Coating	109	Welders	6	46	0.45	4	1	3.7	0.11	0.11	0.60	437	13	13	72
4	Grading	64	Backhoes	1	97	0.37	6	1	2.1	0.085	0.079	0.21	63	2.6	2.4	6.3
4	Grading	64	Compactor	1	8	0.43	4	1	4.1	0.16	0.16	0.66	8.0	0.31	0.31	1.3
4	Grading	64	Dump Trucks	1	402	0.38	2	1	1.1	0.038	0.035	0.18	46	1.6	1.5	7.6
4	Grading	64	Excavators	1	158	0.38	6	1	1.2	0.057	0.052	0.16	59	2.9	2.6	8.0
4	Grading	64	Loader	1	97	0.37	6	1	2.1	0.085	0.079	0.21	63	2.6	2.4	6.3
4	Grading	64	Pressure Washer	1	13	0.30	1	1	4.3	0.18	0.18	0.61	2.3	0.097	0.097	0.33
4	Grading	64	Pumps	1	84	0.74	2	1	2.2	0.092	0.092	0.26	39	1.6	1.6	4.5
4	Grading	64	Skid Steer Loader	1	65	0.37	6	1	1.9	0.057	0.052	0.14	38	1.1	1.1	2.8
4	Grading	64	Trenchers	1	78	0.50	6	1	4.3	0.28	0.26	0.46	141	9.4	8.6	15
4	Grading	64	Water Trucks	1	402	0.38	2	1	1.1	0.038	0.035	0.18	46	1.6	1.5	7.6
4	Building Construction	716	Aerial Lifts	7	63	0.31	4	1	1.5	0.026	0.024	0.099	1,297	22	20	85
4	Building Construction	716	Air Compressors	7	78	0.48	3	1	2.3	0.10	0.10	0.35	2,872	129	129	428
4	Building Construction	716	Backhoes	4	97	0.37	4	1	2.1	0.085	0.079	0.21	1,905	77	71	189
4	Building Construction	716	Cement and Mortar Mixers	7	9	0.56	4	1	4.1	0.16	0.16	0.66	923	36	36	147
4	Building Construction	716	Cranes	7	231	0.29	5	1	2.7	0.11	0.10	0.26	9,864	419	386	974
4	Building Construction	716	Drill Rig	2	221	0.50	3	1	0.96	0.031	0.029	0.11	1,007	33	30	113
4	Building Construction	716	Dump Trucks	4	402	0.38	4	1	1.1	0.038	0.035	0.18	4,127	148	136	688
4	Building Construction	716	Excavators	4	158	0.38	2	1	1.2	0.057	0.052	0.16	880	43	40	120
4	Building Construction	716	Forklifts	7	89	0.20	4	1	2.6	0.14	0.13	0.28	2,063	110	102	219
4	Building Construction	716	Generator Sets	7	84	0.74	4	1	2.2	0.087	0.087	0.24	6,007	239	239	668
4	Building Construction	716	Loader	3	97	0.37	4	1	2.1	0.085	0.079	0.21	1,429	58	53	141
4	Building Construction	716	Pile Driver	2	300	0.29	3	1	2.2	0.088	0.081	0.22	1,764	72	66	179
4	Building Construction	716	Pressure Washer	7	13	0.30	2	1	4.3	0.18	0.18	0.61	368	15	15	52
4	Building Construction	716	Pumps	6	84	0.74	2	1	2.2	0.092	0.092	0.26	2,607	108	108	307
4	Building Construction	716	Skid-Steer Loader	4	65	0.37	6	1	1.9	0.057	0.052	0.14	1,695	51	47	127
4	Building Construction	716	Water Trucks	2	402	0.38	4	1	1.1	0.038	0.035	0.18	2,064	74	68	344
4	Building Construction	716	Welders	7	46	0.45	4	1	3.7	0.11	0.11	0.60	3,365	103	103	551
4	Paving	151	Air Compressors	1	78	0.48	2	1	1.7	0.041	0.041	0.26	43	1.0	1.0	6.6
4	Paving	151	Backhoes	1	97	0.37	4	1	1.6	0.030	0.030	0.27	77	1.4	1.4	13
4	Paving	151	Cement and Mortar Mixers	1	9	0.56	4	1	4.1	0.16	0.16	0.66	28	1.1	1.1	4.4
4	Paving	151	Compactor	1	8	0.43	4	1	4.1	0.16	0.16	0.66	19	0.74	0.74	3.0
4	Paving	151	Dump Trucks	1	402	0.38	4	1	0.46	0.017	0.017	0.22	93	3.5	3.5	44
4	Paving	151	Generator Sets	1	84	0.74	4	1	1.6	0.034	0.034	0.18	136	2.8	2.8	15
4	Paving	151	Loader	1	97	0.37	4	1	1.6	0.030	0.030	0.27	77	1.4	1.4	13
4	Paving	151	Pavers	1	130	0.42	2	1	1.4	0.074	0.074	0.30	51	2.7	2.7	11

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Potrero Power Station Mixed-Use Development Project
San Francisco, California

									CalEEMod Emission Factor (g/bhp-hr)				Uncontrolled Emissions (lb)			
Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
4	Paving	151	Pressure Washer	1	13	0.30	1	1	4.2	0.17	0.17	0.59	5.4	0.22	0.22	0.77
4	Paving	151	Rollers	1	80	0.38	2	1	2.0	0.066	0.066	0.30	39	1.3	1.3	6.0
4	Paving	151	Rubber Tired/Track Dozers	1	247	0.40	2	1	1.8	0.069	0.069	0.34	119	4.5	4.5	22
4	Paving	151	Skid-Steer Loader	1	65	0.37	6	1	1.5	0.017	0.017	0.21	71	0.81	0.81	10
4	Paving	151	Water Trucks	1	402	0.38	4	1	0.46	0.017	0.017	0.22	93	3.5	3.5	44
4	Architectural Coating	216	Aerial Lifts	8	63	0.31	6	1	1.7	0.036	0.036	0.19	737	16	16	84
4	Architectural Coating	216	Air Compressors	16	78	0.48	6	1	1.7	0.041	0.041	0.26	2,965	70	70	453
4	Architectural Coating	216	Cement and Mortar Mixers	8	9	0.56	4	1	4.1	0.16	0.16	0.66	319	12	12	51
4	Architectural Coating	216	Cranes	8	231	0.29	6	1	0.75	0.024	0.024	0.22	1,140	37	37	341
4	Architectural Coating	216	Forklifts	8	89	0.20	6	1	1.6	0.021	0.021	0.28	637	8.6	8.6	116
4	Architectural Coating	216	Generator Sets	16	84	0.74	6	1	1.6	0.034	0.034	0.18	4,684	97	97	507
4	Architectural Coating	216	Pressure Washer	8	13	0.30	4	1	4.2	0.17	0.17	0.59	248	9.9	9.9	35
4	Architectural Coating	216	Skid-Steer Loader	8	65	0.37	6	1	1.5	0.017	0.017	0.21	810	9.3	9.3	117
4	Architectural Coating	216	Sweepers/Scrubbers	2	64	0.46	2	1	1.6	0.023	0.023	0.26	87	1.3	1.3	15
4	Architectural Coating	216	Welders	8	46	0.45	6	1	3.3	0.045	0.045	0.45	1,552	21	21	213
5	Building Construction	521	Aerial Lifts	5	63	0.31	2	1	1.7	0.036	0.036	0.19	369	8.0	8.0	42
5	Building Construction	521	Air Compressors	5	78	0.48	3	1	1.7	0.041	0.041	0.26	1,115	26	26	170
5	Building Construction	521	Backhoes	3	97	0.37	4	1	1.6	0.030	0.030	0.27	800	15	15	134
5	Building Construction	521	Cement and Mortar Mixers	5	9	0.56	4	1	4.1	0.16	0.16	0.66	479	19	19	76
5	Building Construction	521	Cranes	5	231	0.29	5	1	0.75	0.024	0.024	0.22	1,429	46	46	428
5	Building Construction	521	Dump Trucks	2	402	0.38	2	1	0.46	0.017	0.017	0.22	323	12	12	152
5	Building Construction	521	Excavators	3	158	0.38	4	1	0.53	0.023	0.023	0.21	436	19	19	177
5	Building Construction	521	Forklifts	5	89	0.20	4	1	1.6	0.021	0.021	0.28	639	8.6	8.6	116
5	Building Construction	521	Generator Sets	5	84	0.74	6	1	1.6	0.034	0.034	0.18	3,522	73	73	381
5	Building Construction	521	Loader	3	97	0.37	4	1	1.6	0.030	0.030	0.27	800	15	15	134
5	Building Construction	521	Pressure Washer	5	13	0.30	2	1	4.2	0.17	0.17	0.59	186	7.4	7.4	27
5	Building Construction	521	Pumps	6	84	0.74	3	1	1.7	0.036	0.036	0.19	2,135	46	46	248
5	Building Construction	521	Skid-Steer Loader	3	65	0.37	6	1	1.5	0.017	0.017	0.21	731	8.4	8.4	106
5	Building Construction	521	Water Trucks	2	402	0.38	4	1	0.46	0.017	0.017	0.22	646	24	24	305
5	Building Construction	521	Welders	5	46	0.45	4	1	3.3	0.045	0.045	0.45	1,556	21	21	213
5	Paving	87	Air Compressors	1	78	0.48	2	1	1.7	0.041	0.041	0.26	25	0.59	0.59	3.8
5	Paving	87	Cement and Mortar Mixers	1	9	0.56	4	1	4.1	0.16	0.16	0.66	16	0.62	0.62	2.6
5	Paving	87	Compactor	1	8	0.43	4	1	4.1	0.16	0.16	0.66	11	0.43	0.43	1.7
5	Paving	87	Dump Trucks	1	402	0.38	4	1	0.46	0.017	0.017	0.22	54	2.0	2.0	25
5	Paving	87	Loader	1	97	0.37	4	1	1.6	0.030	0.030	0.27	45	0.82	0.82	7.5
5	Paving	87	Pavers	1	130	0.42	2	1	1.4	0.074	0.074	0.30	30	1.5	1.5	6.2
5	Paving	87	Pressure Washer	1	13	0.30	1	1	4.2	0.17	0.17	0.59	3.1	0.12	0.12	0.44
5	Paving	87	Rollers	1	80	0.38	2	1	2.0	0.066	0.066	0.30	22	0.76	0.76	3.4
5	Paving	87	Rubber Tired/Track Dozers	1	247	0.40	2	1	1.8	0.069	0.069	0.34	69	2.6	2.6	13
5	Paving	87	Skid-Steer Loader	1	65	0.37	6	1	1.5	0.017	0.017	0.21	41	0.47	0.47	5.9
5	Paving	87	Water Trucks	1	402	0.38	4	1	0.46	0.017	0.017	0.22	54	2.0	2.0	25
5	Architectural Coating	174	Aerial Lifts	6	63	0.31	6	1	1.7	0.036	0.036	0.19	443	9.6	9.6	50
5	Architectural Coating	174	Air Compressors	12	78	0.48	6	1	1.7	0.041	0.041	0.26	1,784	42	42	272
5	Architectural Coating	174	Cement and Mortar Mixers	6	9	0.56	4	1	4.1	0.16	0.16	0.66	192	7.5	7.5	31
5	Architectural Coating	174	Cranes	6	231	0.29	6	1	0.75	0.024	0.024	0.22	686	22	22	205
5	Architectural Coating	174	Forklifts	6	89	0.20	6	1	1.6	0.021	0.021	0.28	383	5.2	5.2	70
5	Architectural Coating	174	Generator Sets	12	84	0.74	6	1	1.6	0.034	0.034	0.18	2,817	58	58	305
5	Architectural Coating	174	Pressure Washer	6	13	0.30	4	1	4.2	0.17	0.17	0.59	149	5.9	5.9	21

Table AQ-5c
Project Construction Equipment List, Uncontrolled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

									CalEEMod Emission Factor (g/bhp-hr)				Uncontrolled Emissions (lb)			
Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
5	Architectural Coating	174	Skid-Steer Loader	6	65	0.37	6	1	1.5	0.017	0.017	0.21	487	5.6	5.6	71
5	Architectural Coating	174	Sweepers/Scrubbers	2	64	0.46	2	1	1.6	0.023	0.023	0.26	70	1.0	1.0	12
5	Architectural Coating	174	Welders	6	46	0.45	6	1	3.3	0.045	0.045	0.45	933	13	13	128
6	Grading	107	Backhoes	1	97	0.37	6	1	1.6	0.030	0.030	0.27	82	1.5	1.5	14
6	Grading	107	Compactor	1	8	0.43	4	1	4.1	0.16	0.16	0.66	13	0.52	0.52	2.1
6	Grading	107	Dump Trucks	1	402	0.38	2	1	0.46	0.017	0.017	0.22	33	1.2	1.2	16
6	Grading	107	Excavators	1	158	0.38	6	1	0.53	0.023	0.023	0.21	45	2.0	2.0	18
6	Grading	107	Loader	1	97	0.37	6	1	1.6	0.030	0.030	0.27	82	1.5	1.5	14
6	Grading	107	Pressure Washer	1	13	0.30	1	1	4.2	0.17	0.17	0.59	3.8	0.15	0.15	0.55
6	Grading	107	Pumps	1	84	0.74	2	1	1.7	0.036	0.036	0.19	49	1.1	1.1	5.7
6	Grading	107	Skid Steer Loader	1	65	0.37	6	1	1.5	0.017	0.017	0.21	50	0.58	0.58	7.3
6	Grading	107	Trenchers	1	78	0.50	6	1	2.6	0.13	0.13	0.41	142	7.3	7.3	23
6	Grading	107	Water Trucks	1	402	0.38	2	1	0.46	0.017	0.017	0.22	33	1.2	1.2	16
6	Building Construction	804	Aerial Lifts	2	63	0.31	2	1	1.7	0.036	0.036	0.19	228	5.0	5.0	26
6	Building Construction	804	Air Compressors	2	78	0.48	3	1	1.7	0.041	0.041	0.26	689	16	16	105
6	Building Construction	804	Backhoes	1	97	0.37	4	1	1.6	0.030	0.030	0.27	412	7.6	7.6	69
6	Building Construction	804	Cement and Mortar Mixers	2	9	0.56	4	1	4.1	0.16	0.16	0.66	296	12	12	47
6	Building Construction	804	Cranes	2	231	0.29	6	1	0.75	0.024	0.024	0.22	1,059	34	34	317
6	Building Construction	804	Dump Trucks	1	402	0.38	2	1	0.46	0.017	0.017	0.22	249	9.3	9.3	118
6	Building Construction	804	Excavators	1	158	0.38	4	1	0.53	0.023	0.023	0.21	225	9.8	9.8	91
6	Building Construction	804	Forklifts	2	89	0.20	4	1	1.6	0.021	0.021	0.28	395	5.3	5.3	72
6	Building Construction	804	Generator Sets	2	84	0.74	6	1	1.6	0.034	0.034	0.18	2,176	45	45	235
6	Building Construction	804	Loader	1	97	0.37	4	1	1.6	0.030	0.030	0.27	412	7.6	7.6	69
6	Building Construction	804	Pressure Washer	2	13	0.30	2	1	4.2	0.17	0.17	0.59	115	4.6	4.6	16
6	Building Construction	804	Pumps	4	84	0.74	3	1	1.7	0.036	0.036	0.19	2,198	48	48	255
6	Building Construction	804	Skid-Steer Loader	1	65	0.37	6	1	1.5	0.017	0.017	0.21	376	4.3	4.3	55
6	Building Construction	804	Water Trucks	1	402	0.38	4	1	0.46	0.017	0.017	0.22	499	19	19	235
6	Building Construction	804	Welders	2	46	0.45	4	1	3.3	0.045	0.045	0.45	961	13	13	132
6	Paving	196	Air Compressors	1	78	0.48	2	1	1.7	0.041	0.041	0.26	56	1.3	1.3	8.5
6	Paving	196	Cement and Mortar Mixers	1	9	0.56	4	1	4.1	0.16	0.16	0.66	36	1.4	1.4	5.7
6	Paving	196	Compactor	1	8	0.43	4	1	4.1	0.16	0.16	0.66	25	0.96	0.96	3.9
6	Paving	196	Dump Trucks	1	402	0.38	4	1	0.46	0.017	0.017	0.22	121	4.5	4.5	57
6	Paving	196	Loader	1	97	0.37	4	1	1.6	0.030	0.030	0.27	100	1.9	1.9	17
6	Paving	196	Pavers	1	130	0.42	2	1	1.4	0.074	0.074	0.30	66	3.4	3.4	14
6	Paving	196	Pressure Washer	1	13	0.30	1	1	4.2	0.17	0.17	0.59	7.0	0.28	0.28	1.00
6	Paving	196	Rollers	1	80	0.38	2	1	2.0	0.066	0.066	0.30	51	1.7	1.7	7.7
6	Paving	196	Rubber Tired/Track Dozers	1	247	0.40	2	1	1.8	0.069	0.069	0.34	154	5.8	5.8	28
6	Paving	196	Skid-Steer Loader	1	65	0.37	6	1	1.5	0.017	0.017	0.21	92	1.1	1.1	13
6	Paving	196	Water Trucks	1	402	0.38	4	1	0.46	0.017	0.017	0.22	121	4.5	4.5	57
6	Architectural Coating	303	Aerial Lifts	2	63	0.31	6	1	1.7	0.036	0.036	0.19	258	5.6	5.6	29
6	Architectural Coating	303	Air Compressors	4	78	0.48	6	1	1.7	0.041	0.041	0.26	1,037	25	25	158
6	Architectural Coating	303	Cement and Mortar Mixers	2	9	0.56	4	1	4.1	0.16	0.16	0.66	112	4.3	4.3	18
6	Architectural Coating	303	Cranes	2	231	0.29	6	1	0.75	0.024	0.024	0.22	399	13	13	119
6	Architectural Coating	303	Forklifts	2	89	0.20	6	1	1.6	0.021	0.021	0.28	223	3.0	3.0	41

Table AQ-5c
Project Construction Equipment List, Uncontrolled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

									CalEEMod Emission Factor (g/bhp-hr)				Uncontrolled Emissions (lb)			
Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
6	Architectural Coating	303	Generator Sets	4	84	0.74	6	1	1.6	0.034	0.034	0.18	1,639	34	34	177
6	Architectural Coating	303	Pressure Washer	2	13	0.30	4	1	4.2	0.17	0.17	0.59	87	3.5	3.5	12
6	Architectural Coating	303	Skid-Steer Loader	2	65	0.37	6	1	1.5	0.017	0.017	0.21	283	3.3	3.3	41
6	Architectural Coating	303	Sweepers/Scrubbers	1	64	0.46	2	1	1.6	0.023	0.023	0.26	61	0.90	0.90	10
6	Architectural Coating	303	Welders	2	46	0.45	6	1	3.3	0.045	0.045	0.45	543	7.5	7.5	74

Notes:

1. The equipment provided by the Project Sponsor was mapped to CalEEMod default equipment.
2. Equipment quantity and usage hours are provided by the Project Sponsor.
3. Horsepower (HP) and load factors are based on CalEEMod defaults for each equipment type, which are based on OFFROAD2011.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
g - gram
HP - horsepower
lb - pound

NOx - nitrogen oxide compounds (NO + NO_2)
PM_{10} - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - reactive organic gas

Table AQ-5d
Project Construction Equipment List, Controlled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

									Tier IV Emission Factor (g/bhp-hr)				Controlled Emissions (lb)			
Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
0	Demolition	325	Aerial Lifts	4	63	0.31	2	1	2.7	0.0080	0.0080	0.12	305	0.89	0.89	13
0	Demolition	325	Air Compressors	4	78	0.48	2	1	0.26	0.0080	0.0080	0.060	56	1.7	1.7	13
0	Demolition	325	Concrete Crusher	4	85	0.78	4	1	0.26	0.0080	0.0080	0.060	198	6.1	6.1	46
0	Demolition	325	Concrete/Industrial Saws	8	81	0.73	2	1	0.26	0.0080	0.0080	0.060	176	5.4	5.4	41
0	Demolition	325	Dump Trucks	4	402	0.38	1	1	0.26	0.0080	0.0080	0.060	114	3.5	3.5	26
0	Demolition	325	Excavators	4	158	0.38	6	1	0.26	0.0080	0.0080	0.060	270	8.3	8.3	62
0	Demolition	325	Forklifts	2	89	0.20	2	1	0.26	0.0080	0.0080	0.060	13	0.41	0.41	3.1
0	Demolition	325	Generator Sets	4	84	0.74	4	1	0.26	0.0080	0.0080	0.060	0	0	0	0
0	Demolition	325	Loader	4	97	0.37	6	1	0.26	0.0080	0.0080	0.060	160	4.9	4.9	37
0	Demolition	325	Pressure Washer	2	13	0.30	1	1	2.8	0.0080	0.0080	0.12	15	0.045	0.045	0.67
0	Demolition	325	Roll-Off Trucks	2	402	0.38	0.5	1	0.26	0.0080	0.0080	0.060	29	0.88	0.88	6.6
0	Demolition	325	Rubber Tired/Track Doze	2	247	0.40	4	1	0.26	0.0080	0.0080	0.060	146	4.5	4.5	34
0	Demolition	325	Skid-Steer Loader	4	65	0.37	6	1	2.7	0.0080	0.0080	0.12	1,129	3.3	3.3	49
0	Demolition	325	Sweepers/Scrubbers	2	64	0.46	3	1	2.7	0.0080	0.0080	0.12	343	1.0	1.0	15
0	Demolition	325	Water Trucks	2	402	0.38	4	1	0.26	0.0080	0.0080	0.060	229	7.0	7.0	53
0	Demolition	325	Welders	4	46	0.45	4	1	2.8	0.0080	0.0080	0.12	653	1.9	1.9	28
0	Site Preparation	260	Air Compressors	2	78	0.48	2	1	0.26	0.0080	0.0080	0.060	22	0.69	0.69	5.2
0	Site Preparation	260	Compactor	1	8	0.43	2	1	2.8	0.0080	0.0080	0.12	11	0.032	0.032	0.47
0	Site Preparation	260	Cranes	3	231	0.29	4	1	0.26	0.0080	0.0080	0.060	119	3.7	3.7	27
0	Site Preparation	260	Drill Rig	4	221	0.50	4	1	0.26	0.0080	0.0080	0.060	265	8.1	8.1	61
0	Site Preparation	260	Dump Trucks	3	402	0.38	4	1	0.26	0.0080	0.0080	0.060	275	8.4	8.4	63
0	Site Preparation	260	Excavators	3	158	0.38	6	1	0.26	0.0080	0.0080	0.060	162	5.0	5.0	37
0	Site Preparation	260	Loader	2	97	0.37	6	1	0.26	0.0080	0.0080	0.060	64	2.0	2.0	15
0	Site Preparation	260	Pavers	1	130	0.42	2	1	0.26	0.0080	0.0080	0.060	16	0.50	0.50	3.7
0	Site Preparation	260	Paving Equipment	1	132	0.36	2	1	0.26	0.0080	0.0080	0.060	14	0.43	0.43	3.2
0	Site Preparation	260	Pressure Washer	2	13	0.30	2	1	2.8	0.0080	0.0080	0.12	25	0.072	0.072	1.1
0	Site Preparation	260	Pump	4	84	0.74	2	1	0.26	0.0080	0.0080	0.060	74	2.3	2.3	17
0	Site Preparation	260	Rollers	1	80	0.38	2	1	0.26	0.0080	0.0080	0.060	8.9	0.28	0.28	2.1
0	Site Preparation	260	Rubber Tired/Track Doze	2	247	0.40	6	1	0.26	0.0080	0.0080	0.060	175	5.4	5.4	40
0	Site Preparation	260	Skid-Steer Loader	1	65	0.37	2	1	2.7	0.0080	0.0080	0.12	75	0.22	0.22	3.3
0	Site Preparation	260	Water Trucks	2	402	0.38	4	1	0.26	0.0080	0.0080	0.060	183	5.6	5.6	42
0	Grading	282	Air Compressors	4	78	0.48	2	1	0.26	0.0080	0.0080	0.060	48	1.5	1.5	11
0	Grading	282	Compactor	1	8	0.43	2	1	2.8	0.0080	0.0080	0.12	12	0.034	0.034	0.51
0	Grading	282	Compactor	2	8	0.43	6	1	2.8	0.0080	0.0080	0.12	71	0.21	0.21	3.1
0	Grading	282	Dump Trucks	1	402	0.38	2	1	0.26	0.0080	0.0080	0.060	50	1.5	1.5	11
0	Grading	282	Dump Trucks	2	402	0.38	4	1	0.26	0.0080	0.0080	0.060	199	6.1	6.1	46
0	Grading	282	Excavators	2	158	0.38	2	1	0.26	0.0080	0.0080	0.060	39	1.2	1.2	9.0
0	Grading	282	Excavators	2	158	0.38	4	1	0.26	0.0080	0.0080	0.060	78	2.4	2.4	18
0	Grading	282	Graders	4	187	0.41	6	1	0.26	0.0080	0.0080	0.060	297	9.1	9.1	68
0	Grading	282	Loader	2	97	0.37	6	1	0.26	0.0080	0.0080	0.060	69	2.1	2.1	16
0	Grading	282	Manlift	1	63	0.31	2	1	2.7	0.0080	0.0080	0.12	66	0.19	0.19	2.9
0	Grading	282	Pole Trucks	2	402	0.38	4	1	0.26	0.0080	0.0080	0.060	199	6.1	6.1	46
0	Grading	282	Pressure Washer	4	13	0.30	1	1	2.8	0.0080	0.0080	0.12	27	0.078	0.078	1.2
0	Grading	282	Rubber Tired/Track Doze	2	247	0.40	6	1	0.26	0.0080	0.0080	0.060	189	5.8	5.8	44
0	Grading	282	Scrapers	4	367	0.48	6	1	0.26	0.0080	0.0080	0.060	687	21	21	159
0	Grading	282	Skid Steer Loader	1	65	0.37	4	1	2.7	0.0080	0.0080	0.12	163	0.48	0.48	7.2
0	Grading	282	Skid Steer Loader	2	65	0.37	4	1	2.7	0.0080	0.0080	0.12	327	0.95	0.95	14
0	Grading	282	Tractors	2	97	0.37	4	1	0.26	0.0080	0.0080	0.060	46	1.4	1.4	11
0	Grading	282	Water Trucks	1	402	0.38	4	1	0.26	0.0080	0.0080	0.060	99	3.1	3.1	23

Table AQ-5d
Project Construction Equipment List, Controlled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

									Tier IV Emission Factor (g/bhp-hr)				Controlled Emissions (lb)			
Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
0	Grading	282	Water Trucks	2	402	0.38	4	1	0.26	0.0080	0.0080	0.060	199	6.1	6.1	46
0.1	Grading	87	Air Compressors	1	78	0.48	2	1	0.26	0.0080	0.0080	0.060	3.7	0.12	0.12	0.86
0.1	Grading	87	Compactor	1	8	0.43	6	1	2.8	0.0080	0.0080	0.12	11	0.032	0.032	0.48
0.1	Grading	87	Dump Trucks	1	402	0.38	4	1	0.26	0.0080	0.0080	0.060	31	0.94	0.94	7.1
0.1	Grading	87	Excavators	1	158	0.38	4	1	0.26	0.0080	0.0080	0.060	12	0.37	0.37	2.8
0.1	Grading	87	Graders	1	187	0.41	6	1	0.26	0.0080	0.0080	0.060	23	0.70	0.70	5.3
0.1	Grading	87	Loader	1	97	0.37	6	1	0.26	0.0080	0.0080	0.060	11	0.33	0.33	2.5
0.1	Grading	87	Pressure Washer	1	13	0.30	1	1	2.8	0.0080	0.0080	0.12	2.1	0.0060	0.0060	0.090
0.1	Grading	87	Rubber Tired/Track Doze	1	247	0.40	6	1	0.26	0.0080	0.0080	0.060	29	0.90	0.90	6.8
0.1	Grading	87	Scrapers	1	367	0.48	6	1	0.26	0.0080	0.0080	0.060	53	1.6	1.6	12
0.1	Grading	87	Skid Steer Loader	1	65	0.37	4	1	2.7	0.0080	0.0080	0.12	50	0.15	0.15	2.2
0.1	Grading	87	Tractors	1	97	0.37	4	1	0.26	0.0080	0.0080	0.060	7.1	0.22	0.22	1.6
0.1	Grading	87	Water Trucks	1	402	0.38	4	1	0.26	0.0080	0.0080	0.060	31	0.94	0.94	7.1
1	Grading	194	Backhoes	2	97	0.37	6	1	0.26	0.0080	0.0080	0.060	48	1.5	1.5	11
1	Grading	194	Compactor	1	8	0.43	4	1	2.8	0.0080	0.0080	0.12	16	0.047	0.047	0.71
1	Grading	194	Dump Trucks	1	402	0.38	2	1	0.26	0.0080	0.0080	0.060	34	1.1	1.1	7.9
1	Grading	194	Excavators	2	158	0.38	6	1	0.26	0.0080	0.0080	0.060	81	2.5	2.5	19
1	Grading	194	Generator Sets	1	84	0.74	6	1	0.26	0.0080	0.0080	0.060	0	0	0	0
1	Grading	194	Loader	1	97	0.37	6	1	0.26	0.0080	0.0080	0.060	24	0.73	0.73	5.5
1	Grading	194	Pressure Washer	1	13	0.30	1	1	2.8	0.0080	0.0080	0.12	4.6	0.013	0.013	0.20
1	Grading	194	Pumps	1	84	0.74	2	1	0.26	0.0080	0.0080	0.060	14	0.43	0.43	3.2
1	Grading	194	Skid Steer Loader	1	65	0.37	6	1	2.7	0.0080	0.0080	0.12	169	0.49	0.49	7.4
1	Grading	194	Trenchers	2	78	0.50	6	1	0.26	0.0080	0.0080	0.060	52	1.6	1.6	12
1	Grading	194	Water Trucks	1	402	0.38	2	1	0.26	0.0080	0.0080	0.060	34	1.1	1.1	7.9
1	Building Construction	653	Aerial Lifts	6	63	0.31	2	1	2.7	0.0080	0.0080	0.12	919	2.7	2.7	40
1	Building Construction	653	Air Compressors	1	78	0.48	2	1	0.26	0.0080	0.0080	0.060	28	0.86	0.86	6.5
1	Building Construction	653	Air Compressors	6	78	0.48	3	1	0.26	0.0080	0.0080	0.060	252	7.8	7.8	58
1	Building Construction	653	Backhoes	4	97	0.37	4	1	0.26	0.0080	0.0080	0.060	214	6.6	6.6	49
1	Building Construction	653	Cement and Mortar Mixer	1	9	0.56	2	1	2.8	0.0080	0.0080	0.12	40	0.12	0.12	1.7
1	Building Construction	653	Cement and Mortar Mixer	6	9	0.56	4	1	2.8	0.0080	0.0080	0.12	479	1.4	1.4	21
1	Building Construction	653	Cranes	1	231	0.29	2	1	0.26	0.0080	0.0080	0.060	50	1.5	1.5	11
1	Building Construction	653	Cranes	6	231	0.29	5	1	0.26	0.0080	0.0080	0.060	747	23	23	172
1	Building Construction	653	Drill Rig	4	221	0.50	4	1	0.26	0.0080	0.0080	0.060	665	20	20	153
1	Building Construction	653	Dump Trucks	4	402	0.38	2	1	0.26	0.0080	0.0080	0.060	460	14	14	106
1	Building Construction	653	Excavators	1	158	0.38	2	1	0.26	0.0080	0.0080	0.060	45	1.4	1.4	10
1	Building Construction	653	Excavators	4	158	0.38	4	1	0.26	0.0080	0.0080	0.060	361	11	11	83
1	Building Construction	653	Forklifts	1	89	0.20	2	1	0.26	0.0080	0.0080	0.060	13	0.41	0.41	3.1
1	Building Construction	653	Forklifts	6	89	0.20	4	1	0.26	0.0080	0.0080	0.060	161	4.9	4.9	37
1	Building Construction	653	Generator Sets	1	84	0.74	2	1	0.26	0.0080	0.0080	0.060	0	0	0	0
1	Building Construction	653	Generator Sets	6	84	0.74	4	1	0.26	0.0080	0.0080	0.060	0	0	0	0
1	Building Construction	653	Loader	4	97	0.37	4	1	0.26	0.0080	0.0080	0.060	214	6.6	6.6	49
1	Building Construction	653	Pile Driver	4	300	0.29	4	1	0.26	0.0080	0.0080	0.060	517	16	16	119
1	Building Construction	653	Pressure Washer	6	13	0.30	2	1	2.8	0.0080	0.0080	0.12	185	0.54	0.54	8.1
1	Building Construction	653	Pumps	12	84	0.74	2	1	0.26	0.0080	0.0080	0.060	558	17	17	129
1	Building Construction	653	Skid-Steer Loader	1	65	0.37	2	1	2.7	0.0080	0.0080	0.12	189	0.55	0.55	8.3
1	Building Construction	653	Skid-Steer Loader	4	65	0.37	6	1	2.7	0.0080	0.0080	0.12	2,267	6.6	6.6	99
1	Building Construction	653	Water Trucks	2	402	0.38	4	1	0.26	0.0080	0.0080	0.060	460	14	14	106
1	Building Construction	653	Welders	1	46	0.45	2	1	2.8	0.0080	0.0080	0.12	164	0.48	0.48	7.2
1	Building Construction	653	Welders	6	46	0.45	4	1	2.8	0.0080	0.0080	0.12	1,966	5.7	5.7	86

Table AQ-5d
Project Construction Equipment List, Controlled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	Tier IV Emission Factor (g/bhp-hr)				Controlled Emissions (lb)			
									NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
1	Paving	347	Air Compressors	4	78	0.48	3	1	0.26	0.0080	0.0080	0.060	89	2.8	2.8	21
1	Paving	347	Backhoes	2	97	0.37	4	1	0.26	0.0080	0.0080	0.060	57	1.8	1.8	13
1	Paving	347	Cement and Mortar Mixer	3	9	0.56	4	1	2.8	0.0080	0.0080	0.12	127	0.37	0.37	5.6
1	Paving	347	Compactor	1	8	0.43	4	1	2.8	0.0080	0.0080	0.12	29	0.084	0.084	1.3
1	Paving	347	Dump Trucks	2	402	0.38	6	1	0.26	0.0080	0.0080	0.060	367	11	11	85
1	Paving	347	Generator Sets	3	84	0.74	3	1	0.26	0.0080	0.0080	0.060	0	0	0	0
1	Paving	347	Loader	2	97	0.37	4	1	0.26	0.0080	0.0080	0.060	57	1.8	1.8	13
1	Paving	347	Pavers	1	130	0.42	1	1	0.26	0.0080	0.0080	0.060	11	0.33	0.33	2.5
1	Paving	347	Pressure Washer	2	13	0.30	1	1	2.8	0.0080	0.0080	0.12	16	0.048	0.048	0.72
1	Paving	347	Rollers	2	80	0.38	1	1	0.26	0.0080	0.0080	0.060	12	0.37	0.37	2.8
1	Paving	347	Rubber Tired/Track Doze	2	247	0.40	4	1	0.26	0.0080	0.0080	0.060	155	4.8	4.8	36
1	Paving	347	Skid-Steer Loader	2	65	0.37	6	1	2.7	0.0080	0.0080	0.12	603	1.8	1.8	26
1	Paving	347	Water Trucks	2	402	0.38	6	1	0.26	0.0080	0.0080	0.060	367	11	11	85
1	Architectural Coating	129	Aerial Lifts	8	63	0.31	6	1	2.7	0.0080	0.0080	0.12	724	2.1	2.1	32
1	Architectural Coating	129	Air Compressors	16	78	0.48	6	1	0.26	0.0080	0.0080	0.060	265	8.2	8.2	61
1	Architectural Coating	129	Cement and Mortar Mixer	8	9	0.56	4	1	2.8	0.0080	0.0080	0.12	126	0.37	0.37	5.5
1	Architectural Coating	129	Cranes	8	231	0.29	6	1	0.26	0.0080	0.0080	0.060	235	7.2	7.2	54
1	Architectural Coating	129	Forklifts	8	89	0.20	6	1	0.26	0.0080	0.0080	0.060	63	1.9	1.9	15
1	Architectural Coating	129	Generator Sets	16	84	0.74	6	1	0.26	0.0080	0.0080	0.060	0	0	0	0
1	Architectural Coating	129	Pressure Washer	8	13	0.30	4	1	2.8	0.0080	0.0080	0.12	97	0.28	0.28	4.2
1	Architectural Coating	129	Skid-Steer Loader	8	65	0.37	6	1	2.7	0.0080	0.0080	0.12	893	2.6	2.6	39
1	Architectural Coating	129	Sweepers/Scrubbers	2	64	0.46	2	1	2.7	0.0080	0.0080	0.12	91	0.26	0.26	4.0
1	Architectural Coating	129	Welders	8	46	0.45	6	1	2.8	0.0080	0.0080	0.12	775	2.3	2.3	34
2	Building Construction	434	Aerial Lifts	4	63	0.31	2	1	2.7	0.0080	0.0080	0.12	407	1.2	1.2	18
2	Building Construction	434	Air Compressors	4	78	0.48	3	1	0.26	0.0080	0.0080	0.060	112	3.4	3.4	26
2	Building Construction	434	Backhoes	2	97	0.37	4	1	0.26	0.0080	0.0080	0.060	71	2.2	2.2	16
2	Building Construction	434	Cement and Mortar Mixer	4	9	0.56	4	1	2.8	0.0080	0.0080	0.12	212	0.62	0.62	9.3
2	Building Construction	434	Cranes	4	231	0.29	5	1	0.26	0.0080	0.0080	0.060	331	10	10	76
2	Building Construction	434	Dump Trucks	2	402	0.38	2	1	0.26	0.0080	0.0080	0.060	153	4.7	4.7	35
2	Building Construction	434	Excavators	4	158	0.38	4	1	0.26	0.0080	0.0080	0.060	240	7.4	7.4	55
2	Building Construction	434	Forklifts	4	89	0.20	4	1	0.26	0.0080	0.0080	0.060	71	2.2	2.2	16
2	Building Construction	434	Generator Sets	4	84	0.74	6	1	0.26	0.0080	0.0080	0.060	0	0	0	0
2	Building Construction	434	Loader	2	97	0.37	4	1	0.26	0.0080	0.0080	0.060	71	2.2	2.2	16
2	Building Construction	434	Pressure Washer	4	13	0.30	2	1	2.8	0.0080	0.0080	0.12	82	0.24	0.24	3.6
2	Building Construction	434	Pumps	6	84	0.74	3	1	0.26	0.0080	0.0080	0.060	279	8.6	8.6	64
2	Building Construction	434	Skid-Steer Loader	2	65	0.37	6	1	2.7	0.0080	0.0080	0.12	754	2.2	2.2	33
2	Building Construction	434	Water Trucks	2	402	0.38	4	1	0.26	0.0080	0.0080	0.060	306	9.4	9.4	71
2	Building Construction	434	Welders	4	46	0.45	4	1	2.8	0.0080	0.0080	0.12	872	2.5	2.5	38
2	Paving	129	Air Compressors	1	78	0.48	4	1	0.26	0.0080	0.0080	0.060	11	0.34	0.34	2.5
2	Paving	129	Backhoes	1	97	0.37	4	1	0.26	0.0080	0.0080	0.060	11	0.32	0.32	2.4
2	Paving	129	Dump Trucks	1	402	0.38	2	1	0.26	0.0080	0.0080	0.060	23	0.70	0.70	5.2
2	Paving	129	Generator Sets	1	84	0.74	4	1	0.26	0.0080	0.0080	0.060	0	0	0	0
2	Paving	129	Loader	1	97	0.37	4	1	0.26	0.0080	0.0080	0.060	11	0.32	0.32	2.4
2	Paving	129	Pressure Washer	1	13	0.30	1	1	2.8	0.0080	0.0080	0.12	3.0	0.0088	0.0088	0.13
2	Paving	129	Rubber Tired/Track Doze	1	247	0.40	2	1	0.26	0.0080	0.0080	0.060	14	0.44	0.44	3.3
2	Paving	129	Skid-Steer Loader	1	65	0.37	6	1	2.7	0.0080	0.0080	0.12	112	0.33	0.33	4.9
2	Paving	129	Water Trucks	1	402	0.38	2	1	0.26	0.0080	0.0080	0.060	23	0.70	0.70	5.2
2	Architectural Coating	172	Aerial Lifts	4	63	0.31	6	1	2.7	0.0080	0.0080	0.12	485	1.4	1.4	21
2	Architectural Coating	172	Air Compressors	8	78	0.48	6	1	0.26	0.0080	0.0080	0.060	177	5.5	5.5	41

Table AQ-5d
Project Construction Equipment List, Controlled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

									Tier IV Emission Factor (g/bhp-hr)				Controlled Emissions (lb)			
Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
2	Architectural Coating	172	Cement and Mortar Mixer	4	9	0.56	4	1	2.8	0.0080	0.0080	0.12	84	0.24	0.24	3.7
2	Architectural Coating	172	Cranes	4	231	0.29	6	1	0.26	0.0080	0.0080	0.060	158	4.8	4.8	36
2	Architectural Coating	172	Forklifts	4	89	0.20	6	1	0.26	0.0080	0.0080	0.060	42	1.3	1.3	9.8
2	Architectural Coating	172	Generator Sets	8	84	0.74	6	1	0.26	0.0080	0.0080	0.060	0	0	0	0
2	Architectural Coating	172	Pressure Washer	4	13	0.30	4	1	2.8	0.0080	0.0080	0.12	65	0.19	0.19	2.8
2	Architectural Coating	172	Skid-Steer Loader	4	65	0.37	6	1	2.7	0.0080	0.0080	0.12	598	1.7	1.7	26
2	Architectural Coating	172	Sweepers/Scrubbers	2	64	0.46	2	1	2.7	0.0080	0.0080	0.12	121	0.35	0.35	5.3
2	Architectural Coating	172	Welders	4	46	0.45	6	1	2.8	0.0080	0.0080	0.12	518	1.5	1.5	23
3	Grading	64	Backhoes	1	97	0.37	6	1	0.26	0.0080	0.0080	0.060	7.8	0.24	0.24	1.8
3	Grading	64	Compactor	1	8	0.43	4	1	2.8	0.0080	0.0080	0.12	5.3	0.015	0.015	0.23
3	Grading	64	Dump Trucks	1	402	0.38	2	1	0.26	0.0080	0.0080	0.060	11	0.34	0.34	2.6
3	Grading	64	Excavators	1	158	0.38	6	1	0.26	0.0080	0.0080	0.060	13	0.41	0.41	3.0
3	Grading	64	Loader	1	97	0.37	6	1	0.26	0.0080	0.0080	0.060	7.8	0.24	0.24	1.8
3	Grading	64	Pressure Washer	1	13	0.30	1	1	2.8	0.0080	0.0080	0.12	1.5	0.0044	0.0044	0.066
3	Grading	64	Pumps	1	84	0.74	2	1	0.26	0.0080	0.0080	0.060	4.5	0.14	0.14	1.0
3	Grading	64	Skid Steer Loader	1	65	0.37	6	1	2.7	0.0080	0.0080	0.12	55	0.16	0.16	2.4
3	Grading	64	Trenchers	1	78	0.50	6	1	0.26	0.0080	0.0080	0.060	8.6	0.26	0.26	2.0
3	Grading	64	Water Trucks	1	402	0.38	2	1	0.26	0.0080	0.0080	0.060	11	0.34	0.34	2.6
3	Building Construction	607	Aerial Lifts	4	63	0.31	4	1	2.7	0.0080	0.0080	0.12	1,139	3.3	3.3	50
3	Building Construction	607	Air Compressors	4	78	0.48	3	1	0.26	0.0080	0.0080	0.060	156	4.8	4.8	36
3	Building Construction	607	Backhoes	2	97	0.37	4	1	0.26	0.0080	0.0080	0.060	100	3.1	3.1	23
3	Building Construction	607	Cement and Mortar Mixer	4	9	0.56	4	1	2.8	0.0080	0.0080	0.12	297	0.86	0.86	13
3	Building Construction	607	Cranes	4	231	0.29	5	1	0.26	0.0080	0.0080	0.060	463	14	14	107
3	Building Construction	607	Drill Rig	4	221	0.50	4	1	0.26	0.0080	0.0080	0.060	618	19	19	143
3	Building Construction	607	Dump Trucks	4	402	0.38	4	1	0.26	0.0080	0.0080	0.060	855	26	26	197
3	Building Construction	607	Excavators	4	158	0.38	4	1	0.26	0.0080	0.0080	0.060	336	10	10	78
3	Building Construction	607	Forklifts	4	89	0.20	4	1	0.26	0.0080	0.0080	0.060	100	3.1	3.1	23
3	Building Construction	607	Generator Sets	4	84	0.74	4	1	0.26	0.0080	0.0080	0.060	0	0	0	0
3	Building Construction	607	Loader	4	97	0.37	4	1	0.26	0.0080	0.0080	0.060	199	6.1	6.1	46
3	Building Construction	607	Pile Driver	4	300	0.29	4	1	0.26	0.0080	0.0080	0.060	481	15	15	111
3	Building Construction	607	Pressure Washer	4	13	0.30	2	1	2.8	0.0080	0.0080	0.12	115	0.33	0.33	5.0
3	Building Construction	607	Pumps	8	84	0.74	2	1	0.26	0.0080	0.0080	0.060	346	11	11	80
3	Building Construction	607	Skid-Steer Loader	4	65	0.37	6	1	2.7	0.0080	0.0080	0.12	2,108	6.2	6.2	92
3	Building Construction	607	Water Trucks	2	402	0.38	4	1	0.26	0.0080	0.0080	0.060	427	13	13	99
3	Building Construction	607	Welders	4	46	0.45	4	1	2.8	0.0080	0.0080	0.12	1,219	3.5	3.5	53
3	Paving	217	Air Compressors	1	78	0.48	2	1	0.26	0.0080	0.0080	0.060	9.3	0.29	0.29	2.2
3	Paving	217	Backhoes	1	97	0.37	4	1	0.26	0.0080	0.0080	0.060	18	0.55	0.55	4.1
3	Paving	217	Cement and Mortar Mixer	1	9	0.56	6	1	2.8	0.0080	0.0080	0.12	40	0.12	0.12	1.7
3	Paving	217	Compactor	1	8	0.43	4	1	2.8	0.0080	0.0080	0.12	18	0.053	0.053	0.79
3	Paving	217	Dump Trucks	1	402	0.38	4	1	0.26	0.0080	0.0080	0.060	76	2.4	2.4	18
3	Paving	217	Generator Sets	1	84	0.74	4	1	0.26	0.0080	0.0080	0.060	0	0	0	0
3	Paving	217	Loader	1	97	0.37	4	1	0.26	0.0080	0.0080	0.060	18	0.55	0.55	4.1
3	Paving	217	Pavers	1	130	0.42	2	1	0.26	0.0080	0.0080	0.060	13	0.41	0.41	3.1
3	Paving	217	Pressure Washer	1	13	0.30	1	1	2.8	0.0080	0.0080	0.12	5.1	0.015	0.015	0.22
3	Paving	217	Rollers	1	80	0.38	2	1	0.26	0.0080	0.0080	0.060	7.5	0.23	0.23	1.7
3	Paving	217	Rubber Tired/Track Dozer	1	247	0.40	2	1	0.26	0.0080	0.0080	0.060	24	0.75	0.75	5.6
3	Paving	217	Skid-Steer Loader	1	65	0.37	6	1	2.7	0.0080	0.0080	0.12	189	0.55	0.55	8.3
3	Paving	217	Water Trucks	1	402	0.38	4	1	0.26	0.0080	0.0080	0.060	76	2.4	2.4	18
3	Architectural Coating	109	Aerial Lifts	6	63	0.31	4	1	2.7	0.0080	0.0080	0.12	306	0.89	0.89	13

Table AQ-5d
Project Construction Equipment List, Controlled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	Tier IV Emission Factor (g/bhp-hr)				Controlled Emissions (lb)			
									NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
3	Architectural Coating	109	Air Compressors	12	78	0.48	3	1	0.26	0.0080	0.0080	0.060	84	2.6	2.6	19
3	Architectural Coating	109	Cement and Mortar Mixer	6	9	0.56	2	1	2.8	0.0080	0.0080	0.12	40	0.12	0.12	1.7
3	Architectural Coating	109	Cranes	6	231	0.29	4	1	0.26	0.0080	0.0080	0.060	99	3.1	3.1	23
3	Architectural Coating	109	Forklifts	6	89	0.20	4	1	0.26	0.0080	0.0080	0.060	27	0.82	0.82	6.2
3	Architectural Coating	109	Generator Sets	12	84	0.74	4	1	0.26	0.0080	0.0080	0.060	0	0	0	0
3	Architectural Coating	109	Pressure Washer	6	13	0.30	2	1	2.8	0.0080	0.0080	0.12	31	0.090	0.090	1.3
3	Architectural Coating	109	Skid-Steer Loader	6	65	0.37	6	1	2.7	0.0080	0.0080	0.12	566	1.7	1.7	25
3	Architectural Coating	109	Sweepers/Scrubbers	2	64	0.46	2	1	2.7	0.0080	0.0080	0.12	76	0.22	0.22	3.4
3	Architectural Coating	109	Welders	6	46	0.45	4	1	2.8	0.0080	0.0080	0.12	327	0.95	0.95	14
4	Grading	64	Backhoes	1	97	0.37	6	1	0.26	0.0080	0.0080	0.060	7.8	0.24	0.24	1.8
4	Grading	64	Compactor	1	8	0.43	4	1	2.8	0.0080	0.0080	0.12	5.3	0.015	0.015	0.23
4	Grading	64	Dump Trucks	1	402	0.38	2	1	0.26	0.0080	0.0080	0.060	11	0.34	0.34	2.6
4	Grading	64	Excavators	1	158	0.38	6	1	0.26	0.0080	0.0080	0.060	13	0.41	0.41	3.0
4	Grading	64	Loader	1	97	0.37	6	1	0.26	0.0080	0.0080	0.060	7.8	0.24	0.24	1.8
4	Grading	64	Pressure Washer	1	13	0.30	1	1	2.8	0.0080	0.0080	0.12	1.5	0.0044	0.0044	0.066
4	Grading	64	Pumps	1	84	0.74	2	1	0.26	0.0080	0.0080	0.060	4.5	0.14	0.14	1.0
4	Grading	64	Skid Steer Loader	1	65	0.37	6	1	2.7	0.0080	0.0080	0.12	55	0.16	0.16	2.4
4	Grading	64	Trenchers	1	78	0.50	6	1	0.26	0.0080	0.0080	0.060	8.6	0.26	0.26	2.0
4	Grading	64	Water Trucks	1	402	0.38	2	1	0.26	0.0080	0.0080	0.060	11	0.34	0.34	2.6
4	Building Construction	716	Aerial Lifts	7	63	0.31	4	1	2.7	0.0080	0.0080	0.12	2,353	6.9	6.9	103
4	Building Construction	716	Air Compressors	7	78	0.48	3	1	0.26	0.0080	0.0080	0.060	323	9.9	9.9	75
4	Building Construction	716	Backhoes	4	97	0.37	4	1	0.26	0.0080	0.0080	0.060	235	7.2	7.2	54
4	Building Construction	716	Cement and Mortar Mixer	7	9	0.56	4	1	2.8	0.0080	0.0080	0.12	613	1.8	1.8	27
4	Building Construction	716	Cranes	7	231	0.29	5	1	0.26	0.0080	0.0080	0.060	957	29	29	221
4	Building Construction	716	Drill Rig	2	221	0.50	3	1	0.26	0.0080	0.0080	0.060	274	8.4	8.4	63
4	Building Construction	716	Dump Trucks	4	402	0.38	4	1	0.26	0.0080	0.0080	0.060	1,009	31	31	233
4	Building Construction	716	Excavators	4	158	0.38	2	1	0.26	0.0080	0.0080	0.060	198	6.1	6.1	46
4	Building Construction	716	Forklifts	7	89	0.20	4	1	0.26	0.0080	0.0080	0.060	206	6.3	6.3	47
4	Building Construction	716	Generator Sets	7	84	0.74	4	1	0.26	0.0080	0.0080	0.060	0	0	0	0
4	Building Construction	716	Loader	3	97	0.37	4	1	0.26	0.0080	0.0080	0.060	176	5.4	5.4	41
4	Building Construction	716	Pile Driver	2	300	0.29	3	1	0.26	0.0080	0.0080	0.060	213	6.6	6.6	49
4	Building Construction	716	Pressure Washer	7	13	0.30	2	1	2.8	0.0080	0.0080	0.12	237	0.69	0.69	10
4	Building Construction	716	Pumps	6	84	0.74	2	1	0.26	0.0080	0.0080	0.060	306	9.4	9.4	71
4	Building Construction	716	Skid-Steer Loader	4	65	0.37	6	1	2.7	0.0080	0.0080	0.12	2,488	7.3	7.3	109
4	Building Construction	716	Water Trucks	2	402	0.38	4	1	0.26	0.0080	0.0080	0.060	504	16	16	116
4	Building Construction	716	Welders	7	46	0.45	4	1	2.8	0.0080	0.0080	0.12	2,517	7.3	7.3	110
4	Paving	151	Air Compressors	1	78	0.48	2	1	0.26	0.0080	0.0080	0.060	6.5	0.20	0.20	1.5
4	Paving	151	Backhoes	1	97	0.37	4	1	0.26	0.0080	0.0080	0.060	12	0.38	0.38	2.9
4	Paving	151	Cement and Mortar Mixer	1	9	0.56	4	1	2.8	0.0080	0.0080	0.12	18	0.054	0.054	0.80
4	Paving	151	Compactor	1	8	0.43	4	1	2.8	0.0080	0.0080	0.12	13	0.037	0.037	0.55
4	Paving	151	Dump Trucks	1	402	0.38	4	1	0.26	0.0080	0.0080	0.060	53	1.6	1.6	12
4	Paving	151	Generator Sets	1	84	0.74	4	1	0.26	0.0080	0.0080	0.060	0	0	0	0
4	Paving	151	Loader	1	97	0.37	4	1	0.26	0.0080	0.0080	0.060	12	0.38	0.38	2.9
4	Paving	151	Pavers	1	130	0.42	2	1	0.26	0.0080	0.0080	0.060	9.3	0.29	0.29	2.2
4	Paving	151	Pressure Washer	1	13	0.30	1	1	2.8	0.0080	0.0080	0.12	3.6	0.010	0.010	0.16
4	Paving	151	Rollers	1	80	0.38	2	1	0.26	0.0080	0.0080	0.060	5.2	0.16	0.16	1.2
4	Paving	151	Rubber Tired/Track Dozer	1	247	0.40	2	1	0.26	0.0080	0.0080	0.060	17	0.52	0.52	3.9
4	Paving	151	Skid-Steer Loader	1	65	0.37	6	1	2.7	0.0080	0.0080	0.12	131	0.38	0.38	5.7
4	Paving	151	Water Trucks	1	402	0.38	4	1	0.26	0.0080	0.0080	0.060	53	1.6	1.6	12

Table AQ-5d
Project Construction Equipment List, Controlled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

									Tier IV Emission Factor (g/bhp-hr)				Controlled Emissions (lb)			
Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
4	Architectural Coating	216	Aerial Lifts	8	63	0.31	6	1	2.7	0.0080	0.0080	0.12	1,218	3.6	3.6	53
4	Architectural Coating	216	Air Compressors	16	78	0.48	6	1	0.26	0.0080	0.0080	0.060	446	14	14	103
4	Architectural Coating	216	Cement and Mortar Mixer	8	9	0.56	4	1	2.8	0.0080	0.0080	0.12	212	0.62	0.62	9.2
4	Architectural Coating	216	Cranes	8	231	0.29	6	1	0.26	0.0080	0.0080	0.060	396	12	12	91
4	Architectural Coating	216	Forklifts	8	89	0.20	6	1	0.26	0.0080	0.0080	0.060	107	3.3	3.3	25
4	Architectural Coating	216	Generator Sets	16	84	0.74	6	1	0.26	0.0080	0.0080	0.060	0	0	0	0
4	Architectural Coating	216	Pressure Washer	8	13	0.30	4	1	2.8	0.0080	0.0080	0.12	164	0.48	0.48	7.1
4	Architectural Coating	216	Skid-Steer Loader	8	65	0.37	6	1	2.7	0.0080	0.0080	0.12	1,503	4.4	4.4	66
4	Architectural Coating	216	Sweepers/Scrubbers	2	64	0.46	2	1	2.7	0.0080	0.0080	0.12	152	0.45	0.45	6.7
4	Architectural Coating	216	Welders	8	46	0.45	6	1	2.8	0.0080	0.0080	0.12	1,304	3.8	3.8	57
5	Building Construction	521	Aerial Lifts	5	63	0.31	2	1	2.7	0.0080	0.0080	0.12	611	1.8	1.8	27
5	Building Construction	521	Air Compressors	5	78	0.48	3	1	0.26	0.0080	0.0080	0.060	168	5.2	5.2	39
5	Building Construction	521	Backhoes	3	97	0.37	4	1	0.26	0.0080	0.0080	0.060	128	3.9	3.9	30
5	Building Construction	521	Cement and Mortar Mixer	5	9	0.56	4	1	2.8	0.0080	0.0080	0.12	318	0.93	0.93	14
5	Building Construction	521	Cranes	5	231	0.29	5	1	0.26	0.0080	0.0080	0.060	497	15	15	115
5	Building Construction	521	Dump Trucks	2	402	0.38	2	1	0.26	0.0080	0.0080	0.060	183	5.6	5.6	42
5	Building Construction	521	Excavators	3	158	0.38	4	1	0.26	0.0080	0.0080	0.060	216	6.6	6.6	50
5	Building Construction	521	Forklifts	5	89	0.20	4	1	0.26	0.0080	0.0080	0.060	107	3.3	3.3	25
5	Building Construction	521	Generator Sets	5	84	0.74	6	1	0.26	0.0080	0.0080	0.060	0	0	0	0
5	Building Construction	521	Loader	3	97	0.37	4	1	0.26	0.0080	0.0080	0.060	128	3.9	3.9	30
5	Building Construction	521	Pressure Washer	5	13	0.30	2	1	2.8	0.0080	0.0080	0.12	123	0.36	0.36	5.4
5	Building Construction	521	Pumps	6	84	0.74	3	1	0.26	0.0080	0.0080	0.060	334	10	10	77
5	Building Construction	521	Skid-Steer Loader	3	65	0.37	6	1	2.7	0.0080	0.0080	0.12	1,356	4.0	4.0	59
5	Building Construction	521	Water Trucks	2	402	0.38	4	1	0.26	0.0080	0.0080	0.060	367	11	11	85
5	Building Construction	521	Welders	5	46	0.45	4	1	2.8	0.0080	0.0080	0.12	1,307	3.8	3.8	57
5	Paving	87	Air Compressors	1	78	0.48	2	1	0.26	0.0080	0.0080	0.060	3.7	0.12	0.12	0.86
5	Paving	87	Cement and Mortar Mixer	1	9	0.56	4	1	2.8	0.0080	0.0080	0.12	11	0.031	0.031	0.46
5	Paving	87	Compactor	1	8	0.43	4	1	2.8	0.0080	0.0080	0.12	7.3	0.021	0.021	0.32
5	Paving	87	Dump Trucks	1	402	0.38	4	1	0.26	0.0080	0.0080	0.060	31	0.94	0.94	7.1
5	Paving	87	Loader	1	97	0.37	4	1	0.26	0.0080	0.0080	0.060	7.1	0.22	0.22	1.6
5	Paving	87	Pavers	1	130	0.42	2	1	0.26	0.0080	0.0080	0.060	5.4	0.17	0.17	1.2
5	Paving	87	Pressure Washer	1	13	0.30	1	1	2.8	0.0080	0.0080	0.12	2.1	0.0060	0.0060	0.090
5	Paving	87	Rollers	1	80	0.38	2	1	0.26	0.0080	0.0080	0.060	3.0	0.092	0.092	0.69
5	Paving	87	Rubber Tired/Track Dozer	1	247	0.40	2	1	0.26	0.0080	0.0080	0.060	9.8	0.30	0.30	2.3
5	Paving	87	Skid-Steer Loader	1	65	0.37	6	1	2.7	0.0080	0.0080	0.12	76	0.22	0.22	3.3
5	Paving	87	Water Trucks	1	402	0.38	4	1	0.26	0.0080	0.0080	0.060	31	0.94	0.94	7.1
5	Architectural Coating	174	Aerial Lifts	6	63	0.31	6	1	2.7	0.0080	0.0080	0.12	733	2.1	2.1	32
5	Architectural Coating	174	Air Compressors	12	78	0.48	6	1	0.26	0.0080	0.0080	0.060	268	8.3	8.3	62
5	Architectural Coating	174	Cement and Mortar Mixer	6	9	0.56	4	1	2.8	0.0080	0.0080	0.12	127	0.37	0.37	5.6
5	Architectural Coating	174	Cranes	6	231	0.29	6	1	0.26	0.0080	0.0080	0.060	238	7.3	7.3	55
5	Architectural Coating	174	Forklifts	6	89	0.20	6	1	0.26	0.0080	0.0080	0.060	64	2.0	2.0	15
5	Architectural Coating	174	Generator Sets	12	84	0.74	6	1	0.26	0.0080	0.0080	0.060	0	0	0	0
5	Architectural Coating	174	Pressure Washer	6	13	0.30	4	1	2.8	0.0080	0.0080	0.12	98	0.29	0.29	4.3
5	Architectural Coating	174	Skid-Steer Loader	6	65	0.37	6	1	2.7	0.0080	0.0080	0.12	904	2.6	2.6	40
5	Architectural Coating	174	Sweepers/Scrubbers	2	64	0.46	2	1	2.7	0.0080	0.0080	0.12	122	0.36	0.36	5.4
5	Architectural Coating	174	Welders	6	46	0.45	6	1	2.8	0.0080	0.0080	0.12	784	2.3	2.3	34
6	Grading	107	Backhoes	1	97	0.37	6	1	0.26	0.0080	0.0080	0.060	13	0.41	0.41	3.0
6	Grading	107	Compactor	1	8	0.43	4	1	2.8	0.0080	0.0080	0.12	8.9	0.026	0.026	0.39
6	Grading	107	Dump Trucks	1	402	0.38	2	1	0.26	0.0080	0.0080	0.060	19	0.58	0.58	4.4

Table AQ-5d
Project Construction Equipment List, Controlled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

									Tier IV Emission Factor (g/bhp-hr)				Controlled Emissions (lb)			
Phase	**Description**	**Phase Length (Days)**	**Equipment[1,2]**	**Quantity[2]**	**Horsepower (HP)[3]**	**Load Factor[3]**	**Daily Usage (Hours)[2]**	**Fraction of Phase**	**NOx**	**PM10**	**PM2.5**	**ROG**	**NOx**	**PM10**	**PM2.5**	**ROG**
6	Grading	107	Excavators	1	158	0.38	6	1	0.26	0.0080	0.0080	0.060	22	0.68	0.68	5.1
6	Grading	107	Loader	1	97	0.37	6	1	0.26	0.0080	0.0080	0.060	13	0.41	0.41	3.0
6	Grading	107	Pressure Washer	1	13	0.30	1	1	2.8	0.0080	0.0080	0.12	2.5	0.0074	0.0074	0.11
6	Grading	107	Pumps	1	84	0.74	2	1	0.26	0.0080	0.0080	0.060	7.6	0.23	0.23	1.8
6	Grading	107	Skid Steer Loader	1	65	0.37	6	1	2.7	0.0080	0.0080	0.12	93	0.27	0.27	4.1
6	Grading	107	Trenchers	1	78	0.50	6	1	0.26	0.0080	0.0080	0.060	14	0.44	0.44	3.3
6	Grading	107	Water Trucks	1	402	0.38	2	1	0.26	0.0080	0.0080	0.060	19	0.58	0.58	4.4
6	Building Construction	804	Aerial Lifts	2	63	0.31	2	1	2.7	0.0080	0.0080	0.12	377	1.1	1.1	17
6	Building Construction	804	Air Compressors	2	78	0.48	3	1	0.26	0.0080	0.0080	0.060	104	3.2	3.2	24
6	Building Construction	804	Backhoes	1	97	0.37	4	1	0.26	0.0080	0.0080	0.060	66	2.0	2.0	15
6	Building Construction	804	Cement and Mortar Mixer	2	9	0.56	4	1	2.8	0.0080	0.0080	0.12	197	0.57	0.57	8.6
6	Building Construction	804	Cranes	2	231	0.29	6	1	0.26	0.0080	0.0080	0.060	368	11	11	85
6	Building Construction	804	Dump Trucks	1	402	0.38	2	1	0.26	0.0080	0.0080	0.060	142	4.4	4.4	33
6	Building Construction	804	Excavators	1	158	0.38	4	1	0.26	0.0080	0.0080	0.060	111	3.4	3.4	26
6	Building Construction	804	Forklifts	2	89	0.20	4	1	0.26	0.0080	0.0080	0.060	66	2.0	2.0	15
6	Building Construction	804	Generator Sets	2	84	0.74	6	1	0.26	0.0080	0.0080	0.060	0	0	0	0
6	Building Construction	804	Loader	1	97	0.37	4	1	0.26	0.0080	0.0080	0.060	66	2.0	2.0	15
6	Building Construction	804	Pressure Washer	2	13	0.30	2	1	2.8	0.0080	0.0080	0.12	76	0.22	0.22	3.3
6	Building Construction	804	Pumps	4	84	0.74	3	1	0.26	0.0080	0.0080	0.060	344	11	11	79
6	Building Construction	804	Skid-Steer Loader	1	65	0.37	6	1	2.7	0.0080	0.0080	0.12	698	2.0	2.0	31
6	Building Construction	804	Water Trucks	1	402	0.38	4	1	0.26	0.0080	0.0080	0.060	283	8.7	8.7	65
6	Building Construction	804	Welders	2	46	0.45	4	1	2.8	0.0080	0.0080	0.12	807	2.3	2.3	35
6	Paving	196	Air Compressors	1	78	0.48	2	1	0.26	0.0080	0.0080	0.060	8.4	0.26	0.26	1.9
6	Paving	196	Cement and Mortar Mixer	1	9	0.56	4	1	2.8	0.0080	0.0080	0.12	24	0.070	0.070	1.0
6	Paving	196	Compactor	1	8	0.43	4	1	2.8	0.0080	0.0080	0.12	16	0.047	0.047	0.71
6	Paving	196	Dump Trucks	1	402	0.38	4	1	0.26	0.0080	0.0080	0.060	69	2.1	2.1	16
6	Paving	196	Loader	1	97	0.37	4	1	0.26	0.0080	0.0080	0.060	16	0.49	0.49	3.7
6	Paving	196	Pavers	1	130	0.42	2	1	0.26	0.0080	0.0080	0.060	12	0.37	0.37	2.8
6	Paving	196	Pressure Washer	1	13	0.30	1	1	2.8	0.0080	0.0080	0.12	4.6	0.013	0.013	0.20
6	Paving	196	Rollers	1	80	0.38	2	1	0.26	0.0080	0.0080	0.060	6.7	0.21	0.21	1.6
6	Paving	196	Rubber Tired/Track Dozer	1	247	0.40	2	1	0.26	0.0080	0.0080	0.060	22	0.67	0.67	5.1
6	Paving	196	Skid-Steer Loader	1	65	0.37	6	1	2.7	0.0080	0.0080	0.12	170	0.50	0.50	7.4
6	Paving	196	Water Trucks	1	402	0.38	4	1	0.26	0.0080	0.0080	0.060	69	2.1	2.1	16
6	Architectural Coating	303	Aerial Lifts	2	63	0.31	6	1	2.7	0.0080	0.0080	0.12	426	1.2	1.2	19
6	Architectural Coating	303	Air Compressors	4	78	0.48	6	1	0.26	0.0080	0.0080	0.060	156	4.8	4.8	36
6	Architectural Coating	303	Cement and Mortar Mixer	2	9	0.56	4	1	2.8	0.0080	0.0080	0.12	74	0.22	0.22	3.2
6	Architectural Coating	303	Cranes	2	231	0.29	6	1	0.26	0.0080	0.0080	0.060	139	4.3	4.3	32
6	Architectural Coating	303	Forklifts	2	89	0.20	6	1	0.26	0.0080	0.0080	0.060	37	1.1	1.1	8.6

Table AQ-5d
Project Construction Equipment List, Controlled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

									Tier IV Emission Factor (g/bhp-hr)				Controlled Emissions (lb)			
Phase	Description	Phase Length (Days)	Equipment[1,2]	Quantity[2]	Horsepower (HP)[3]	Load Factor[3]	Daily Usage (Hours)[2]	Fraction of Phase	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
6	Architectural Coating	303	Generator Sets	4	84	0.74	6	1	0.26	0.0080	0.0080	0.060	0	0	0	0
6	Architectural Coating	303	Pressure Washer	2	13	0.30	4	1	2.8	0.0080	0.0080	0.12	57	0.17	0.17	2.5
6	Architectural Coating	303	Skid-Steer Loader	2	65	0.37	6	1	2.7	0.0080	0.0080	0.12	526	1.5	1.5	23
6	Architectural Coating	303	Sweepers/Scrubbers	1	64	0.46	2	1	2.7	0.0080	0.0080	0.12	107	0.31	0.31	4.7
6	Architectural Coating	303	Welders	2	46	0.45	6	1	2.8	0.0080	0.0080	0.12	456	1.3	1.3	20

Notes:
1. The equipment provided by the Project Sponsor was mapped to CalEEMod default equipment.
2. Equipment quantity and usage hours are provided by the Project Sponsor.
3. Horsepower (HP) and load factors are based on CalEEMod defaults for each equipment type, which are based on OFFROAD2011.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
g - gram
HP - horsepower
lb - pound

NOx - nitrogen oxide compounds (NO + NO_2)
PM_{10} - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - reactive organic gas

Table AQ-5e
Project Marine (Barge) Construction Equipment List, Uncontrolled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

											ROG[3]			NOx[3]				PM[3]			
Phase	Year	Vessel	Engine	MY[1]	Quantity[1]	HP[1]	Operating hr/yr[1,2]	Engine Age (years)[1]	Useful Life (years)[3]	Load Factor[3]	Det. factor	EF (g/hp-hr)	Emissions (g/yr)	Det. factor	Fuel correction factor	EF (g/hp-hr)	Emissions (g/yr)	Det. factor	Fuel correction factor	EF (g/hp-hr)	Emissions (g/yr)
1	2024	Barge	Other	2012	1	97	40	12	16	0.80	0.28	0.11	409	0.14	0.948	2.53	8,225	0.44	0.852	0.070	246
1	2024	Barge	Other	2012	1	167	40	12	16	0.80	0.28	0.12	783	0.14	0.948	2.45	13,717	0.44	0.852	0.14	848
1	2024	Barge	Crane	2011	1	332	60	13	9	0.42	0.44	0.12	1,656	0.21	0.948	2.45	25,336	0.67	0.852	0.11	1,544

Notes:

1. Equipment quantity, age, horsepower and usage hours are provided by the Project Sponsor.
2. The duration of the construction related to the installation of the recreational dock during Phase 1 is assumed to be one month only.
3. Load factors, useful life, deterioration factors and emission factors are based on the ARB's California Commercial Harborcraft (CHC) inventory.

Abbreviations:

ARB - California Air Resources Board
CHC - commercial harborcraft
g - gram
HP - horsepower
MY - model year
NOx - nitrogen oxide compounds (NO + NO_2)
PM - particulate matter
ROG - reactive organic gas

Table AQ-5f
Project Marine (Tug) Construction Equipment List, Uncontrolled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

							Main engine				ROG[3]			NOx[3]				PM[3]			
Phase	Year	Vessel	MY Main[1]	Quantity[1]	Main Engine HP[1]	Operating hr/yr[1,2]	Main engine Age (years)[1]	Useful Life (years)[3]	Number of Engines[1]	Load Factor[3]	Det. factor	EF (g/hp-hr)	Emissions (g/yr)	Det. factor	Fuel correction factor	EF (g/hp-hr)	Emissions (g/yr)	Det. factor	Fuel correction factor	EF (g/hp-hr)	Emissions (g/yr)
1	2024	Tug Boats	2006	1	660	60	18	21	2	0.5	0.44	0.68	37,084	0.21	0.948	7.31	323,819	0.67	0.8	0.361	18,004
0	2021	Tug Boats	2006	1	660	520	15	21	2	0.5	0.44	0.68	306,723	0.21	0.948	7.31	2,735,085	0.67	0.8	0.361	146,550

Notes:

1. Equipment quantity, age, horsepower and usage hours are provided by the Project Sponsor.
2. The duration of the construction related to the installation of the recreational dock during Phase 1 is assumed to be one month only.
3. Load factors, useful life, deterioration factors and emission factors are based on the ARB's California Commercial Harborcraft (CHC) inventory.

Abbreviations:

ARB - California Air Resources Board
CHC - commercial harborcraft
g - gram
HP - horsepower
MY - model year
NOx - nitrogen oxide compounds (NO + NO_2)
PM - particulate matter
ROG - reactive organic gas

Table AQ-5g
Project Marine (Barge) Construction Equipment List, Controlled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

											ROG[4]			NOx[4]				PM[4]			
Phase	Year	Vessel	Engine	MY[1]	Quantity[1]	HP[1]	Operating hr/yr[1,2]	Engine Age (years)[1]	Useful Life (years)[3]	Load Factor[3]	Det. factor	EF (g/hp-hr)	Emissions (g/yr)	Det. factor	Fuel correction factor	EF (g/hp-hr)	Emissions (g/yr)	Det. factor	PM correction factor	EF (g/hp-hr)	Emissions (g/yr)
1	2024	Barge	Other	2012	1	97	40	12	16	0.80	0.28	0.06	225	0.14	0.948	0.26	845	0.44	0.852	0.008	28
1	2024	Barge	Other	2012	1	167	40	12	16	0.80	0.28	0.06	388	0.14	0.948	0.26	1,456	0.44	0.852	0.008	48
1	2024	Barge	Crane	2011	1	332	60	13	9	0.42	0.44	0.06	821	0.21	0.948	0.26	2,689	0.67	0.852	0.008	112

Notes:

1. Equipment quantity, age, horsepower and usage hours are provided by the Project Sponsor.
2. The duration of the construction related to the installation of the recreational dock during Phase 1 is assumed to be one month only.
3. Load factors, useful life and deterioration factors are based on the ARB's California Commercial Harborcraft (CHC) inventory.
4. Emission factors are based on Tier IV Off-road diesel equipment standards.

Abbreviations:

ARB - California Air Resources Board
CHC - Commercial harborcraft
g - gram
HP - horsepower
MY - Model year
NOx - nitrogen oxide compounds (NO + NO_2)
PM - particulate matter
ROG - reactive organic gas

Table AQ-5h
Project Marine (Tug) Construction Equipment List, Controlled Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

							Main engine				ROG[4]			NOx[4]				PM[4]			
Phase	Year	Vessel	MY Main[1]	Quantity[1]	Main Engine HP[1]	Operating hr/yr[1,2]	Main engine Age (years)[1]	Useful Life (years)[3]	Number of Engines[1]	Load Factor[3]	Det. factor	EF (g/hp-hr)	Emissions (g/yr)	Det. factor	Fuel correction factor	EF (g/hp-hr)	Emissions (g/yr)	Det. factor	Fuel correction factor	EF (g/hp-hr)	Emissions (g/yr)
1	2024	Tug Boats	2006	1	660	60	18	21	2	0.5	0.44	0.45	24,363	0.21	0.948	4.8	212,739	0.67	0.8	0.25	12,645
0	2021	Tug Boats	2006	1	660	520	15	21	2	0.5	0.44	0.45	201,507	0.21	0.948	4.8	1,796,866	0.67	0.8	0.25	102,926

Notes:

1. Equipment quantity, age, horsepower and usage hours are provided by the Project Sponsor.
2. The duration of the construction related to the installation of the recreational dock during Phase 1 is assumed to be one month only.
3. Load factors, useful life and deterioration factors are based on the ARB's California Commercial Harborcraft (CHC) inventory.
4. Emission factors are based on Tier III standards from ARB's Marine Engine Regulations (https://www.arb.ca.gov/regact/2010/chc10/frochc931185.pdf)

Abbreviations:

ARB - California Air Resources Board
CHC - commercial harborcraft
g - gram
HP - horsepower
MY - model year
NOx - nitrogen oxide compounds (NO + NO_2)
PM - particulate matter
ROG - reactive organic gas

Table AQ-5i
Project Construction On-road Vehicle Uncontrolled Running Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Running Emission Factor[3]					Running Emissions (lb)				
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	NOx Exhaust (g/mi)	PM10 Exhaust (g/mi)	PM2.5 Exhaust (g/mi)	ROG Exhaust (g/mi)	ROG Running Losses (g/trip)	NOx Exhaust	PM10 Exhaust	PM2.5 Exhaust	ROG Exhaust	ROG Running Losses
0	Demolition	2020	Hauling	404	20	5.7	0.021	0.020	0.14	0	102	0.38	0.37	2.5	0
0	Demolition	2020	Vendor	1,950	7.3	2.3	0.045	0.043	0.11	0	72	1.4	1.4	3.6	0
0	Demolition	2020	Worker	44,200	10.8	0.073	0.0023	0.0021	0.017	0.40	77	2.4	2.2	18	39
0	Site Preparation	2021	Hauling	166	20	5.2	0.019	0.019	0.13	0	38	0.14	0.14	0.98	0
0	Site Preparation	2021	Vendor	1,560	7.3	1.6	0.0078	0.0075	0.057	0	41	0.20	0.19	1.4	0
0	Site Preparation	2021	Worker	19,240	10.8	0.066	0.0023	0.0021	0.015	0.38	30	1.0	0.96	7.0	16
0	Grading	2021	Hauling	24,000	20	5.2	0.019	0.019	0.13	0	5,513	21	20	141	0
0	Grading	2021	Vendor	1,693	7.3	1.6	0.0078	0.0075	0.057	0	44	0.21	0.20	1.5	0
0	Grading	2021	Worker	26,521	10.8	0.066	0.0023	0.0021	0.015	0.38	42	1.4	1.3	9.6	22
0.1	Grading	2024	Hauling	8,700	20	3.0	0.0086	0.0083	0.091	0	1,161	3.3	3.2	35	0
0.1	Grading	2024	Vendor	523	7.3	1.2	0.0033	0.0032	0.042	0	9.7	0.028	0.027	0.36	0
0.1	Grading	2024	Worker	2,266	10.8	0.050	0.0022	0.0020	0.011	0.33	2.7	0.12	0.11	0.62	1.6
1	Grading	2023	Hauling	2,746	20	3.2	0.0089	0.0085	0.092	0	387	1.1	1.0	11	0
1	Grading	2023	Vendor	777	7.3	1.2	0.0033	0.0032	0.042	0	15	0.042	0.040	0.53	0
1	Grading	2023	Worker	6,217	10.8	0.054	0.0022	0.0020	0.013	0.34	8.0	0.33	0.30	1.9	4.7
1	Building Construction	2022	Hauling	7,515	20	4.7	0.017	0.016	0.13	0	1,556	5.6	5.4	42	0
1	Building Construction	2022	Vendor	19,586	7.3	1.5	0.0069	0.0066	0.055	0	487	2.2	2.1	17	0
1	Building Construction	2022	Worker	135,794	10.8	0.060	0.0022	0.0021	0.014	0.36	193	7.2	6.6	45	108
1	Paving	2024	Hauling	2,288	20	3.0	0.0086	0.0083	0.091	0	305	0.87	0.83	9.2	0
1	Paving	2024	Vendor	2,777	7.3	1.2	0.0033	0.0032	0.042	0	52	0.15	0.14	1.9	0
1	Paving	2024	Worker	26,383	10.8	0.050	0.0022	0.0020	0.011	0.33	31	1.4	1.3	7.2	19
1	Architectural Coating	2025	Hauling	0	20	2.9	0.0084	0.0080	0.090	0	0	0	0	0	0
1	Architectural Coating	2025	Vendor	2,057	7.3	1.2	0.0033	0.0031	0.042	0	38	0.11	0.10	1.4	0
1	Architectural Coating	2025	Worker	25,200	10.8	0.046	0.0022	0.0020	0.010	0.32	27	1.3	1.2	6.3	18
2	Building Construction	2024	Hauling	5,594	20	3.0	0.0086	0.0083	0.091	0	747	2.1	2.0	22	0
2	Building Construction	2024	Vendor	4,343	7.3	1.2	0.0033	0.0032	0.042	0	81	0.23	0.22	3.0	0
2	Building Construction	2024	Worker	48,640	10.8	0.050	0.0022	0.0020	0.011	0.33	57	2.5	2.3	13	35
2	Paving	2025	Hauling	10	20	2.9	0.0084	0.0080	0.090	0	1.3	0.0037	0.0035	0.040	0
2	Paving	2025	Vendor	257	7.3	1.2	0.0033	0.0031	0.042	0	4.8	0.014	0.013	0.18	0
2	Paving	2025	Worker	2,829	10.8	0.046	0.0022	0.0020	0.010	0.32	3.1	0.15	0.13	0.70	2.0
2	Architectural Coating	2025	Hauling	0	20	2.9	0.0084	0.0080	0.090	0	0	0	0	0	0
2	Architectural Coating	2025	Vendor	1,377	7.3	1.2	0.0033	0.0031	0.042	0	26	0.073	0.070	0.94	0
2	Architectural Coating	2025	Worker	17,214	10.8	0.046	0.0022	0.0020	0.010	0.32	19	0.88	0.81	4.3	12
3	Grading	2025	Hauling	260	20	2.9	0.0084	0.0080	0.090	0	33	0.096	0.092	1.0	0
3	Grading	2025	Vendor	254	7.3	1.2	0.0033	0.0031	0.042	0	4.7	0.013	0.013	0.17	0
3	Grading	2025	Worker	1,526	10.8	0.046	0.0022	0.0020	0.010	0.32	1.7	0.078	0.072	0.38	1.1
3	Building Construction	2026	Hauling	6,416	20	2.7	0.0081	0.0077	0.089	0	768	2.3	2.2	25	0
3	Building Construction	2026	Vendor	9,714	7.3	1.1	0.0032	0.0031	0.043	0	178	0.51	0.49	6.7	0
3	Building Construction	2026	Worker	87,429	10.8	0.042	0.0021	0.0019	0.0096	0.30	88	4.4	4.0	20	59
3	Paving	2027	Hauling	190	20	2.6	0.0078	0.0074	0.088	0	21	0.065	0.062	0.73	0
3	Paving	2027	Vendor	869	7.3	1.1	0.0032	0.0031	0.042	0	16	0.045	0.043	0.59	0
3	Paving	2027	Worker	6,514	10.8	0.039	0.0020	0.0018	0.0089	0.29	6.1	0.31	0.28	1.4	4.2
3	Architectural Coating	2028	Hauling	0	20	2.4	0.0075	0.0072	0.087	0	0	0	0	0	0
3	Architectural Coating	2028	Vendor	869	7.3	1.1	0.0032	0.0030	0.042	0	16	0.044	0.043	0.59	0
3	Architectural Coating	2028	Worker	16,069	10.8	0.036	0.0018	0.0017	0.0082	0.28	14	0.70	0.65	3.2	9.9
4	Grading	2027	Hauling	293	20	2.6	0.0078	0.0074	0.088	0	33	0.10	0.096	1.1	0
4	Grading	2027	Vendor	254	7.3	1.1	0.0032	0.0031	0.042	0	4.6	0.013	0.013	0.17	0
4	Grading	2027	Worker	1,526	10.8	0.039	0.0020	0.0018	0.0089	0.29	1.4	0.072	0.066	0.32	0.98
4	Building Construction	2028	Hauling	9,388	20	2.4	0.0075	0.0072	0.087	0	1,010	3.1	3.0	36	0
4	Building Construction	2028	Vendor	17,194	7.3	1.1	0.0032	0.0030	0.042	0	310	0.88	0.84	12	0
4	Building Construction	2028	Worker	134,689	10.8	0.036	0.0018	0.0017	0.0082	0.28	117	5.9	5.4	26	83
4	Paving	2031	Hauling	113	20	2.1	0.0066	0.0063	0.084	0	10	0.033	0.031	0.42	0
4	Paving	2031	Vendor	603	7.3	1.1	0.0031	0.0030	0.042	0	11	0.030	0.029	0.41	0
4	Paving	2031	Worker	4,521	10.8	0.030	0.0015	0.0014	0.0067	0.24	3.2	0.16	0.15	0.72	2.4
4	Architectural Coating	2030	Hauling	0	20	2.2	0.0069	0.0066	0.084	0	0	0	0	0	0
4	Architectural Coating	2030	Vendor	2,164	7.3	1.1	0.0031	0.0030	0.042	0	38	0.11	0.10	1.5	0
4	Architectural Coating	2030	Worker	42,420	10.8	0.032	0.0016	0.0015	0.0071	0.25	32	1.6	1.5	7.2	24
5	Building Construction	2030	Hauling	8,060	20	2.2	0.0069	0.0066	0.084	0	779	2.4	2.3	30	0
5	Building Construction	2030	Vendor	12,497	7.3	1.1	0.0031	0.0030	0.042	0	222	0.63	0.60	8.5	0
5	Building Construction	2030	Worker	69,776	10.8	0.032	0.0016	0.0015	0.0071	0.25	53	2.6	2.4	12	39

Table AQ-5i
Project Construction On-road Vehicle Uncontrolled Running Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Running Emission Factor[3]					Running Emissions (lb)				
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	NOx Exhaust (g/mi)	PM10 Exhaust (g/mi)	PM2.5 Exhaust (g/mi)	ROG Exhaust (g/mi)	ROG Running Losses (g/trip)	NOx Exhaust	PM10 Exhaust	PM2.5 Exhaust	ROG Exhaust	ROG Running Losses
5	Paving	2032	Hauling	151	20	2.0	0.0064	0.0061	0.083	0	13	0.042	0.040	0.55	0
5	Paving	2032	Vendor	349	7.3	1.1	0.0031	0.0029	0.042	0	6.1	0.017	0.017	0.24	0
5	Paving	2032	Worker	2,266	10.8	0.028	0.0014	0.0013	0.0062	0.22	1.5	0.074	0.068	0.34	1.1
5	Architectural Coating	2032	Hauling	0	20	2.0	0.0064	0.0061	0.083	0	0	0	0	0	0
5	Architectural Coating	2032	Vendor	1,736	7.3	1.1	0.0031	0.0029	0.042	0	30	0.086	0.082	1.2	0
5	Architectural Coating	2032	Worker	25,689	10.8	0.028	0.0014	0.0013	0.0062	0.22	17	0.84	0.77	3.8	13
6	Grading	2030	Hauling	683	20	2.2	0.0069	0.0066	0.084	0	66	0.21	0.20	2.5	0
6	Grading	2030	Vendor	429	7.3	1.1	0.0031	0.0030	0.042	0	7.6	0.022	0.021	0.29	0
6	Grading	2030	Worker	2,571	10.8	0.032	0.0016	0.0015	0.0071	0.25	2.0	0.097	0.089	0.44	1.4
6	Building Construction	2031	Hauling	3,463	20	2.1	0.0066	0.0063	0.084	0	319	1.0	0.96	13	0
6	Building Construction	2031	Vendor	8,043	7.3	1.1	0.0031	0.0030	0.042	0	142	0.40	0.38	5.5	0
6	Building Construction	2031	Worker	45,040	10.8	0.030	0.0015	0.0014	0.0067	0.24	32	1.6	1.4	7.1	23
6	Paving	2032	Hauling	408	20	2.0	0.0064	0.0061	0.083	0	36	0.11	0.11	1.5	0
6	Paving	2032	Vendor	783	7.3	1.1	0.0031	0.0029	0.042	0	14	0.039	0.037	0.53	0
6	Paving	2032	Worker	5,089	10.8	0.028	0.0014	0.0013	0.0062	0.22	3.4	0.17	0.15	0.76	2.5
6	Architectural Coating	2032	Hauling	0	20	2.0	0.0064	0.0061	0.083	0	0	0	0	0	0
6	Architectural Coating	2032	Vendor	2,423	7.3	1.1	0.0031	0.0029	0.042	0	42	0.12	0.11	1.6	0
6	Architectural Coating	2032	Worker	16,354	10.8	0.028	0.0014	0.0013	0.0062	0.22	11	0.53	0.49	2.4	8.0

Notes:

1. Total number of worker, vendor and haul trips are provided by the Project Sponsor.
2. Trip lengths for worker, vendor, and hauling trips are CalEEMod® defaults.
3. Emission factors are based on calendar-year average values from EMFAC2014.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
EMFAC: EMission FACtor Model
g - grams
lb - pound
mi - miles
NOx - nitrogen oxide compounds (NO + NO_2)
PM_{10} - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - reactive organic gas

Table AQ-5j
Project Construction On-road Vehicle Uncontrolled Idling Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Idling Emission Factor (g/trip)[3]				Idling Emissions (lb)			
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
0	Demolition	2020	Hauling	404	20	5.0	0.065	0.065	0.50	4.5	0.058	0.058	0.44
0	Demolition	2020	Vendor	1,950	7.3	3.7	0.026	0.026	0.25	16	0.11	0.11	1.1
0	Demolition	2020	Worker	44,200	10.8	0	0	0	0	0	0	0	0
0	Site Preparation	2021	Hauling	166	20	4.7	0.059	0.059	0.46	1.7	0.022	0.022	0.17
0	Site Preparation	2021	Vendor	1,560	7.3	2.5	0.013	0.013	0.16	8.6	0.046	0.046	0.55
0	Site Preparation	2021	Worker	19,240	10.8	0	0	0	0	0	0	0	0
0	Grading	2021	Hauling	24,000	20	4.7	0.059	0.059	0.46	250	3.1	3.1	24
0	Grading	2021	Vendor	1,693	7.3	2.5	0.013	0.013	0.16	9.4	0.050	0.050	0.60
0	Grading	2021	Worker	26,521	10.8	0	0	0	0	0	0	0	0
0.1	Grading	2024	Hauling	8,700	20	3.4	0.040	0.040	0.32	65	0.76	0.76	6.1
0.1	Grading	2024	Vendor	523	7.3	1.6	0.0047	0.0047	0.089	1.9	0.0054	0.0054	0.10
0.1	Grading	2024	Worker	2,266	10.8	0	0	0	0	0	0	0	0
1	Grading	2023	Hauling	2,746	20	3.6	0.044	0.044	0.34	22	0.27	0.27	2.1
1	Grading	2023	Vendor	777	7.3	1.7	0.0057	0.0057	0.095	2.9	0.0097	0.0097	0.16
1	Grading	2023	Worker	6,217	10.8	0	0	0	0	0	0	0	0
1	Building Construction	2022	Hauling	7,515	20	4.4	0.053	0.053	0.42	73	0.88	0.88	6.9
1	Building Construction	2022	Vendor	19,586	7.3	2.3	0.011	0.011	0.14	101	0.49	0.49	6.2
1	Building Construction	2022	Worker	135,794	10.8	0	0	0	0	0	0	0	0
1	Paving	2024	Hauling	2,288	20	3.4	0.040	0.040	0.32	17	0.20	0.20	1.6
1	Paving	2024	Vendor	2,777	7.3	1.6	0.0047	0.0047	0.089	10	0.029	0.029	0.54
1	Paving	2024	Worker	26,383	10.8	0	0	0	0	0	0	0	0
1	Architectural Coating	2025	Hauling	0	20	3.2	0.036	0.036	0.30	0	0	0	0
1	Architectural Coating	2025	Vendor	2,057	7.3	1.6	0.0039	0.0039	0.084	7.3	0.018	0.018	0.38
1	Architectural Coating	2025	Worker	25,200	10.8	0	0	0	0	0	0	0	0
2	Building Construction	2024	Hauling	5,594	20	3.4	0.040	0.040	0.32	42	0.49	0.49	3.9
2	Building Construction	2024	Vendor	4,343	7.3	1.6	0.0047	0.0047	0.089	16	0.045	0.045	0.85
2	Building Construction	2024	Worker	48,640	10.8	0	0	0	0	0	0	0	0
2	Paving	2025	Hauling	10	20	3.2	0.036	0.036	0.30	0.071	0.00080	0.00080	0.0065
2	Paving	2025	Vendor	257	7.3	1.6	0.0039	0.0039	0.084	0.91	0.0022	0.0022	0.047
2	Paving	2025	Worker	2,829	10.8	0	0	0	0	0	0	0	0
2	Architectural Coating	2025	Hauling	0	20	3.2	0.036	0.036	0.30	0	0	0	0
2	Architectural Coating	2025	Vendor	1,377	7.3	1.6	0.0039	0.0039	0.084	4.9	0.012	0.012	0.25
2	Architectural Coating	2025	Worker	17,214	10.8	0	0	0	0	0	0	0	0
3	Grading	2025	Hauling	260	20	3.2	0.036	0.036	0.30	1.8	0.021	0.021	0.17
3	Grading	2025	Vendor	254	7.3	1.6	0.0039	0.0039	0.084	0.90	0.0022	0.0022	0.047
3	Grading	2025	Worker	1,526	10.8	0	0	0	0	0	0	0	0
3	Building Construction	2026	Hauling	6,416	20	3.1	0.032	0.032	0.27	43	0.46	0.46	3.9
3	Building Construction	2026	Vendor	9,714	7.3	1.6	0.0032	0.0032	0.079	34	0.068	0.068	1.7
3	Building Construction	2026	Worker	87,429	10.8	0	0	0	0	0	0	0	0
3	Paving	2027	Hauling	190	20	2.9	0.029	0.029	0.25	1.2	0.012	0.012	0.11
3	Paving	2027	Vendor	869	7.3	1.6	0.0026	0.0026	0.076	3.0	0.0050	0.0050	0.15
3	Paving	2027	Worker	6,514	10.8	0	0	0	0	0	0	0	0

Table AQ-5j
Project Construction On-road Vehicle Uncontrolled Idling Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Idling Emission Factor (g/trip)[3]				Idling Emissions (lb)			
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
3	Architectural Coating	2028	Hauling	0	20	2.8	0.026	0.026	0.23	0	0	0	0
3	Architectural Coating	2028	Vendor	869	7.3	1.5	0.0022	0.0022	0.073	2.9	0.0042	0.0042	0.14
3	Architectural Coating	2028	Worker	16,069	10.8	0	0	0	0	0	0	0	0
4	Grading	2027	Hauling	293	20	2.9	0.029	0.029	0.25	1.9	0.019	0.019	0.16
4	Grading	2027	Vendor	254	7.3	1.6	0.0026	0.0026	0.076	0.87	0.0015	0.0015	0.043
4	Grading	2027	Worker	1,526	10.8	0	0	0	0	0	0	0	0
4	Building Construction	2028	Hauling	9,388	20	2.8	0.026	0.026	0.23	58	0.54	0.54	4.8
4	Building Construction	2028	Vendor	17,194	7.3	1.5	0.0022	0.0022	0.073	58	0.083	0.083	2.8
4	Building Construction	2028	Worker	134,689	10.8	0	0	0	0	0	0	0	0
4	Paving	2031	Hauling	113	20	2.4	0.016	0.016	0.17	0.61	0.0041	0.0041	0.044
4	Paving	2031	Vendor	603	7.3	1.5	0.0012	0.0012	0.067	2.0	0.0016	0.0016	0.089
4	Paving	2031	Worker	4,521	10.8	0	0	0	0	0	0	0	0
4	Architectural Coating	2030	Hauling	0	20	2.5	0.019	0.019	0.19	0	0	0	0
4	Architectural Coating	2030	Vendor	2,164	7.3	1.5	0.0014	0.0014	0.068	7.1	0.0068	0.0068	0.33
4	Architectural Coating	2030	Worker	42,420	10.8	0	0	0	0	0	0	0	0
5	Building Construction	2030	Hauling	8,060	20	2.5	0.019	0.019	0.19	45	0.35	0.35	3.4
5	Building Construction	2030	Vendor	12,497	7.3	1.5	0.0014	0.0014	0.068	41	0.039	0.039	1.9
5	Building Construction	2030	Worker	69,776	10.8	0	0	0	0	0	0	0	0
5	Paving	2032	Hauling	151	20	2.3	0.014	0.014	0.16	0.78	0.0048	0.0048	0.054
5	Paving	2032	Vendor	349	7.3	1.5	0.0010	0.0010	0.066	1.1	0.00080	0.00080	0.050
5	Paving	2032	Worker	2,266	10.8	0	0	0	0	0	0	0	0
5	Architectural Coating	2032	Hauling	0	20	2.3	0.014	0.014	0.16	0	0	0	0
5	Architectural Coating	2032	Vendor	1,736	7.3	1.5	0.0010	0.0010	0.066	5.6	0.0040	0.0040	0.25
5	Architectural Coating	2032	Worker	25,689	10.8	0	0	0	0	0	0	0	0
6	Grading	2030	Hauling	683	20	2.5	0.019	0.019	0.19	3.8	0.029	0.029	0.29
6	Grading	2030	Vendor	429	7.3	1.5	0.0014	0.0014	0.068	1.4	0.0013	0.0013	0.065
6	Grading	2030	Worker	2,571	10.8	0	0	0	0	0	0	0	0
6	Building Construction	2031	Hauling	3,463	20	2.4	0.016	0.016	0.17	19	0.13	0.13	1.3
6	Building Construction	2031	Vendor	8,043	7.3	1.5	0.0012	0.0012	0.067	26	0.021	0.021	1.2
6	Building Construction	2031	Worker	45,040	10.8	0	0	0	0	0	0	0	0
6	Paving	2032	Hauling	408	20	2.3	0.014	0.014	0.16	2.1	0.013	0.013	0.15
6	Paving	2032	Vendor	783	7.3	1.5	0.0010	0.0010	0.066	2.5	0.0018	0.0018	0.11

Table AQ-5j
Project Construction On-road Vehicle Uncontrolled Idling Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	Idling Emission Factor (g/trip)[3]				Idling Emissions (lb)			
						NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
6	Paving	2032	Worker	5,089	10.8	0	0	0	0	0	0	0	0
6	Architectural Coating	2032	Hauling	0	20	2.3	0.014	0.014	0.16	0	0	0	0
6	Architectural Coating	2032	Vendor	2,423	7.3	1.5	0.0010	0.0010	0.066	7.8	0.0056	0.0056	0.35
6	Architectural Coating	2032	Worker	16,354	10.8	0	0	0	0	0	0	0	0

Notes:
1. Total number of worker, vendor and haul trips are provided by the Project Sponsor.
2. Trip lengths for worker, vendor, and hauling trips are CalEEMod® defaults.
3. Emission factors are based on calendar-year average values from EMFAC2014.

Abbreviations:
CalEEMod® - California Emissions Estimator Model
EMFAC: EMission FACtor Model
g - grams
lb - pound
mi - miles
NOx - nitrogen oxide compounds ($NO + NO_2$)
PM_{10} - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - reactive organic gas

Table AQ-5k
Project Construction On-road Vehicle Uncontrolled Starting Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Starting Emission Factor (g/trip)[3]				Starting Emissions (lb)			
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
0	Demolition	2020	Hauling	404	20	0	0	0	0	0	0	0	0
0	Demolition	2020	Vendor	1,950	7.3	0	0	0	0	0	0	0	0
0	Demolition	2020	Worker	44,200	10.8	0.12	0.0024	0.0022	0.12	12	0.24	0.22	12
0	Site Preparation	2021	Hauling	166	20	0	0	0	0	0	0	0	0
0	Site Preparation	2021	Vendor	1,560	7.3	0	0	0	0	0	0	0	0
0	Site Preparation	2021	Worker	19,240	10.8	0.11	0.0024	0.0022	0.11	4.6	0.10	0.094	4.6
0	Grading	2021	Hauling	24,000	20	0	0	0	0	0	0	0	0
0	Grading	2021	Vendor	1,693	7.3	0	0	0	0	0	0	0	0
0	Grading	2021	Worker	26,521	10.8	0.11	0.0024	0.0022	0.11	6.3	0.14	0.13	6.3
0.1	Grading	2024	Hauling	8,700	20	0	0	0	0	0	0	0	0
0.1	Grading	2024	Vendor	523	7.3	0	0	0	0	0	0	0	0
0.1	Grading	2024	Worker	2,266	10.8	0.075	0.0024	0.0022	0.074	0.37	0.012	0.011	0.37
1	Grading	2023	Hauling	2,746	20	0	0	0	0	0	0	0	0
1	Grading	2023	Vendor	777	7.3	0	0	0	0	0	0	0	0
1	Grading	2023	Worker	6,217	10.8	0.084	0.0024	0.0022	0.084	1.2	0.032	0.030	1.1
1	Building Construction	2022	Hauling	7,515	20	0	0	0	0	0	0	0	0
1	Building Construction	2022	Vendor	19,586	7.3	0	0	0	0	0	0	0	0
1	Building Construction	2022	Worker	135,794	10.8	0.095	0.0024	0.0022	0.095	28	0.71	0.66	28
1	Paving	2024	Hauling	2,288	20	0	0	0	0	0	0	0	0
1	Paving	2024	Vendor	2,777	7.3	0	0	0	0	0	0	0	0
1	Paving	2024	Worker	26,383	10.8	0.075	0.0024	0.0022	0.074	4.3	0.14	0.13	4.3
1	Architectural Coating	2025	Hauling	0	20	0	0	0	0	0	0	0	0
1	Architectural Coating	2025	Vendor	2,057	7.3	0	0	0	0	0	0	0	0
1	Architectural Coating	2025	Worker	25,200	10.8	0.067	0.0024	0.0022	0.066	3.7	0.13	0.12	3.7
2	Building Construction	2024	Hauling	5,594	20	0	0	0	0	0	0	0	0
2	Building Construction	2024	Vendor	4,343	7.3	0	0	0	0	0	0	0	0
2	Building Construction	2024	Worker	48,640	10.8	0.075	0.0024	0.0022	0.074	8.0	0.25	0.23	7.9
2	Paving	2025	Hauling	10	20	0	0	0	0	0	0	0	0
2	Paving	2025	Vendor	257	7.3	0	0	0	0	0	0	0	0
2	Paving	2025	Worker	2,829	10.8	0.067	0.0024	0.0022	0.066	0.42	0.015	0.013	0.41
2	Architectural Coating	2025	Hauling	0	20	0	0	0	0	0	0	0	0
2	Architectural Coating	2025	Vendor	1,377	7.3	0	0	0	0	0	0	0	0
2	Architectural Coating	2025	Worker	17,214	10.8	0.067	0.0024	0.0022	0.066	2.5	0.089	0.082	2.5
3	Grading	2025	Hauling	260	20	0	0	0	0	0	0	0	0
3	Grading	2025	Vendor	254	7.3	0	0	0	0	0	0	0	0
3	Grading	2025	Worker	1,526	10.8	0.067	0.0024	0.0022	0.066	0.22	0.0079	0.0073	0.22
3	Building Construction	2026	Hauling	6,416	20	0	0	0	0	0	0	0	0
3	Building Construction	2026	Vendor	9,714	7.3	0	0	0	0	0	0	0	0
3	Building Construction	2026	Worker	87,429	10.8	0.060	0.0023	0.0021	0.059	12	0.45	0.41	11

Table AQ-5k
Project Construction On-road Vehicle Uncontrolled Starting Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Starting Emission Factor (g/trip)[3]				Starting Emissions (lb)			
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
3	Paving	2027	Hauling	190	20	0	0	0	0	0	0	0	0
3	Paving	2027	Vendor	869	7.3	0	0	0	0	0	0	0	0
3	Paving	2027	Worker	6,514	10.8	0.054	0.0023	0.0021	0.053	0.77	0.032	0.030	0.76
3	Architectural Coating	2028	Hauling	0	20	0	0	0	0	0	0	0	0
3	Architectural Coating	2028	Vendor	869	7.3	0	0	0	0	0	0	0	0
3	Architectural Coating	2028	Worker	16,069	10.8	0.049	0.0022	0.0020	0.048	1.7	0.077	0.070	1.7
4	Grading	2027	Hauling	293	20	0	0	0	0	0	0	0	0
4	Grading	2027	Vendor	254	7.3	0	0	0	0	0	0	0	0
4	Grading	2027	Worker	1,526	10.8	0.054	0.0023	0.0021	0.053	0.18	0.0076	0.0070	0.18
4	Building Construction	2028	Hauling	9,388	20	0	0	0	0	0	0	0	0
4	Building Construction	2028	Vendor	17,194	7.3	0	0	0	0	0	0	0	0
4	Building Construction	2028	Worker	134,689	10.8	0.049	0.0022	0.0020	0.048	14	0.64	0.59	14
4	Paving	2031	Hauling	113	20	0	0	0	0	0	0	0	0
4	Paving	2031	Vendor	603	7.3	0	0	0	0	0	0	0	0
4	Paving	2031	Worker	4,521	10.8	0.036	0.0018	0.0017	0.034	0.36	0.018	0.017	0.34
4	Architectural Coating	2030	Hauling	0	20	0	0	0	0	0	0	0	0
4	Architectural Coating	2030	Vendor	2,164	7.3	0	0	0	0	0	0	0	0
4	Architectural Coating	2030	Worker	42,420	10.8	0.040	0.0019	0.0018	0.038	3.7	0.18	0.17	3.6
5	Building Construction	2030	Hauling	8,060	20	0	0	0	0	0	0	0	0
5	Building Construction	2030	Vendor	12,497	7.3	0	0	0	0	0	0	0	0
5	Building Construction	2030	Worker	69,776	10.8	0.040	0.0019	0.0018	0.038	6.1	0.30	0.28	5.9
5	Paving	2032	Hauling	151	20	0	0	0	0	0	0	0	0
5	Paving	2032	Vendor	349	7.3	0	0	0	0	0	0	0	0
5	Paving	2032	Worker	2,266	10.8	0.032	0.0017	0.0016	0.030	0.16	0.0087	0.0080	0.15
5	Architectural Coating	2032	Hauling	0	20	0	0	0	0	0	0	0	0
5	Architectural Coating	2032	Vendor	1,736	7.3	0	0	0	0	0	0	0	0
5	Architectural Coating	2032	Worker	25,689	10.8	0.032	0.0017	0.0016	0.030	1.8	0.098	0.091	1.7
6	Grading	2030	Hauling	683	20	0	0	0	0	0	0	0	0
6	Grading	2030	Vendor	429	7.3	0	0	0	0	0	0	0	0
6	Grading	2030	Worker	2,571	10.8	0.040	0.0019	0.0018	0.038	0.23	0.011	0.010	0.22
6	Building Construction	2031	Hauling	3,463	20	0	0	0	0	0	0	0	0
6	Building Construction	2031	Vendor	8,043	7.3	0	0	0	0	0	0	0	0

Table AQ-5k
Project Construction On-road Vehicle Uncontrolled Starting Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	Starting Emission Factor (g/trip)[3] NOx	PM10	PM2.5	ROG	Starting Emissions (lb) NOx	PM10	PM2.5	ROG
6	Building Construction	2031	Worker	45,040	10.8	0.036	0.0018	0.0017	0.034	3.6	0.18	0.17	3.4
6	Paving	2032	Hauling	408	20	0	0	0	0	0	0	0	0
6	Paving	2032	Vendor	783	7.3	0	0	0	0	0	0	0	0
6	Paving	2032	Worker	5,089	10.8	0.032	0.0017	0.0016	0.030	0.36	0.020	0.018	0.34
6	Architectural Coating	2032	Hauling	0	20	0	0	0	0	0	0	0	0
6	Architectural Coating	2032	Vendor	2,423	7.3	0	0	0	0	0	0	0	0
6	Architectural Coating	2032	Worker	16,354	10.8	0.032	0.0017	0.0016	0.030	1.2	0.063	0.058	1.1

Notes:

1. Total number of worker, vendor and haul trips are provided by the Project Sponsor.
2. Trip lengths for worker, vendor, and hauling trips are CalEEMod® defaults.
3. Emission factors are based on calendar-year average values from EMFAC2014.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
EMFAC: EMission FACtor Model
g - grams
lb - pound
mi - miles
NOx - nitrogen oxide compounds (NO + NO_2)
PM_{10} - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - reactive organic gas

Table AQ-5l
Project Construction On-road Vehicle Uncontrolled Evaporative Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						ROG Diurnal, Hot Soak and Resting Loss Emission Factor (g/trip)[3]			ROG Diurnal, Hot Soak and Resting Loss Emissions (lb)		
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	Diurnal	Hot Soak	Resting Losses	Diurnal	Hot Soak	Resting Losses
0	Demolition	2020	Hauling	404	20	0	0	0	0	0	0
0	Demolition	2020	Vendor	1,950	7.3	0	0	0	0	0	0
0	Demolition	2020	Worker	44,200	11	0.041	0.14	0.039	4.0	13	3.8
0	Site Preparation	2021	Hauling	166	20	0	0	0	0	0	0
0	Site Preparation	2021	Vendor	1,560	7.3	0	0	0	0	0	0
0	Site Preparation	2021	Worker	19,240	11	0.038	0.13	0.037	1.6	5.3	1.6
0	Grading	2021	Hauling	24,000	20	0	0	0	0	0	0
0	Grading	2021	Vendor	1,693	7.3	0	0	0	0	0	0
0	Grading	2021	Worker	26,521	11	0.038	0.13	0.037	2.2	7.3	2.2
0.1	Grading	2024	Hauling	8,700	20	0	0	0	0	0	0
0.1	Grading	2024	Vendor	523	7.3	0	0	0	0	0	0
0.1	Grading	2024	Worker	2,266	11	0.031	0.10	0.031	0.15	0.51	0.16
1	Grading	2023	Hauling	2,746	20	0	0	0	0	0	0
1	Grading	2023	Vendor	777	7.3	0	0	0	0	0	0
1	Grading	2023	Worker	6,217	11	0.033	0.11	0.033	0.45	1.5	0.45
1	Building Construction	2022	Hauling	7,515	20	0	0	0	0	0	0
1	Building Construction	2022	Vendor	19,586	7.3	0	0	0	0	0	0
1	Building Construction	2022	Worker	135,794	11	0.035	0.12	0.035	11	35	10
1	Paving	2024	Hauling	2,288	20	0	0	0	0	0	0
1	Paving	2024	Vendor	2,777	7.3	0	0	0	0	0	0
1	Paving	2024	Worker	26,383	11	0.031	0.10	0.031	1.8	6.0	1.8
1	Architectural Coating	2025	Hauling	0	20	0	0	0	0	0	0
1	Architectural Coating	2025	Vendor	2,057	7.3	0	0	0	0	0	0
1	Architectural Coating	2025	Worker	25,200	11	0.029	0.097	0.030	1.6	5.4	1.7
2	Building Construction	2024	Hauling	5,594	20	0	0	0	0	0	0
2	Building Construction	2024	Vendor	4,343	7.3	0	0	0	0	0	0
2	Building Construction	2024	Worker	48,640	11	0.031	0.10	0.031	3.3	11	3.4
2	Paving	2025	Hauling	10	20	0	0	0	0	0	0
2	Paving	2025	Vendor	257	7.3	0	0	0	0	0	0
2	Paving	2025	Worker	2,829	11	0.029	0.097	0.030	0.18	0.60	0.19
2	Architectural Coating	2025	Hauling	0	20	0	0	0	0	0	0
2	Architectural Coating	2025	Vendor	1,377	7.3	0	0	0	0	0	0
2	Architectural Coating	2025	Worker	17,214	11	0.029	0.097	0.030	1.1	3.7	1.1
3	Grading	2025	Hauling	260	20	0	0	0	0	0	0
3	Grading	2025	Vendor	254	7.3	0	0	0	0	0	0
3	Grading	2025	Worker	1,526	11	0.029	0.097	0.030	0.099	0.33	0.10
3	Building Construction	2026	Hauling	6,416	20	0	0	0	0	0	0

Table AQ-5l
Project Construction On-road Vehicle Uncontrolled Evaporative Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	ROG Diurnal, Hot Soak and Resting Loss Emission Factor (g/trip)[3]			ROG Diurnal, Hot Soak and Resting Loss Emissions (lb)		
						Diurnal	Hot Soak	Resting Losses	Diurnal	Hot Soak	Resting Losses
3	Building Construction	2026	Vendor	9,714	7.3	0	0	0	0	0	0
3	Building Construction	2026	Worker	87,429	11	0.028	0.091	0.028	5.3	18	5.5
3	Paving	2027	Hauling	190	20	0	0	0	0	0	0
3	Paving	2027	Vendor	869	7.3	0	0	0	0	0	0
3	Paving	2027	Worker	6,514	11	0.026	0.086	0.027	0.38	1.2	0.39
3	Architectural Coating	2028	Hauling	0	20	0	0	0	0	0	0
3	Architectural Coating	2028	Vendor	869	7.3	0	0	0	0	0	0
3	Architectural Coating	2028	Worker	16,069	11	0.025	0.081	0.026	0.88	2.9	0.91
4	Grading	2027	Hauling	293	20	0	0	0	0	0	0
4	Grading	2027	Vendor	254	7.3	0	0	0	0	0	0
4	Grading	2027	Worker	1,526	11	0.026	0.086	0.027	0.088	0.29	0.091
4	Building Construction	2028	Hauling	9,388	20	0	0	0	0	0	0
4	Building Construction	2028	Vendor	17,194	7.3	0	0	0	0	0	0
4	Building Construction	2028	Worker	134,689	11	0.025	0.081	0.026	7.4	24	7.6
4	Paving	2031	Hauling	113	20	0	0	0	0	0	0
4	Paving	2031	Vendor	603	7.3	0	0	0	0	0	0
4	Paving	2031	Worker	4,521	11	0.020	0.066	0.021	0.20	0.66	0.21
4	Architectural Coating	2030	Hauling	0	20	0	0	0	0	0	0
4	Architectural Coating	2030	Vendor	2,164	7.3	0	0	0	0	0	0
4	Architectural Coating	2030	Worker	42,420	11	0.022	0.071	0.023	2.0	6.7	2.1
5	Building Construction	2030	Hauling	8,060	20	0	0	0	0	0	0
5	Building Construction	2030	Vendor	12,497	7.3	0	0	0	0	0	0
5	Building Construction	2030	Worker	69,776	11	0.022	0.071	0.023	3.4	11	3.5
5	Paving	2032	Hauling	151	20	0	0	0	0	0	0
5	Paving	2032	Vendor	349	7.3	0	0	0	0	0	0
5	Paving	2032	Worker	2,266	11	0.019	0.061	0.020	0.093	0.31	0.099
5	Architectural Coating	2032	Hauling	0	20	0	0	0	0	0	0
5	Architectural Coating	2032	Vendor	1,736	7.3	0	0	0	0	0	0
5	Architectural Coating	2032	Worker	25,689	11	0.019	0.061	0.020	1.1	3.5	1.1
6	Grading	2030	Hauling	683	20	0	0	0	0	0	0
6	Grading	2030	Vendor	429	7.3	0	0	0	0	0	0
6	Grading	2030	Worker	2,571	11	0.022	0.071	0.023	0.12	0.41	0.13
6	Building Construction	2031	Hauling	3,463	20	0	0	0	0	0	0
6	Building Construction	2031	Vendor	8,043	7.3	0	0	0	0	0	0
6	Building Construction	2031	Worker	45,040	11	0.020	0.066	0.021	2.0	6.6	2.1
6	Paving	2032	Hauling	408	20	0	0	0	0	0	0
6	Paving	2032	Vendor	783	7.3	0	0	0	0	0	0

Table AQ-5l
Project Construction On-road Vehicle Uncontrolled Evaporative Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	ROG Diurnal, Hot Soak and Resting Loss Emission Factor (g/trip)[3]			ROG Diurnal, Hot Soak and Resting Loss Emissions (lb)		
						Diurnal	Hot Soak	Resting Losses	Diurnal	Hot Soak	Resting Losses
6	Paving	2032	Worker	5,089	11	0.019	0.061	0.020	0.21	0.69	0.22
6	Architectural Coating	2032	Hauling	0	20	0	0	0	0	0	0
6	Architectural Coating	2032	Vendor	2,423	7.3	0	0	0	0	0	0
6	Architectural Coating	2032	Worker	16,354	11	0.019	0.061	0.020	0.67	2.2	0.72

Notes:

1. Total number of worker, vendor and haul trips are provided by the Project Sponsor.
2. Trip lengths for worker, vendor, and hauling trips are CalEEMod® defaults.
3. Emission factors are based on calendar-year average values from EMFAC2014.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
EMFAC: EMission FACtor Model
g - grams
lb - pound
mi - miles
ROG - reactive organic gas

Table AQ-5m
Project Construction On-road Vehicle Controlled Running Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Running Emission Factor[3]					Running Emissions (lb)				
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	NOx Exhaust (g/mi)	PM10 Exhaust (g/mi)	PM2.5 Exhaust (g/mi)	ROG Exhaust (g/mi)	ROG Running Losses (g/trip)	NOx Exhaust	PM10 Exhaust	PM2.5 Exhaust	ROG Exhaust	ROG Running Losses
0	Demolition	2020	Hauling	404	20	2.1	0.0064	0.0061	0.089	0	38	0.11	0.11	1.6	0
0	Demolition	2020	Vendor	1,950	7.3	2.3	0.045	0.043	0.11	0	72	1.4	1.4	3.6	0
0	Demolition	2020	Worker	44,200	10.8	0.073	0.0023	0.0021	0.017	0.40	77	2.4	2.2	18	39
0	Site Preparation	2021	Hauling	166	20	2.1	0.0063	0.0060	0.088	0	15	0.046	0.044	0.65	0
0	Site Preparation	2021	Vendor	1,560	7.3	1.6	0.0078	0.0075	0.057	0	41	0.20	0.19	1.4	0
0	Site Preparation	2021	Worker	19,240	10.8	0.066	0.0023	0.0021	0.015	0.38	30	1.0	0.96	7.0	16
0	Grading	2021	Hauling	24,000	20	2.1	0.0063	0.0060	0.088	0	2,187	6.7	6.4	93	0
0	Grading	2021	Vendor	1,693	7.3	1.6	0.0078	0.0075	0.057	0	44	0.21	0.20	1.5	0
0	Grading	2021	Worker	26,521	10.8	0.066	0.0023	0.0021	0.015	0.38	42	1.4	1.3	9.6	22
0.1	Grading	2024	Hauling	8,700	20	1.7	0.0052	0.0050	0.082	0	642	2.0	1.9	31	0
0.1	Grading	2024	Vendor	523	7.3	1.2	0.0033	0.0032	0.042	0	9.7	0.028	0.027	0.36	0
0.1	Grading	2024	Worker	2,266	10.8	0.050	0.0022	0.0020	0.011	0.33	2.7	0.12	0.11	0.62	1.6
1	Grading	2023	Hauling	2,746	20	1.7	0.0052	0.0050	0.082	0	207	0.63	0.60	9.9	0
1	Grading	2023	Vendor	777	7.3	1.2	0.0033	0.0032	0.042	0	15	0.042	0.040	0.53	0
1	Grading	2023	Worker	6,217	10.8	0.054	0.0022	0.0020	0.013	0.34	8.0	0.33	0.30	1.9	4.7
1	Building Construction	2022	Hauling	7,515	20	2.0	0.0061	0.0059	0.087	0	655	2.0	1.9	29	0
1	Building Construction	2022	Vendor	19,586	7.3	1.5	0.0069	0.0066	0.055	0	487	2.2	2.1	17	0
1	Building Construction	2022	Worker	135,794	10.8	0.060	0.0022	0.0021	0.014	0.36	193	7.2	6.6	45	108
1	Paving	2024	Hauling	2,288	20	1.7	0.0052	0.0050	0.082	0	169	0.53	0.50	8.2	0
1	Paving	2024	Vendor	2,777	7.3	1.2	0.0033	0.0032	0.042	0	52	0.15	0.14	1.9	0
1	Paving	2024	Worker	26,383	10.8	0.050	0.0022	0.0020	0.011	0.33	31	1.4	1.3	7.2	19
1	Architectural Coating	2025	Hauling	0	20	1.6	0.0052	0.0050	0.081	0	0	0	0	0	0
1	Architectural Coating	2025	Vendor	2,057	7.3	1.2	0.0033	0.0031	0.042	0	38	0.11	0.10	1.4	0
1	Architectural Coating	2025	Worker	25,200	10.8	0.046	0.0022	0.0020	0.010	0.32	27	1.3	1.2	6.3	18
2	Building Construction	2024	Hauling	5,594	20	1.7	0.0052	0.0050	0.082	0	413	1.3	1.2	20	0
2	Building Construction	2024	Vendor	4,343	7.3	1.2	0.0033	0.0032	0.042	0	81	0.23	0.22	3.0	0
2	Building Construction	2024	Worker	48,640	10.8	0.050	0.0022	0.0020	0.011	0.33	57	2.5	2.3	13	35
2	Paving	2025	Hauling	10	20	1.6	0.0052	0.0050	0.081	0	0.72	0.0023	0.0022	0.036	0
2	Paving	2025	Vendor	257	7.3	1.2	0.0033	0.0031	0.042	0	4.8	0.014	0.013	0.18	0
2	Paving	2025	Worker	2,829	10.8	0.046	0.0022	0.0020	0.010	0.32	3.1	0.15	0.13	0.70	2.0
2	Architectural Coating	2025	Hauling	0	20	1.6	0.0052	0.0050	0.081	0	0	0	0	0	0
2	Architectural Coating	2025	Vendor	1,377	7.3	1.2	0.0033	0.0031	0.042	0	26	0.073	0.070	0.94	0
2	Architectural Coating	2025	Worker	17,214	10.8	0.046	0.0022	0.0020	0.010	0.32	19	0.88	0.81	4.3	12
3	Grading	2025	Hauling	260	20	1.6	0.0052	0.0050	0.081	0	19	0.060	0.057	0.93	0
3	Grading	2025	Vendor	254	7.3	1.2	0.0033	0.0031	0.042	0	4.7	0.013	0.013	0.17	0
3	Grading	2025	Worker	1,526	10.8	0.046	0.0022	0.0020	0.010	0.32	1.7	0.078	0.072	0.38	1.1
3	Building Construction	2026	Hauling	6,416	20	1.6	0.0052	0.0050	0.081	0	453	1.5	1.4	23	0
3	Building Construction	2026	Vendor	9,714	7.3	1.1	0.0032	0.0031	0.043	0	178	0.51	0.49	6.7	0
3	Building Construction	2026	Worker	87,429	10.8	0.042	0.0021	0.0019	0.0096	0.30	88	4.4	4.0	20	59
3	Paving	2027	Hauling	190	20	1.6	0.0051	0.0049	0.081	0	13	0.043	0.041	0.67	0
3	Paving	2027	Vendor	869	7.3	1.1	0.0032	0.0031	0.042	0	16	0.045	0.043	0.59	0
3	Paving	2027	Worker	6,514	10.8	0.039	0.0020	0.0018	0.0089	0.29	6.1	0.31	0.28	1.4	4.2
3	Architectural Coating	2028	Hauling	0	20	1.5	0.0051	0.0049	0.080	0	0	0	0	0	0

Table AQ-5m
Project Construction On-road Vehicle Controlled Running Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Running Emission Factor[3]					Running Emissions (lb)				
Phase	**Description**	**Year**	**Trip Category**	**Total Trips (one-way)[1]**	**Trip length (mi)[2]**	**NOx Exhaust (g/mi)**	**PM10 Exhaust (g/mi)**	**PM2.5 Exhaust (g/mi)**	**ROG Exhaust (g/mi)**	**ROG Running Losses (g/trip)**	**NOx Exhaust**	**PM10 Exhaust**	**PM2.5 Exhaust**	**ROG Exhaust**	**ROG Running Losses**
3	Architectural Coating	2028	Vendor	869	7.3	1.1	0.0032	0.0030	0.042	0	16	0.044	0.043	0.59	0
3	Architectural Coating	2028	Worker	16,069	10.8	0.036	0.0018	0.0017	0.0082	0.28	14	0.70	0.65	3.2	9.9
4	Grading	2027	Hauling	293	20	1.6	0.0051	0.0049	0.081	0	20	0.066	0.064	1.0	0
4	Grading	2027	Vendor	254	7.3	1.1	0.0032	0.0031	0.042	0	4.6	0.013	0.013	0.17	0
4	Grading	2027	Worker	1,526	10.8	0.039	0.0020	0.0018	0.0089	0.29	1.4	0.072	0.066	0.32	0.98
4	Building Construction	2028	Hauling	9,388	20	1.5	0.0051	0.0049	0.080	0	633	2.1	2.0	33	0
4	Building Construction	2028	Vendor	17,194	7.3	1.1	0.0032	0.0030	0.042	0	310	0.88	0.84	12	0
4	Building Construction	2028	Worker	134,689	10.8	0.036	0.0018	0.0017	0.0082	0.28	117	5.9	5.4	26	83
4	Paving	2031	Hauling	113	20	1.4	0.0050	0.0048	0.079	0	7.1	0.025	0.024	0.39	0
4	Paving	2031	Vendor	603	7.3	1.1	0.0031	0.0030	0.042	0	11	0.030	0.029	0.41	0
4	Paving	2031	Worker	4,521	10.8	0.030	0.0015	0.0014	0.0067	0.24	3.2	0.16	0.15	0.72	2.4
4	Architectural Coating	2030	Hauling	0	20	1.5	0.0050	0.0048	0.079	0	0	0	0	0	0
4	Architectural Coating	2030	Vendor	2,164	7.3	1.1	0.0031	0.0030	0.042	0	38	0.11	0.10	1.5	0
4	Architectural Coating	2030	Worker	42,420	10.8	0.032	0.0016	0.0015	0.0071	0.25	32	1.6	1.5	7.2	24
5	Building Construction	2030	Hauling	8,060	20	1.5	0.0050	0.0048	0.079	0	519	1.8	1.7	28	0
5	Building Construction	2030	Vendor	12,497	7.3	1.1	0.0031	0.0030	0.042	0	222	0.63	0.60	8.5	0
5	Building Construction	2030	Worker	69,776	10.8	0.032	0.0016	0.0015	0.0071	0.25	53	2.6	2.4	12	39
5	Paving	2032	Hauling	151	20	1.4	0.0050	0.0048	0.079	0	9.4	0.033	0.032	0.52	0
5	Paving	2032	Vendor	349	7.3	1.1	0.0031	0.0029	0.042	0	6.1	0.017	0.017	0.24	0
5	Paving	2032	Worker	2,266	10.8	0.028	0.0014	0.0013	0.0062	0.22	1.5	0.074	0.068	0.34	1.1
5	Architectural Coating	2032	Hauling	0	20	1.4	0.0050	0.0048	0.079	0	0	0	0	0	0
5	Architectural Coating	2032	Vendor	1,736	7.3	1.1	0.0031	0.0029	0.042	0	30	0.086	0.082	1.2	0
5	Architectural Coating	2032	Worker	25,689	10.8	0.028	0.0014	0.0013	0.0062	0.22	17	0.84	0.77	3.8	13
6	Grading	2030	Hauling	683	20	1.5	0.0050	0.0048	0.079	0	44	0.15	0.15	2.4	0
6	Grading	2030	Vendor	429	7.3	1.1	0.0031	0.0030	0.042	0	7.6	0.022	0.021	0.29	0
6	Grading	2030	Worker	2,571	10.8	0.032	0.0016	0.0015	0.0071	0.25	2.0	0.097	0.089	0.44	1.4
6	Building Construction	2031	Hauling	3,463	20	1.4	0.0050	0.0048	0.079	0	219	0.77	0.73	12	0
6	Building Construction	2031	Vendor	8,043	7.3	1.1	0.0031	0.0030	0.042	0	142	0.40	0.38	5.5	0
6	Building Construction	2031	Worker	45,040	10.8	0.030	0.0015	0.0014	0.0067	0.24	32	1.6	1.4	7.1	23
6	Paving	2032	Hauling	408	20	1.4	0.0050	0.0048	0.079	0	25	0.090	0.086	1.4	0
6	Paving	2032	Vendor	783	7.3	1.1	0.0031	0.0029	0.042	0	14	0.039	0.037	0.53	0

Table AQ-5m
Project Construction On-road Vehicle Controlled Running Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Running Emission Factor[3]					Running Emissions (lb)				
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	NOx Exhaust (g/mi)	PM10 Exhaust (g/mi)	PM2.5 Exhaust (g/mi)	ROG Exhaust (g/mi)	ROG Running Losses (g/trip)	NOx Exhaust	PM10 Exhaust	PM2.5 Exhaust	ROG Exhaust	ROG Running Losses
6	Paving	2032	Worker	5,089	10.8	0.028	0.0014	0.0013	0.0062	0.22	3.4	0.17	0.15	0.76	2.5
6	Architectural Coating	2032	Hauling	0	20	1.4	0.0050	0.0048	0.079	0	0	0	0	0	0
6	Architectural Coating	2032	Vendor	2,423	7.3	1.1	0.0031	0.0029	0.042	0	42	0.12	0.11	1.6	0
6	Architectural Coating	2032	Worker	16,354	10.8	0.028	0.0014	0.0013	0.0062	0.22	11	0.53	0.49	2.4	8.0

Notes:

1. Total number of worker, vendor and haul trips are provided by the Project Sponsor.
2. Trip lengths for worker, vendor, and hauling trips are CalEEMod® defaults.
3. Emission factors are based on calendar-year average values from EMFAC2014, with model year 2010 or newer haul trucks.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
EMFAC: EMission FACtor Model
g - grams
lb - pound
mi - miles

NOx - nitrogen oxide compounds (NO + NO_2)
PM_{10} - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - reactive organic gas

Table AQ-5n
Project Construction On-road Vehicle Controlled Idling Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Idling Emission Factor (g/trip)[3]				Idling Emissions (lb)			
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
0	Demolition	2020	Hauling	404	20	1.6	0.00016	0.00016	0.079	1.5	0.00014	0.00014	0.071
0	Demolition	2020	Vendor	1,950	7.3	3.7	0.026	0.026	0.25	16	0.11	0.11	1.1
0	Demolition	2020	Worker	44,200	10.8	0	0	0	0	0	0	0	0
0	Site Preparation	2021	Hauling	166	20	1.6	0.00016	0.00016	0.077	0.59	5.9E-05	5.9E-05	0.028
0	Site Preparation	2021	Vendor	1,560	7.3	2.5	0.013	0.013	0.16	8.6	0.046	0.046	0.55
0	Site Preparation	2021	Worker	19,240	10.8	0	0	0	0	0	0	0	0
0	Grading	2021	Hauling	24,000	20	1.6	0.00016	0.00016	0.077	86	0.0086	0.0086	4.1
0	Grading	2021	Vendor	1,693	7.3	2.5	0.013	0.013	0.16	9.4	0.050	0.050	0.60
0	Grading	2021	Worker	26,521	10.8	0	0	0	0	0	0	0	0
0.1	Grading	2024	Hauling	8,700	20	1.5	0.00016	0.00016	0.069	29	0.0031	0.0031	1.3
0.1	Grading	2024	Vendor	523	7.3	1.6	0.0047	0.0047	0.089	1.9	0.0054	0.0054	0.10
0.1	Grading	2024	Worker	2,266	10.8	0	0	0	0	0	0	0	0
1	Grading	2023	Hauling	2,746	20	1.5	0.00016	0.00016	0.070	9.3	0.00098	0.00098	0.42
1	Grading	2023	Vendor	777	7.3	1.7	0.0057	0.0057	0.095	2.9	0.0097	0.0097	0.16
1	Grading	2023	Worker	6,217	10.8	0	0	0	0	0	0	0	0
1	Building Construction	2022	Hauling	7,515	20	1.6	0.00016	0.00016	0.075	26	0.0027	0.0027	1.3
1	Building Construction	2022	Vendor	19,586	7.3	2.3	0.011	0.011	0.14	101	0.49	0.49	6.2
1	Building Construction	2022	Worker	135,794	10.8	0	0	0	0	0	0	0	0
1	Paving	2024	Hauling	2,288	20	1.5	0.00016	0.00016	0.069	7.7	0.00082	0.00082	0.35
1	Paving	2024	Vendor	2,777	7.3	1.6	0.0047	0.0047	0.089	10	0.029	0.029	0.54
1	Paving	2024	Worker	26,383	10.8	0	0	0	0	0	0	0	0
1	Architectural Coating	2025	Hauling	0	20	1.5	0.00016	0.00016	0.068	0	0	0	0
1	Architectural Coating	2025	Vendor	2,057	7.3	1.6	0.0039	0.0039	0.084	7.3	0.018	0.018	0.38
1	Architectural Coating	2025	Worker	25,200	10.8	0	0	0	0	0	0	0	0
2	Building Construction	2024	Hauling	5,594	20	1.5	0.00016	0.00016	0.069	19	0.0020	0.0020	0.85
2	Building Construction	2024	Vendor	4,343	7.3	1.6	0.0047	0.0047	0.089	16	0.045	0.045	0.85
2	Building Construction	2024	Worker	48,640	10.8	0	0	0	0	0	0	0	0
2	Paving	2025	Hauling	10	20	1.5	0.00016	0.00016	0.068	0.033	3.6E-06	3.6E-06	0.0015
2	Paving	2025	Vendor	257	7.3	1.6	0.0039	0.0039	0.084	0.91	0.0022	0.0022	0.047
2	Paving	2025	Worker	2,829	10.8	0	0	0	0	0	0	0	0
2	Architectural Coating	2025	Hauling	0	20	1.5	0.00016	0.00016	0.068	0	0	0	0
2	Architectural Coating	2025	Vendor	1,377	7.3	1.6	0.0039	0.0039	0.084	4.9	0.012	0.012	0.25
2	Architectural Coating	2025	Worker	17,214	10.8	0	0	0	0	0	0	0	0
3	Grading	2025	Hauling	260	20	1.5	0.00016	0.00016	0.068	0.86	9.3E-05	9.3E-05	0.039
3	Grading	2025	Vendor	254	7.3	1.6	0.0039	0.0039	0.084	0.90	0.0022	0.0022	0.047
3	Grading	2025	Worker	1,526	10.8	0	0	0	0	0	0	0	0

Table AQ-5n
Project Construction On-road Vehicle Controlled Idling Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Idling Emission Factor (g/trip)[3]				Idling Emissions (lb)			
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
3	Building Construction	2026	Hauling	6,416	20	1.5	0.00016	0.00016	0.068	21	0.0023	0.0023	0.96
3	Building Construction	2026	Vendor	9,714	7.3	1.6	0.0032	0.0032	0.079	34	0.068	0.068	1.7
3	Building Construction	2026	Worker	87,429	10.8	0	0	0	0	0	0	0	0
3	Paving	2027	Hauling	190	20	1.5	0.00016	0.00016	0.067	0.62	6.8E-05	6.8E-05	0.028
3	Paving	2027	Vendor	869	7.3	1.6	0.0026	0.0026	0.076	3.0	0.0050	0.0050	0.15
3	Paving	2027	Worker	6,514	10.8	0	0	0	0	0	0	0	0
3	Architectural Coating	2028	Hauling	0	20	1.5	0.00016	0.00016	0.066	0	0	0	0
3	Architectural Coating	2028	Vendor	869	7.3	1.5	0.0022	0.0022	0.073	2.9	0.0042	0.0042	0.14
3	Architectural Coating	2028	Worker	16,069	10.8	0	0	0	0	0	0	0	0
4	Grading	2027	Hauling	293	20	1.5	0.00016	0.00016	0.067	0.96	0.00010	0.00010	0.043
4	Grading	2027	Vendor	254	7.3	1.6	0.0026	0.0026	0.076	0.87	0.0015	0.0015	0.043
4	Grading	2027	Worker	1,526	10.8	0	0	0	0	0	0	0	0
4	Building Construction	2028	Hauling	9,388	20	1.5	0.00016	0.00016	0.066	31	0.0034	0.0034	1.4
4	Building Construction	2028	Vendor	17,194	7.3	1.5	0.0022	0.0022	0.073	58	0.083	0.083	2.8
4	Building Construction	2028	Worker	134,689	10.8	0	0	0	0	0	0	0	0
4	Paving	2031	Hauling	113	20	1.5	0.00016	0.00016	0.064	0.36	4.0E-05	4.0E-05	0.016
4	Paving	2031	Vendor	603	7.3	1.5	0.0012	0.0012	0.067	2.0	0.0016	0.0016	0.089
4	Paving	2031	Worker	4,521	10.8	0	0	0	0	0	0	0	0
4	Architectural Coating	2030	Hauling	0	20	1.5	0.00016	0.00016	0.065	0	0	0	0
4	Architectural Coating	2030	Vendor	2,164	7.3	1.5	0.0014	0.0014	0.068	7.1	0.0068	0.0068	0.33
4	Architectural Coating	2030	Worker	42,420	10.8	0	0	0	0	0	0	0	0
5	Building Construction	2030	Hauling	8,060	20	1.5	0.00016	0.00016	0.065	26	0.0029	0.0029	1.2
5	Building Construction	2030	Vendor	12,497	7.3	1.5	0.0014	0.0014	0.068	41	0.039	0.039	1.9
5	Building Construction	2030	Worker	69,776	10.8	0	0	0	0	0	0	0	0
5	Paving	2032	Hauling	151	20	1.5	0.00016	0.00016	0.064	0.48	5.4E-05	5.4E-05	0.021
5	Paving	2032	Vendor	349	7.3	1.5	0.0010	0.0010	0.066	1.1	0.00080	0.00080	0.050
5	Paving	2032	Worker	2,266	10.8	0	0	0	0	0	0	0	0
5	Architectural Coating	2032	Hauling	0	20	1.5	0.00016	0.00016	0.064	0	0	0	0
5	Architectural Coating	2032	Vendor	1,736	7.3	1.5	0.0010	0.0010	0.066	5.6	0.0040	0.0040	0.25
5	Architectural Coating	2032	Worker	25,689	10.8	0	0	0	0	0	0	0	0
6	Grading	2030	Hauling	683	20	1.5	0.00016	0.00016	0.065	2.2	0.00024	0.00024	0.098
6	Grading	2030	Vendor	429	7.3	1.5	0.0014	0.0014	0.068	1.4	0.0013	0.0013	0.065
6	Grading	2030	Worker	2,571	10.8	0	0	0	0	0	0	0	0
6	Building Construction	2031	Hauling	3,463	20	1.5	0.00016	0.00016	0.064	11	0.0012	0.0012	0.49
6	Building Construction	2031	Vendor	8,043	7.3	1.5	0.0012	0.0012	0.067	26	0.021	0.021	1.2
6	Building Construction	2031	Worker	45,040	10.8	0	0	0	0	0	0	0	0

Table AQ-5n
Project Construction On-road Vehicle Controlled Idling Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	Idling Emission Factor (g/trip)[3]				Idling Emissions (lb)			
						NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
6	Paving	2032	Hauling	408	20	1.5	0.00016	0.00016	0.064	1.3	0.00015	0.00015	0.057
6	Paving	2032	Vendor	783	7.3	1.5	0.0010	0.0010	0.066	2.5	0.0018	0.0018	0.11
6	Paving	2032	Worker	5,089	10.8	0	0	0	0	0	0	0	0
6	Architectural Coating	2032	Hauling	0	20	1.5	0.00016	0.00016	0.064	0	0	0	0
6	Architectural Coating	2032	Vendor	2,423	7.3	1.5	0.0010	0.0010	0.066	7.8	0.0056	0.0056	0.35
6	Architectural Coating	2032	Worker	16,354	10.8	0	0	0	0	0	0	0	0

Notes:

1. Total number of worker, vendor and haul trips are provided by the Project Sponsor.
2. Trip lengths for worker, vendor, and hauling trips are CalEEMod® defaults.
3. Emission factors are based on calendar-year average values from EMFAC2014, with model year 2010 or newer haul trucks.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
EMFAC: EMission FACtor Model
g - grams
lb - pound
mi - miles

NOx - nitrogen oxide compounds (NO + NO_2)
PM_{10} - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - reactive organic gas

Table AQ-5o
Project Construction On-road Vehicle Controlled Starting Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Starting Emission Factor (g/trip)[3]				Starting Emissions (lb)			
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
0	Demolition	2020	Hauling	404	20	0	0	0	0	0	0	0	0
0	Demolition	2020	Vendor	1,950	7.3	0	0	0	0	0	0	0	0
0	Demolition	2020	Worker	44,200	10.8	0.12	0.0024	0.0022	0.12	12	0.24	0.22	12
0	Site Preparation	2021	Hauling	166	20	0	0	0	0	0	0	0	0
0	Site Preparation	2021	Vendor	1,560	7.3	0	0	0	0	0	0	0	0
0	Site Preparation	2021	Worker	19,240	10.8	0.11	0.0024	0.0022	0.11	4.6	0.10	0.094	4.6
0	Grading	2021	Hauling	24,000	20	0	0	0	0	0	0	0	0
0	Grading	2021	Vendor	1,693	7.3	0	0	0	0	0	0	0	0
0	Grading	2021	Worker	26,521	10.8	0.11	0.0024	0.0022	0.11	6.3	0.14	0.13	6.3
0.1	Grading	2024	Hauling	8,700	20	0	0	0	0	0	0	0	0
0.1	Grading	2024	Vendor	523	7.3	0	0	0	0	0	0	0	0
0.1	Grading	2024	Worker	2,266	10.8	0.075	0.0024	0.0022	0.074	0.37	0.012	0.011	0.37
1	Grading	2023	Hauling	2,746	20	0	0	0	0	0	0	0	0
1	Grading	2023	Vendor	777	7.3	0	0	0	0	0	0	0	0
1	Grading	2023	Worker	6,217	10.8	0.084	0.0024	0.0022	0.084	1.2	0.032	0.030	1.1
1	Building Construction	2022	Hauling	7,515	20	0	0	0	0	0	0	0	0
1	Building Construction	2022	Vendor	19,586	7.3	0	0	0	0	0	0	0	0
1	Building Construction	2022	Worker	135,794	10.8	0.095	0.0024	0.0022	0.095	28	0.71	0.66	28
1	Paving	2024	Hauling	2,288	20	0	0	0	0	0	0	0	0
1	Paving	2024	Vendor	2,777	7.3	0	0	0	0	0	0	0	0
1	Paving	2024	Worker	26,383	10.8	0.075	0.0024	0.0022	0.074	4.3	0.14	0.13	4.3
1	Architectural Coating	2025	Hauling	0	20	0	0	0	0	0	0	0	0
1	Architectural Coating	2025	Vendor	2,057	7.3	0	0	0	0	0	0	0	0
1	Architectural Coating	2025	Worker	25,200	10.8	0.067	0.0024	0.0022	0.066	3.7	0.13	0.12	3.7
2	Building Construction	2024	Hauling	5,594	20	0	0	0	0	0	0	0	0
2	Building Construction	2024	Vendor	4,343	7.3	0	0	0	0	0	0	0	0
2	Building Construction	2024	Worker	48,640	10.8	0.075	0.0024	0.0022	0.074	8.0	0.25	0.23	7.9
2	Paving	2025	Hauling	10	20	0	0	0	0	0	0	0	0
2	Paving	2025	Vendor	257	7.3	0	0	0	0	0	0	0	0
2	Paving	2025	Worker	2,829	10.8	0.067	0.0024	0.0022	0.066	0.42	0.015	0.013	0.41
2	Architectural Coating	2025	Hauling	0	20	0	0	0	0	0	0	0	0
2	Architectural Coating	2025	Vendor	1,377	7.3	0	0	0	0	0	0	0	0
2	Architectural Coating	2025	Worker	17,214	10.8	0.067	0.0024	0.0022	0.066	2.5	0.089	0.082	2.5
3	Grading	2025	Hauling	260	20	0	0	0	0	0	0	0	0

Table AQ-5o
Project Construction On-road Vehicle Controlled Starting Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Starting Emission Factor (g/trip)[3]				Starting Emissions (lb)			
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
3	Grading	2025	Vendor	254	7.3	0	0	0	0	0	0	0	0
3	Grading	2025	Worker	1,526	10.8	0.067	0.0024	0.0022	0.066	0.22	0.0079	0.0073	0.22
3	Building Construction	2026	Hauling	6,416	20	0	0	0	0	0	0	0	0
3	Building Construction	2026	Vendor	9,714	7.3	0	0	0	0	0	0	0	0
3	Building Construction	2026	Worker	87,429	10.8	0.060	0.0023	0.0021	0.059	12	0.45	0.41	11
3	Paving	2027	Hauling	190	20	0	0	0	0	0	0	0	0
3	Paving	2027	Vendor	869	7.3	0	0	0	0	0	0	0	0
3	Paving	2027	Worker	6,514	10.8	0.054	0.0023	0.0021	0.053	0.77	0.032	0.030	0.76
3	Architectural Coating	2028	Hauling	0	20	0	0	0	0	0	0	0	0
3	Architectural Coating	2028	Vendor	869	7.3	0	0	0	0	0	0	0	0
3	Architectural Coating	2028	Worker	16,069	10.8	0.049	0.0022	0.0020	0.048	1.7	0.077	0.070	1.7
4	Grading	2027	Hauling	293	20	0	0	0	0	0	0	0	0
4	Grading	2027	Vendor	254	7.3	0	0	0	0	0	0	0	0
4	Grading	2027	Worker	1,526	10.8	0.054	0.0023	0.0021	0.053	0.18	0.0076	0.0070	0.18
4	Building Construction	2028	Hauling	9,388	20	0	0	0	0	0	0	0	0
4	Building Construction	2028	Vendor	17,194	7.3	0	0	0	0	0	0	0	0
4	Building Construction	2028	Worker	134,689	10.8	0.049	0.0022	0.0020	0.048	14	0.64	0.59	14
4	Paving	2031	Hauling	113	20	0	0	0	0	0	0	0	0
4	Paving	2031	Vendor	603	7.3	0	0	0	0	0	0	0	0
4	Paving	2031	Worker	4,521	10.8	0.036	0.0018	0.0017	0.034	0.36	0.018	0.017	0.34
4	Architectural Coating	2030	Hauling	0	20	0	0	0	0	0	0	0	0
4	Architectural Coating	2030	Vendor	2,164	7.3	0	0	0	0	0	0	0	0
4	Architectural Coating	2030	Worker	42,420	10.8	0.040	0.0019	0.0018	0.038	3.7	0.18	0.17	3.6
5	Building Construction	2030	Hauling	8,060	20	0	0	0	0	0	0	0	0
5	Building Construction	2030	Vendor	12,497	7.3	0	0	0	0	0	0	0	0
5	Building Construction	2030	Worker	69,776	10.8	0.040	0.0019	0.0018	0.038	6.1	0.30	0.28	5.9
5	Paving	2032	Hauling	151	20	0	0	0	0	0	0	0	0
5	Paving	2032	Vendor	349	7.3	0	0	0	0	0	0	0	0
5	Paving	2032	Worker	2,266	10.8	0.032	0.0017	0.0016	0.030	0.16	0.0087	0.0080	0.15
5	Architectural Coating	2032	Hauling	0	20	0	0	0	0	0	0	0	0
5	Architectural Coating	2032	Vendor	1,736	7.3	0	0	0	0	0	0	0	0
5	Architectural Coating	2032	Worker	25,689	10.8	0.032	0.0017	0.0016	0.030	1.8	0.098	0.091	1.7
6	Grading	2030	Hauling	683	20	0	0	0	0	0	0	0	0
6	Grading	2030	Vendor	429	7.3	0	0	0	0	0	0	0	0

Table AQ-5o
Project Construction On-road Vehicle Controlled Starting Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						Starting Emission Factor (g/trip)[3]				Starting Emissions (lb)			
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5	ROG
6	Grading	2030	Worker	2,571	10.8	0.040	0.0019	0.0018	0.038	0.23	0.011	0.010	0.22
6	Building Construction	2031	Hauling	3,463	20	0	0	0	0	0	0	0	0
6	Building Construction	2031	Vendor	8,043	7.3	0	0	0	0	0	0	0	0
6	Building Construction	2031	Worker	45,040	10.8	0.036	0.0018	0.0017	0.034	3.6	0.18	0.17	3.4
6	Paving	2032	Hauling	408	20	0	0	0	0	0	0	0	0
6	Paving	2032	Vendor	783	7.3	0	0	0	0	0	0	0	0
6	Paving	2032	Worker	5,089	10.8	0.032	0.0017	0.0016	0.030	0.36	0.020	0.018	0.34
6	Architectural Coating	2032	Hauling	0	20	0	0	0	0	0	0	0	0
6	Architectural Coating	2032	Vendor	2,423	7.3	0	0	0	0	0	0	0	0
6	Architectural Coating	2032	Worker	16,354	10.8	0.032	0.0017	0.0016	0.030	1.2	0.063	0.058	1.1

Notes:
1. Total number of worker, vendor and haul trips are provided by the Project Sponsor.
2. Trip lengths for worker, vendor, and hauling trips are CalEEMod® defaults.
3. Emission factors are based on calendar-year average values from EMFAC2014, with model year 2010 or newer haul trucks.

Abbreviations:
CalEEMod® - California Emissions Estimator Model
EMFAC: EMission FACtor Model
g - grams
lb - pound
mi - miles
NOx - nitrogen oxide compounds (NO + NO_2)
PM_{10} - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - reactive organic gas

Table AQ-5p
Project Construction On-road Vehicle Controlled Evaporative Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						ROG Diurnal, Hot Soak and Resting Loss Emission Factor (g/trip)[3]			ROG Diurnal, Hot Soak and Resting Loss Emissions (lb)		
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	Diurnal	Hot Soak	Resting Losses	Diurnal	Hot Soak	Resting Losses
0	Demolition	2020	Hauling	404	20	0	0	0	0	0	0
0	Demolition	2020	Vendor	1,950	7.3	0	0	0	0	0	0
0	Demolition	2020	Worker	44,200	10.8	0.041	0.14	0.039	4.0	13	3.8
0	Site Preparation	2021	Hauling	166	20	0	0	0	0	0	0
0	Site Preparation	2021	Vendor	1,560	7.3	0	0	0	0	0	0
0	Site Preparation	2021	Worker	19,240	10.8	0.038	0.13	0.037	1.6	5.3	1.6
0	Grading	2021	Hauling	24,000	20	0	0	0	0	0	0
0	Grading	2021	Vendor	1,693	7.3	0	0	0	0	0	0
0	Grading	2021	Worker	26,521	10.8	0.038	0.13	0.037	2.2	7.3	2.2
0.1	Grading	2024	Hauling	8,700	20	0	0	0	0	0	0
0.1	Grading	2024	Vendor	523	7.3	0	0	0	0	0	0
0.1	Grading	2024	Worker	2,266	10.8	0.031	0.10	0.031	0.15	0.51	0.16
1	Grading	2023	Hauling	2,746	20	0	0	0	0	0	0
1	Grading	2023	Vendor	777	7.3	0	0	0	0	0	0
1	Grading	2023	Worker	6,217	10.8	0.033	0.11	0.033	0.45	1.5	0.45
1	Building Construction	2022	Hauling	7,515	20	0	0	0	0	0	0
1	Building Construction	2022	Vendor	19,586	7.3	0	0	0	0	0	0
1	Building Construction	2022	Worker	135,794	10.8	0.035	0.12	0.035	11	35	10
1	Paving	2024	Hauling	2,288	20	0	0	0	0	0	0
1	Paving	2024	Vendor	2,777	7.3	0	0	0	0	0	0
1	Paving	2024	Worker	26,383	10.8	0.031	0.10	0.031	1.8	6.0	1.8
1	Architectural Coating	2025	Hauling	0	20	0	0	0	0	0	0
1	Architectural Coating	2025	Vendor	2,057	7.3	0	0	0	0	0	0
1	Architectural Coating	2025	Worker	25,200	10.8	0.029	0.097	0.030	1.6	5.4	1.7
2	Building Construction	2024	Hauling	5,594	20	0	0	0	0	0	0
2	Building Construction	2024	Vendor	4,343	7.3	0	0	0	0	0	0
2	Building Construction	2024	Worker	48,640	10.8	0.031	0.10	0.031	3.3	11	3.4
2	Paving	2025	Hauling	10	20	0	0	0	0	0	0
2	Paving	2025	Vendor	257	7.3	0	0	0	0	0	0
2	Paving	2025	Worker	2,829	10.8	0.029	0.097	0.030	0.18	0.60	0.19
2	Architectural Coating	2025	Hauling	0	20	0	0	0	0	0	0
2	Architectural Coating	2025	Vendor	1,377	7.3	0	0	0	0	0	0
2	Architectural Coating	2025	Worker	17,214	10.8	0.029	0.097	0.030	1.1	3.7	1.1
3	Grading	2025	Hauling	260	20	0	0	0	0	0	0
3	Grading	2025	Vendor	254	7.3	0	0	0	0	0	0

Table AQ-5p
Project Construction On-road Vehicle Controlled Evaporative Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						ROG Diurnal, Hot Soak and Resting Loss Emission Factor (g/trip)[3]			ROG Diurnal, Hot Soak and Resting Loss Emissions (lb)		
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	Diurnal	Hot Soak	Resting Losses	Diurnal	Hot Soak	Resting Losses
3	Grading	2025	Worker	1,526	10.8	0.029	0.097	0.030	0.099	0.33	0.10
3	Building Construction	2026	Hauling	6,416	20	0	0	0	0	0	0
3	Building Construction	2026	Vendor	9,714	7.3	0	0	0	0	0	0
3	Building Construction	2026	Worker	87,429	10.8	0.028	0.091	0.028	5.3	18	5.5
3	Paving	2027	Hauling	190	20	0	0	0	0	0	0
3	Paving	2027	Vendor	869	7.3	0	0	0	0	0	0
3	Paving	2027	Worker	6,514	10.8	0.026	0.086	0.027	0.38	1.2	0.39
3	Architectural Coating	2028	Hauling	0	20	0	0	0	0	0	0
3	Architectural Coating	2028	Vendor	869	7.3	0	0	0	0	0	0
3	Architectural Coating	2028	Worker	16,069	10.8	0.025	0.081	0.026	0.88	2.9	0.91
4	Grading	2027	Hauling	293	20	0	0	0	0	0	0
4	Grading	2027	Vendor	254	7.3	0	0	0	0	0	0
4	Grading	2027	Worker	1,526	10.8	0.026	0.086	0.027	0.088	0.29	0.091
4	Building Construction	2028	Hauling	9,388	20	0	0	0	0	0	0
4	Building Construction	2028	Vendor	17,194	7.3	0	0	0	0	0	0
4	Building Construction	2028	Worker	134,689	10.8	0.025	0.081	0.026	7.4	24	7.6
4	Paving	2031	Hauling	113	20	0	0	0	0	0	0
4	Paving	2031	Vendor	603	7.3	0	0	0	0	0	0
4	Paving	2031	Worker	4,521	10.8	0.020	0.066	0.021	0.20	0.66	0.21
4	Architectural Coating	2030	Hauling	0	20	0	0	0	0	0	0
4	Architectural Coating	2030	Vendor	2,164	7.3	0	0	0	0	0	0
4	Architectural Coating	2030	Worker	42,420	10.8	0.022	0.071	0.023	2.0	6.7	2.1
5	Building Construction	2030	Hauling	8,060	20	0	0	0	0	0	0
5	Building Construction	2030	Vendor	12,497	7.3	0	0	0	0	0	0
5	Building Construction	2030	Worker	69,776	10.8	0.022	0.071	0.023	3.4	11	3.5
5	Paving	2032	Hauling	151	20	0	0	0	0	0	0
5	Paving	2032	Vendor	349	7.3	0	0	0	0	0	0
5	Paving	2032	Worker	2,266	10.8	0.019	0.061	0.020	0.093	0.31	0.099
5	Architectural Coating	2032	Hauling	0	20	0	0	0	0	0	0
5	Architectural Coating	2032	Vendor	1,736	7.3	0	0	0	0	0	0
5	Architectural Coating	2032	Worker	25,689	10.8	0.019	0.061	0.020	1.1	3.5	1.1
6	Grading	2030	Hauling	683	20	0	0	0	0	0	0
6	Grading	2030	Vendor	429	7.3	0	0	0	0	0	0
6	Grading	2030	Worker	2,571	10.8	0.022	0.071	0.023	0.12	0.41	0.13
6	Building Construction	2031	Hauling	3,463	20	0	0	0	0	0	0

Table AQ-5p
Project Construction On-road Vehicle Controlled Evaporative Emission Factors and Emissions
Potrero Power Station Mixed-Use Development Project
San Francisco, California

						ROG Diurnal, Hot Soak and Resting Loss Emission Factor (g/trip)[3]			ROG Diurnal, Hot Soak and Resting Loss Emissions (lb)		
Phase	Description	Year	Trip Category	Total Trips (one-way)[1]	Trip length (mi)[2]	Diurnal	Hot Soak	Resting Losses	Diurnal	Hot Soak	Resting Losses
6	Building Construction	2031	Vendor	8,043	7.3	0	0	0	0	0	0
6	Building Construction	2031	Worker	45,040	10.8	0.020	0.066	0.021	2.0	6.6	2.1
6	Paving	2032	Hauling	408	20	0	0	0	0	0	0
6	Paving	2032	Vendor	783	7.3	0	0	0	0	0	0
6	Paving	2032	Worker	5,089	10.8	0.019	0.061	0.020	0.21	0.69	0.22
6	Architectural Coating	2032	Hauling	0	20	0	0	0	0	0	0
6	Architectural Coating	2032	Vendor	2,423	7.3	0	0	0	0	0	0
6	Architectural Coating	2032	Worker	16,354	10.8	0.019	0.061	0.020	0.67	2.2	0.72

Notes:

1. Total number of worker, vendor and haul trips are provided by the Project Sponsor.
2. Trip lengths for worker, vendor, and hauling trips are CalEEMod® defaults.
3. Emission factors are based on calendar-year average values from EMFAC2014, with model year 2010 or newer haul trucks.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
EMFAC: EMission FACtor Model
g - grams
lb - pound
mi - miles
ROG - reactive organic gas

Table AQ-6a
Construction TAC Emissions (Uncontrolled) by Phase
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Source	Emissions[2]
		DPM
		lbs
0	Off-road Equipment[3]	3,270
0.1		74
1		3,615
2		1,141
3		1,576
4		2,070
5		531
6		383
0	On-road Trucks and Vehicles[4]	26
0.1		4.1
1		12
2		3.0
3		3.6
4		4.9
5		3.6
6		2.1
	Total Emissions (lbs)	12,718

Notes:

1. Emissions are calculated based on default CalEEMod® off-road construction equipment tiers for each piece of equipment in the emissions year being modeled.
2. Emissions were estimated using methodology consistent with CalEEMod® and Table AQ-2.
3. A construction equipment list and hours of operation for each piece of equipment for each phase were provided by the Project Sponsor.
4. Total number of worker, vendor and hauling trips was provided for each Phase by the Project Sponsor.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
CAPCOA - California Air Pollution Control Officers Association
DPM - diesel particulate matter
lb - pound
TAC - toxic air contaminant
TOG - total organic gases

References:

California Air Pollution Control Officers Association (CAPCOA). 2016. CalEEMod. Available at: http://www.caleemod.com.

Table AQ-6b
Construction TAC Emissions (Controlled) by Phase
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Source	Emissions[2] DPM lbs
0	Off-road Equipment[3]	389
0.1		6.3
1		264
2		77
3		161
4		210
5		105
6		79
0	On-road Trucks and Vehicles[4]	8.9
0.1		2.0
1		6.2
2		1.7
3		2.3
4		3.3
5		2.6
6		1.6
	Total Emissions (lbs)	1,320

Notes:

1. Emissions are calculated based on Tier 4 emission factors for construction equipment, Tier 3 for in-water equipment, and usage of model year 2010 or newer haul trucks.
2. Emissions were estimated using methodology consistent with CalEEMod® and Table AQ-2.
3. A construction equipment list and hours of operation for each piece of equipment for each phase were provided by the Project Sponsor.
4. Total number of worker, vendor and hauling trips was provided for each Phase by the Project Sponsor.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
CAPCOA - California Air Pollution Control Officers Association
DPM - diesel particulate matter
lb - pound
TAC - toxic air contaminant
TOG - total organic gases

References:

California Air Pollution Control Officers Association (CAPCOA). 2016. CalEEMod. Available at: http://www.caleemod.com.

Table AQ-7a
Project Operational CAP Emissions - Emergency Generators (Uncontrolled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Building Block	Engine Tier	HP	Fuel Type	Quantity	Operation[1] (hrs/yr)	Emission Factors[2,3]				Emissions		
							NMHC	ROG	NOx	PM	ROG	NOx	PM
							[g/bhp-hr]				[ton/yr]		
5	1B	Tier 2	1,006	diesel	1	50	0.60	0.64	4.2	0.15	0.023	0.15	0.0054
4	5B	Tier 2	1,341	diesel	1	50	0.60	0.64	4.2	0.15	0.038	0.25	0.0088
4	6	Tier 2	1,006	diesel	1	50	0.60	0.64	4.2	0.15	0.026	0.17	0.0060
2	7B	Tier 2	671	diesel	1	50	0.60	0.64	4.2	0.15	0.021	0.14	0.0050
1	8	Tier 2	671	diesel	1	50	0.60	0.64	4.2	0.15	0.023	0.15	0.0053
5	14	Tier 2	402	diesel	1	50	0.60	0.64	4.2	0.15	0.012	0.08	0.0027
5	2	Tier 2	2,682	diesel	2	50	0.60	0.64	4.2	0.15	0.14	0.93	0.033
3	3	Tier 2	2,682	diesel	2	50	0.60	0.64	4.2	0.15	0.14	0.93	0.033
4	10	Tier 2	1,006	diesel	1	50	0.60	0.64	4.2	0.15	0.026	0.17	0.0060
2	11	Tier 2	1,006	diesel	1	50	0.60	0.64	4.2	0.15	0.025	0.17	0.0059
1	12	Tier 2	1,006	diesel	1	50	0.60	0.64	4.2	0.15	0.025	0.16	0.0059
1	9	Tier 2	671	diesel	1	50	0.60	0.64	4.2	0.15	0.016	0.11	0.0038
1	SPS	Tier 2	161	diesel	1	50	0.60	0.64	4.2	0.15	0.006	0.037	0.0013
										Net Emissions:	**0.53**	**3.43**	**0.12**

Notes:

1. Operation is conservatively assumed to be 50 hours per year, the maximum allowable by the Bay Area Air Quality Management District for routine testing and maintenance of emergency generators.
2. Proposed generator emission factors based on Tier 2 standards from the ARB and USEPA Off-Road Compression-Ignition (Diesel) Engine Standards (ARB 2013). Emission factors for PM_{10} and $PM_{2.5}$ are conservatively based on the PM emission standard. The split between NMHC and NOx was determined based on NOx-only factors published by the ARB (ARB 2011).
3. The emission factors for ROG were calculated from the NMHC emission factors using conversion factors for diesel engines (USEPA 1997) and assuming that VOC and ROG are equivalent (ARB 2009).

Abbreviations:

ARB - California Air Resources Board
bhp - brake horsepower
CAP - criteria air pollutant
g - grams
HP - horsepower
hrs - hours
NMHC - non-methane hydrocarbon
NOx - nitrogen oxide compounds ($NO + NO_2$)
PM - particulate matter
USEPA - U.S. Environmental Protection Agency

References:

California Air Resources Board (ARB). 2009. Definitions of VOC and ROG. January. Available online at: http://www.arb.ca.gov/ei/speciate/voc_rog_dfn_1_09.pdf. Accessed February, 2018.

ARB. 2011. Frequently Asked Questions In-Use Off-Road Diesel Vehicle Regulation. Available at: https://www.arb.ca.gov/msprog/ordiesel/documents/emissionfactorsfaq.pdf. Accessed February 2018.

ARB. 2013. ARB and USEPA Off-Road Compression-Ignition (Diesel) Engine Standards. Available online at: http://www.arb.ca.gov/msprog/ordiesel/documents/Off-Road_Diesel_Stds.xls. Accessed February, 2018.

U.S. Environmental Protection Agency (USEPA). 1996. Gasoline and Diesel Industrial Engines, AP-42, Section 3.3. Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina. October. Available at: https://www3.epa.gov/ttn/chief/ap42/ch03/final/c03s03.pdf. Accessed February, 2018.

USEPA. 2004. Conversion Factors for Hydrocarbon Emission Components. Available at: https://www3.epa.gov/otaq/models/nonrdmdl/nonrdmdl2004/420p04001.pdf. Accessed February, 2018.

Table AQ-7b
Project Operational CAP Emissions - Emergency Generators (Controlled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Building Block	Engine Tier	HP	Fuel Type	Quantity	Operation[1] (hrs/yr)	Emission Factors[2,3] ROG	NOx	PM	Emissions ROG	NOx	PM
							[g/bhp-hr]			[ton/yr]		
5	1B	Tier 4	1,006	diesel	1	50	0.06	2.24	0.016	0.0021	0.080	0.00057
4	5B	Tier 4	1,341	diesel	1	50	0.06	2.24	0.016	0.0035	0.13	0.00094
4	6	Tier 4	1,006	diesel	1	50	0.06	2.24	0.016	0.0024	0.090	0.00064
2	7B	Tier 4	671	diesel	1	50	0.06	0.26	0.0080	0.0020	0.0087	0.00027
1	8	Tier 4	671	diesel	1	50	0.06	0.26	0.0080	0.0021	0.0092	0.00028
5	14	Tier 4	402	diesel	1	50	0.06	0.26	0.0080	0.0011	0.0047	0.00014
5	2	Tier 4	2,682	diesel	2	50	0.06	2.24	0.016	0.013	0.50	0.0036
3	3	Tier 4	2,682	diesel	2	50	0.06	2.24	0.016	0.013	0.50	0.0035
4	10	Tier 4	1,006	diesel	1	50	0.06	2.24	0.016	0.0024	0.090	0.00064
2	11	Tier 4	1,006	diesel	1	50	0.06	2.24	0.016	0.0024	0.089	0.00063
1	12	Tier 4	1,006	diesel	1	50	0.06	2.24	0.016	0.0024	0.088	0.00063
1	9	Tier 4	671	diesel	1	50	0.06	0.26	0.0080	0.0015	0.0065	0.00020
1	SPS	Tier 4	161	diesel	1	50	0.06	0.26	0.0080	0.00053	0.0023	0.000071
									Net Emissions:	**0.049**	**1.59**	**0.012**

Notes:

1. Operation is conservatively assumed to be 50 hours per year, the maximum allowable by the Bay Area Air Quality Management District for routine testing and maintenance of emergency
2. Generator emission factors based on Tier 4 standards from the ARB and USEPA. Emission factors are taken from CalEEMod Appendix D Table 3.5 OFFROAD Emission Factor Based on Engine Tier (available at http://www.aqmd.gov/caleemod/user%27s-guide)
3. The emission factors for ROG were calculated from the NMHC emission factors using conversion factors for diesel engines (USEPA 1997) and assuming that VOC and ROG are equivalent (ARB 2009).

Abbreviations:

ARB - California Air Resources Board	hrs - hours
bhp - brake horsepower	NMHC - non-methane hydrocarbon
CAP - criteria air pollutant	NOx - nitrogen oxide compounds (NO + NO_2)
g - grams	PM - particulate matter
HP - horsepower	USEPA - U.S. Environmental Protection Agency

References:

California Air Resources Board (ARB). 2009. Definitions of VOC and ROG. January. Available online at: http://www.arb.ca.gov/ei/speciate/voc_rog_dfn_1_09.pdf. Accessed February, 2018.

ARB. 2011. Frequently Asked Questions In-Use Off-Road Diesel Vehicle Regulation. Available at: https://www.arb.ca.gov/msprog/ordiesel/documents/emissionfactorsfaq.pdf. Accessed February 2018.

ARB. 2013. ARB and USEPA Off-Road Compression-Ignition (Diesel) Engine Standards. Available online at: http://www.arb.ca.gov/msprog/ordiesel/documents/Off-Road_Diesel_Stds.xls. Accessed February, 2018.

USEPA. 2004. Conversion Factors for Hydrocarbon Emission Components. Available at: https://www3.epa.gov/otaq/models/nonrdmdl/nonrdmdl2004/420p04001.pdf. Accessed February, 2018.

Table AQ-8a
Project Operational CAP Annual Emissions (Uncontrolled) for Build Out Year
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Emissions Source	CAP Emissions[1,2] [ton / year]			
	ROG	NO_x	PM_{10}	$PM_{2.5}$[3]
Net Generator Emissions	0.53	3.4	0.12	0.12
Architectural Coating	2.8	--	--	--
Consumer Products[4]	12	--	--	--
Hearths	0.20	0.11	0.29	0.29
Landscaping	0.54	0.21	0.10	0.10
Building Energy Use	0.40	3.5	0.27	0.27
On-Road Fugitive Dust	--	--	6.7	2.0
On-Road Exhaust (EMFAC2014)	2.4	11	0.073	0.068
TRUs	0.012	0.090	0.00054	0.00050
Total Project Emissions	**19**	**19**	**7.6**	**2.8**

Notes:

1. Emissions estimated using CalEEMod version 2016.3.2.
2. Operational CAP emissions were estimated for the full Project build-out in 2034. Operations during all other years (while construction is still taking place) will have less emissions than the full build-out year presented above.
3. $PM_{2.5}$ are assumed to be equivalent to PM_{10} emissions for the emergency generators.
4. San Francisco’s ROG emissions from consumer products was 5.30 tons and San Francisco's assumed square footage was 703,541,231 square feet. Therefore, the emission factor would be (5.30 tons/day * 2,000 lbs/ton)/703,541,231 sq.ft = 1.51e-5 lbs/(sq.ft-day). This was used as the emission factor for ROG for the Project.
5. TRU emissions were calculated using the engine operating hours multiplied by the engine size, load factor, and CAP emission factors from California Air Resources Board OFFROAD2017 model. Operating hours were estimated based on the truck travel time plus unloading time; truck travel time is calculated as distance based on CalEEMod default value of 7.3 miles per one way trip for a Commercial-NonWork Trip, divided by the travel speed of 10 miles per hour, assuming 5 trucks per day. Loading time is based on average delivery time of 27 minutes from McCormack et al. (2010) "Truck Trip Generation by Grocery Stores", prepared by University of Washington.

Abbreviations:

BAAQMD: Bay Area Air Quality Management District
CalEEMod: California Emissions Estimator Model
CAP: criteria air pollutant
lb: pounds
TRU: Transport Refrigeration Unit
NO_x: nitrogen oxide compounds ($NO + NO_2$)
ROG: reactive organic gases
$PM_{2.5}$ - particulate matter < 2.5 μm
PM_{10} - particulate matter < 10 μm

References:

CalEEMod® 2016.3.2. Available Online at: http://www.caleemod.com

McCormack et al. (2010). "Truck Trip Generation by Grocery Stores", prepared by University of Washington for Transportation Northwest (TransNow) and Washington State Department of Transportation. Available online at: http://www.wsdot.wa.gov/NR/rdonlyres/E7164661-25E6-421B-B828-C2EF5F909180/0/TruckTripGenerationGroceryStoresreportAugust2010.pdf

Table AQ-8b
Project Operational CAP Average Daily Emissions (Uncontrolled) for Build Out Year
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Emissions Source	CAP Emissions[1,2,3] [lb/day]			
	ROG	NO_x	PM_{10}	$PM_{2.5}$[4]
Net Generator Emissions	2.9	19	0.67	0.67
Architectural Coating	15	--	--	--
Consumer Products[5]	68	--	--	--
Hearths	1.1	0.62	1.6	1.6
Landscaping	3.0	1.1	0.55	0.55
Building Energy Use	2.2	19.4	1.5	1.5
On-Road Fugitive Dust	--	--	37	11
On-Road Exhaust	13	61	0.40	0.37
TRUs	0.065	0.49	0.0030	0.0027
Total Project Operational Emissions	**105**	**102**	**42**	**15**

Notes:

1. Emissions estimated using CalEEMod version 2016.3.2.
2. Operational CAP emissions were estimated for the full Project build-out in 2034. Operations during all other years (while construction is still taking place) will have less emissions than the full build-out year presented above.
3. Average daily emissions were calculated assuming 365 days of operation per year.
4. $PM_{2.5}$ are assumed to be equivalent to PM_{10} emissions for the emergency generators.
5. San Francisco's ROG emissions from consumer products was 5.30 tons and San Francisco's assumed square footage was 703,541,231 square feet. Therefore, the emission factor would be (5.30 tons/day * 2,000 lbs/ton)/703,541,231 sq.ft = 1.51e-5 lbs/(sq.ft-day). This was used as the emission factor for ROG for the Project.
6. TRU emissions were calculated using the engine operating hours multiplied by the engine size, load factor, and CAP emission factors from California Air Resources Board OFFROAD2017 model. Operating hours were estimated based on the truck travel time plus unloading time; truck travel time is calculated as distance based on CalEEMod default value of 7.3 miles per one way trip for a Commercial-NonWork Trip, divided by the travel speed of 10 miles per hour, assuming 5 trucks per day. Loading time is based on average delivery time of 27 minutes from McCormack et al. (2010) "Truck Trip Generation by Grocery Stores", prepared by University of Washington.

Abbreviations:

BAAQMD: Bay Area Air Quality Management District
CalEEMod: California Emissions Estimator Model
CAP: Criteria Air Pollutant
lb: pounds
TRU: Transport Refrigeration Unit
NO_x: nitrogen oxide compounds ($NO + NO_2$)
ROG: reactive organic gases
$PM_{2.5}$ - particulate matter < 2.5 μm
PM_{10} - particulate matter < 10 μm

References:

CalEEMod® 2016.3.2. Available Online at: http://www.caleemod.com
McCormack et al. (2010). "Truck Trip Generation by Grocery Stores", prepared by University of Washington for Transportation Northwest (TransNow) and Washington State Department of Transportation. Available online at: http://www.wsdot.wa.gov/NR/rdonlyres/E7164661-25E6-421B-B828-C2EF5F909180/0/TruckTripGenerationGroceryStoresreportAugust2010.pdf

Table AQ-8c
Project Operational CAP Annual Emissions (Controlled) for Build Out Year
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Emissions Source	CAP Emissions[1,2] [ton/year]			
	ROG	NO_x	PM_{10} Total	$PM_{2.5}$ Total[3]
Net Generator Emissions	0.049	1.6	0.012	0.012
Architectural Coating	2.8	--	--	--
Consumer Products[4]	12	--	--	--
Hearths	0.20	0.11	0.29	0.29
Landscaping	0.54	0.21	0.10	0.10
Building Energy Use	0.40	3.5	0.27	0.27
On-Road Fugitive Dust[5]	--	--	6.0	1.7
On-Road Exhaust[5]	2.1	10	0.065	0.060
TRUs[6]	0.0091	0.068	0.00041	0.00038
Total Project Emissions	**18**	**15**	**6.7**	**2.5**

Notes:

1. Emissions estimated using CalEEMod version 2016.3.2. Emissions controls include Tier 4 emergency generators and TRUs plugged in during unloading.
2. Operational CAP emissions were estimated for the full Project build-out in 2034. Operations during all other years (while construction is still taking place) will have less emissions than the full build-out year presented above.
3. $PM_{2.5}$ are assumed to be equivalent to PM_{10} emissions for the emergency generators.
4. San Francisco's ROG emissions from consumer products was 5.30 tons and San Francisco's assumed square footage was 703,541,231 square feet. Therefore, the emission factor would be (5.30 tons/day * 2,000 lbs/ton)/703,541,231 sq.ft = 1.51e-5 lbs/(sq.ft-day). This was used as the emission factor for ROG for the Project.
5. Mitigated on-road emissions included the Transportation Demand Management (TDM) program outlined in Mitigation Measure TR-5. The TDM program is expected to reduce trip generation (or vehicle miles traveled) by 11%, which is expected to result in a proportional amount of on-road emissions.
6. TRU emissions were calculated using the engine operating hours multiplied by the engine size, load factor, and CAP emission factors from California Air Resources Board OFFROAD2017 model. Operating hours were estimated based on the truck travel time plus unloading time; truck travel time is calculated as distance based on CalEEMod default value of 7.3 miles per one way trip for a Commercial-NonWork Trip, divided by the travel speed of 10 miles per hour, assuming 5 trucks per day. Loading time is based on average delivery time of 27 minutes from McCormack et al. (2010) "Truck Trip Generation by Grocery Stores", prepared by University of Washington. In the mitigated case, TRUs are assumed to be plugged in while unloading.

Abbreviations:

BAAQMD: Bay Area Air Quality Management District
CalEEMod: California Emissions Estimator Model
CAP: criteria air pollutant
lb: pounds
TRU: Transport Refrigeration Unit
NO_x: nitrogen oxide compounds (NO + NO_2)
ROG: reactive organic gases
$PM_{2.5}$ - particulate matter < 2.5 μm
PM_{10} - particulate matter < 10 μm

References:

CalEEMod® 2016.3.2. Available Online at: http://www.caleemod.com

McCormack et al. (2010). "Truck Trip Generation by Grocery Stores", prepared by University of Washington for Transportation Northwest (TransNow) and Washington State Department of Transportation. Available online at: http://www.wsdot.wa.gov/NR/rdonlyres/E7164661-25E6-421B-B828-C2EF5F909180/0/TruckTripGenerationGroceryStoresreportAugust2010.pdf

Table AQ-8d
Project Operational CAP Average Daily Emissions (Controlled) for Build Out Year
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Emissions Source	CAP Emissions[1,2,3] [lb/day]			
	ROG	NO_x	PM_{10}	$PM_{2.5}$[4]
Net Generator Emissions	0.27	8.7	0.066	0.066
Architectural Coating	15	--	--	--
Consumer Products[5]	68	--	--	--
Hearths	1.1	0.62	1.6	1.6
Landscaping	3.0	1.1	0.55	0.55
Building Energy Use	2.2	19.4	1.5	1.5
On-Road Fugitive Dust[6]	--	--	33	10
On-Road Exhaust[6]	12	54	0.36	0.33
TRUs[7]	0.050	0.38	0.0023	0.0021
Total Project Operational Emissions	**101**	**85**	**37**	**14**

Notes:

1. Emissions estimated using CalEEMod version 2016.3.2. Emissions controls include Tier 4 emergency generators and TRUs plugged in during unloading.
2. Operational CAP emissions were estimated for the full Project build-out in 2034. Operations during all other years (while construction is still taking place) will have less emissions than the full build-out year presented above.
3. Average daily emissions were calculated assuming 365 days of operation per year.
4. $PM_{2.5}$ are assumed to be equivalent to PM_{10} emissions for the emergency generators.
5. San Francisco's ROG emissions from consumer products was 5.30 tons and San Francisco's assumed square footage was 703,541,231 square feet. Therefore, the emission factor would be (5.30 tons/day * 2000 lbs/ton)/703,541,231 = 1.51e-5 lbs/(sq.ft-day). This was used as the emission factor for ROG for the Project.
6. Mitigated on-road emissions included the Transportation Demand Management (TDM) program outlined in Mitigation Measure TR-5. The TDM program is expected to reduce trip generation (or vehicle miles traveled) by 11%, which is expected to result in a proportional amount of on-road emissions.
7. TRU emissions were calculated using the engine operating hours multiplied by the engine size, load factor, and CAP emission factors from California Air Resources Board OFFROAD2017 model. Operating hours were estimated based on the truck travel time plus unloading time; truck travel time is calculated as distance based on CalEEMod default value of 7.3 miles per one way trip for a Commercial-NonWork Trip, divided by the travel speed of 10 miles per hour, assuming 5 trucks per day. Loading time is based on average delivery time of 27 minutes from McCormack et al. (2010) "Truck Trip Generation by Grocery Stores", prepared by University of Washington. In the mitigated case, TRUs are assumed to be plugged in while unloading.

Abbreviations:

BAAQMD: Bay Area Air Quality Management District
CalEEMod: California Emissions Estimator Model
CAP: criteria air pollutant
lb: pounds
TRU: Transport Refrigeration Unit
NO_x: nitrogen oxide compounds (NO + NO_2)
ROG: reactive organic gases
$PM_{2.5}$ - particulate matter < 2.5 μm
PM_{10} - particulate matter < 10 μm

References:

CalEEMod® 2016.3.2. Available Online at: http://www.caleemod.com
McCormack et al. (2010). "Truck Trip Generation by Grocery Stores", prepared by University of Washington for Transportation Northwest (TransNow) and Washington State Department of Transportation. Available online at: http://www.wsdot.wa.gov/NR/rdonlyres/E7164661-25E6-421B-B828-C2EF5F909180/0/TruckTripGenerationGroceryStoresreportAugust2010.pdf

Table AQ-8e
Project Operational CAP Annual Emissions (Uncontrolled) for Interim Years
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Emissions Source	CAP Emissions[1,2] [ton/year]			
	ROG	NO_x	PM_{10}	$PM_{2.5}$[3]
Phase 1				
Net Generator Emissions	0.070	0.46	0.016	0.016
Architectural Coating	0.50	--	--	--
Consumer Products[4]	2.3	--	--	--
Hearths	0.030	0.017	0.043	0.043
Landscaping	0.081	0.031	0.015	0.015
Building Energy Use	0.11	1.0	0.077	0.077
On-Road Fugitive Dust	--	--	2.2	0.63
On-Road Exhaust	1.3	5.0	0.048	0.044
Total Phase 1 Emissions	**4.5**	**6.5**	**2.4**	**0.83**
Phase 1 - 2				
Net Generator Emissions	0.12	0.76	0.027	0.027
Architectural Coating	1.3	--	--	--
Consumer Products[4]	4.1	--	--	--
Hearths	0.064	0.035	0.092	0.092
Landscaping	0.17	0.066	0.032	0.032
Building Energy Use	0.16	1.4	0.11	0.11
On-Road Fugitive Dust	--	--	3.1	0.90
On-Road Exhaust	1.7	6.6	0.064	0.060
Total Phase 1 - 2 Emissions	**7.6**	**8.9**	**3.4**	**1.2**
Phase 1 - 3				
Net Generator Emissions	0.26	1.7	0.060	0.060
Architectural Coating	1.2	--	--	--
Consumer Products[4]	5.5	--	--	--
Hearths	0.064	0.035	0.092	0.092
Landscaping	0.17	0.066	0.032	0.032
Building Energy Use	0.22	2.0	0.15	0.15
On-Road Fugitive Dust	--	--	3.7	1.1
On-Road Exhaust	1.8	7.2	0.066	0.061
Total Phase 1 - 3 Emissions	**9.2**	**11**	**4.1**	**1.5**
Phase 1 - 4				
Net Generator Emissions	0.35	2.3	0.081	0.081
Architectural Coating	1.8	--	--	--
Consumer Products[4]	8.1	--	--	--
Hearths	0.12	0.065	0.17	0.17
Landscaping	0.31	0.12	0.058	0.058
Building Energy Use	0.29	2.6	0.20	0.20
On-Road Fugitive Dust	--	--	5.1	1.5
On-Road Exhaust	2.1	9.2	0.07	0.07
TRUs[5]	0.012	0.090	0.00054	0.00050
Total Phase 1 - 4 Emissions	**13**	**14**	**5.7**	**2.0**

Table AQ-8e
Project Operational CAP Annual Emissions (Uncontrolled) for Interim Years
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase 1 - 5				
Net Generator Emissions	0.53	3.4	0.12	0.12
Architectural Coating	2.3	--	--	--
Consumer Products[4]	10	--	--	--
Hearths	0.15	0.083	0.21	0.21
Landscaping	0.40	0.15	0.074	0.074
Building Energy Use	0.36	3.2	0.2	0.25
On-Road Fugitive Dust	--	--	5.9	1.7
On-Road Exhaust	2.3	10.4	0.08	0.07
TRUs[5]	0.012	0.090	0.00054	0.00050
Total Phase 1 - 5 Emissions	**16**	**17**	**6.7**	**2.5**

Notes:

1. Emissions estimated using CalEEMod version 2016.3.2.
2. PPS Project will be built in several phases. Operation emissions were estimated for each interim year, which is the first year of phase 1 and each overlapping phases. This is conservative because emissions are likely to be lowered in subsequent years of operation due to cleaner vehicles.
3. $PM_{2.5}$ are assumed to be equivalent to PM_{10} emissions for the emergency generators.
4. San Francisco’s ROG emissions from consumer products was 5.30 tons and San Francisco's assumed square footage was 703,541,231 square feet. Therefore, the emission factor would be (5.30 tons/day * 2,000 lbs/ton)/703,541,231 sq.ft = 1.51e-5 lbs/(sq.ft-day). This was used as the emission factor for ROG for the Project.
5. Based on the project description, Block 5 (Phase 4) is identified as a potential location for a grocery store. Therefore, TRU emissions assocciated with grocery operation will occur starting phase 4. TRU emissions were calculated using the engine operating hours multiplied by the engine size, load factor, and CAP emission factors from California Air Resources Board OFFROAD2017 model. Operating hours were estimated based on the truck travel time plus unloading time; truck travel time is calculated as distance based on CalEEMod default value of 7.3 miles per one way trip for a Commercial-NonWork Trip, divided by the travel speed of 10 miles per hour, assuming 5 trucks per day. Loading time is based on average delivery time of 27 minutes from McCormack et al. (2010) "Truck Trip Generation by Grocery Stores", prepared by University of Washington.

Abbreviations:

BAAQMD: Bay Area Air Quality Management District
CalEEMod: California Emissions Estimator Model
CAP: criteria air pollutant
lb: pounds
TRU: Transport Refrigeration Unit
NO_x: nitrogen oxide compounds ($NO + NO_2$)
ROG: reactive organic gases
$PM_{2.5}$ - particulate matter < 2.5 μm
PM_{10} - particulate matter < 10 μm

References:

CalEEMod® 2016.3.2. Available Online at: http://www.caleemod.com
McCormack et al. (2010). "Truck Trip Generation by Grocery Stores", prepared by University of Washington for Transportation Northwest (TransNow) and Washington State Department of Transportation. Available online at: http://www.wsdot.wa.gov/NR/rdonlyres/E7164661-25E6-421B-B828-C2EF5F909180/0/TruckTripGenerationGroceryStoresreportAugust2010.pdf

Table AQ-8f
Project Operational CAP Average Daily Emissions (Uncontrolled) for Interim Years
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Emissions Source	CAP Emissions[1,2] [lbs/day]			
	ROG	NO_x	PM_{10}	$PM_{2.5}$[3]
Phase 1				
Net Generator Emissions	0.38	2.5	0.089	0.089
Architectural Coating	2.8	--	--	--
Consumer Products[5]	13	--	--	--
Hearths	0.16	0.092	0.24	0.24
Landscaping	0.44	0.17	0.082	0.082
Building Energy Use	0.61	5.5	0.42	0.42
On-Road Fugitive Dust	--	--	12	3.5
On-Road Exhaust	7.4	27	0.26	0.24
Total Phase 1 Emissions	**24**	**36**	**13**	**4.5**
Phase 1 - 2				
Net Generator Emissions	0.64	4.2	0.15	0.15
Architectural Coating	6.9	--	--	--
Consumer Products[5]	23	--	--	--
Hearths	0.35	0.19	0.50	0.50
Landscaping	0.94	0.36	0.17	0.17
Building Energy Use	0.87	7.8	0.60	0.60
On-Road Fugitive Dust	--	--	17	4.9
On-Road Exhaust	9.4	36	0.35	0.33
Total Phase 1 - 2 Emissions	**42**	**49**	**19**	**6.7**
Phase 1 - 3				
Net Generator Emissions	1.4	9.3	0.3	0.3
Architectural Coating	6.4	--	--	--
Consumer Products[5]	30	--	--	--
Hearths	0.35	0.19	0.50	0.50
Landscaping	0.94	0.36	0.17	0.17
Building Energy Use	1.2	11	0.83	0.83
On-Road Fugitive Dust	--	--	20	5.8
On-Road Exhaust	9.8	40	0.36	0.34
Total Phase 1 - 3 Emissions	**50.2**	**60.3**	**22.2**	**8.0**
Phase 1 - 4				
Net Generator Emissions	1.9	12.5	0.45	0.45
Architectural Coating	9.8	--	--	--
Consumer Products[5]	45	--	--	--
Hearths	0.64	0.36	0.92	0.92
Landscaping	1.7	0.66	0.32	0.32
Building Energy Use	1.6	14	1.1	1.1
On-Road Fugitive Dust	--	--	28	8.1
On-Road Exhaust	11	50	0.39	0.36
TRUs[6]	0.065	0.49	0.0030	0.0027
Total Phase 1 - 4 Emissions	**72**	**78**	**31**	**11**

Table AQ-8f
Project Operational CAP Average Daily Emissions (Uncontrolled) for Interim Years
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase 1 - 5				
Net Generator Emissions	2.9	19	0.67	0.67
Architectural Coating	13	--	--	--
Consumer Products[5]	57	--	--	--
Hearths	0.81	0.45	1.2	1.17
Landscaping	2.2	0.84	0.41	0.41
Building Energy Use	2.0	18	1.4	1.4
On-Road Fugitive Dust	--	--	33	9.4
On-Road Exhaust	13	57	0.42	0.39
TRUs[6]	0.065	0.49	0.0030	0.0027
Total Phase 1 - 5 Emissions	**89.9**	**95.0**	**36.5**	**13.4**

Notes:

Notes:

1. Emissions estimated using CalEEMod version 2016.3.2.
2. PPS Project will be built in several phases. Operation emissions were estimated for each interim year, which is the first year of phase 1 and each overlapping phases. This is conservative because emissions are likely to be lowered in subsequent years of operation due to cleaner vehicles.
3. Average daily emissions were calculated assuming 365 days of operation per year.
4. $PM_{2.5}$ are assumed to be equivalent to PM_{10} emissions for the emergency generators.
5. San Francisco's ROG emissions from consumer products was 5.30 tons and San Francisco's assumed square footage was 703,541,231 square feet. Therefore, the emission factor would be (5.30 tons/day * 2,000 lbs/ton)/703,541,231 sq.ft = 1.51e-5 lbs/(sq.ft-day). This was used as the emission factor for ROG for the Project.
6. Based on the project description, Block 5 (Phase 4) is identified as a potential location for a grocery store. Therefore, TRU emissions assocciated with grocery operation will occur starting phase 4. TRU emissions were calculated using the engine operating hours multiplied by the engine size, load factor, and CAP emission factors from California Air Resources Board OFFROAD2017 model. Operating hours were estimated based on the truck travel time plus unloading time; truck travel time is calculated as distance based on CalEEMod default value of 7.3 miles per one way trip for a Commercial-NonWork Trip, divided by the travel speed of 10 miles per hour, assuming 5 trucks per day. Loading time is based on average delivery time of 27 minutes from McCormack et al. (2010) "Truck Trip Generation by Grocery Stores", prepared by University of Washington.

Abbreviations:

BAAQMD: Bay Area Air Quality Management District
CalEEMod: California Emissions Estimator Model
CAP: Criteria Air Pollutant
lb: pounds
TRU: Transport Refrigeration Unit
NO_x: nitrogen oxide compounds ($NO + NO_2$)
ROG: reactive organic gases
$PM_{2.5}$ - particulate matter < 2.5 μm
PM_{10} - particulate matter < 10 μm

References:

CalEEMod® 2016.3.2. Available Online at: http://www.caleemod.com

McCormack et al. (2010). "Truck Trip Generation by Grocery Stores", prepared by University of Washington for Transportation Northwest (TransNow) and Washington State Department of Transportation. Available online at: http://www.wsdot.wa.gov/NR/rdonlyres/E7164661-25E6-421B-B828-C2EF5F909180/0/TruckTripGenerationGroceryStoresreportAugust2010.pdf

Table AQ-8g
Project Operational CAP Annual Emissions (Controlled) for Interim Years
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Emissions Source	CAP Emissions[1,2] [ton/year]			
	ROG	NO_x	PM_{10}	$PM_{2.5}$[3]
Phase 1				
Net Generator Emissions	0.0065	0.11	0.0012	0.0012
Architectural Coating	0.50	--	--	--
Consumer Products[4]	2.3	--	--	--
Hearths	0.030	0.017	0.043	0.043
Landscaping	0.081	0.031	0.015	0.015
Building Energy Use	0.11	1.0	0.077	0.077
On-Road Fugitive Dust[5]	--	--	1.9	0.6
On-Road Exhaust[5]	1.2	4.5	0.042	0.040
Total Phase 1 Emissions	**4.3**	**5.6**	**2.1**	**0.7**
Phase 1 - 2				
Net Generator Emissions	0.011	0.20	0.0021	0.0021
Architectural Coating	1.3	--	--	--
Consumer Products[4]	4.1	--	--	--
Hearths	0.064	0.035	0.092	0.092
Landscaping	0.17	0.066	0.032	0.032
Building Energy Use	0.16	1.4	0.11	0.11
On-Road Fugitive Dust[5]	--	--	2.8	0.8
On-Road Exhaust[5]	1.5	5.9	0.057	0.053
Total Phase 1 - 2 Emissions	**7.3**	**7.6**	**3.0**	**1.1**
Phase 1 - 3				
Net Generator Emissions	0.024	0.70	0.0056	0.0056
Architectural Coating	1.2	--	--	--
Consumer Products[4]	5.5	--	--	--
Hearths	0.064	0.035	0.092	0.092
Landscaping	0.17	0.07	0.032	0.032
Building Energy Use	0.22	2.0	0.15	0.15
On-Road Fugitive Dust[5]	--	--	3.3	0.9
On-Road Exhaust[5]	1.6	6.4	0.058	0.055
Total Phase 1 - 3 Emissions	**8.7**	**9.2**	**3.6**	**1.3**
Phase 1 - 4				
Net Generator Emissions	0.033	1.0	0.0079	0.0079
Architectural Coating	1.8	--	--	--
Consumer Products[4]	8.1	--	--	--
Hearths	0.12	0.065	0.17	0.17
Landscaping	0.31	0.12	0.058	0.058
Building Energy Use	0.29	2.6	0.20	0.20
On-Road Fugitive Dust[5]	--	--	4.5	1.3
On-Road Exhaust[5]	1.9	8.2	0.063	0.058
TRUs[6]	0.0091	0.068	0.00041	0.00038
Total Phase 1 - 4 Emissions	**13**	**12**	**5.0**	**1.8**

Table AQ-8g
Project Operational CAP Annual Emissions (Controlled) for Interim Years
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase 1 - 5				
Net Generator Emissions	0.049	1.6	0.012	0.012
Architectural Coating	2.3	--	--	--
Consumer Products[4]	10	--	--	--
Hearths	0.15	0.083	0.21	0.21
Landscaping	0.40	0.15	0.074	0.074
Building Energy Use	0.36	3.2	0.25	0.25
On-Road Fugitive Dust[5]	--	--	5.3	1.5
On-Road Exhaust[5]	2.0	9.2	0.068	0.064
TRUs[6]	0.0091	0.068	0.00041	0.00038
Total Phase 1 - 5 Emissions	**15.68**	**14.34**	**5.90**	**2.14**

Notes:

1. Emissions estimated using CalEEMod version 2016.3.2. Emissions controls include Tier 4 emergency generators and TRUs plugged in during unloading.
2. PPS Project will be built in several phases. Operation emissions were estimated for each interim year, which is the first year of phase 1 and each overlapping phases. This is conservative because emissions are likely to be lowered in subsequent years of operation due to cleaner vehicles.
3. $PM_{2.5}$ are assumed to be equivalent to PM_{10} emissions for the emergency generators.
4. San Francisco's ROG emissions from consumer products was 5.30 tons and San Francisco's assumed square footage was 703,541,231 square feet. Therefore, the emission factor would be (5.30 tons/day * 2,000 lbs/ton)/703,541,231 sq.ft = 1.51e-5 lbs/(sq.ft-day). This was used as the emission factor for ROG for the Project.
5. Mitigated on-road emissions included the Transportation Demand Management (TDM) program outlined in Mitigation Measure TR-5. The TDM program is expected to reduce trip generation (or vehicle miles traveled) by 11%, which is expected to result in a proportional amount of on-road emissions.
6. Based on the project description, Block 5 (Phase 4) is identified as a potential location for a grocery store. Therefore, TRU emissions assocciated with grocery operation will occur starting phase 4. TRU emissions were calculated using the engine operating hours multiplied by the engine size, load factor, and CAP emission factors from California Air Resources Board OFFROAD2017 model. Operating hours were estimated based on the truck travel time plus unloading time; truck travel time is calculated as distance based on CalEEMod default value of 7.3 miles per one way trip for a Commercial-NonWork Trip, divided by the travel speed of 10 miles per hour, assuming 5 trucks per day. Loading time is based on average delivery time of 27 minutes from McCormack et al. (2010) "Truck Trip Generation by Grocery Stores", prepared by University of Washington. In the mitigated case, TRUs are assumed to be plugged in while

Abbreviations:

BAAQMD: Bay Area Air Quality Management District
CalEEMod: California Emissions Estimator Model
CAP: criteria air pollutant
lb: pounds
TRU: Transport Refrigeration Unit
NO_x: nitrogen oxide compounds (NO + NO_2)
ROG: reactive organic gases
$PM_{2.5}$ - particulate matter < 2.5 μm
PM_{10} - particulate matter < 10 μm

References:

CalEEMod® 2016.3.2. Available Online at: http://www.caleemod.com

McCormack et al. (2010). "Truck Trip Generation by Grocery Stores", prepared by University of Washington for Transportation Northwest (TransNow) and Washington State Department of Transportation. Available online at: http://www.wsdot.wa.gov/NR/rdonlyres/E7164661-25E6-421B-B828-C2EF5F909180/0/TruckTripGenerationGroceryStoresreportAugust2010.pdf

Table AQ-8h
Project Operational CAP Average Daily Emissions (Controlled) for Interim Years
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Emissions Source	CAP Emissions[1,2] [lbs/day]			
	ROG	NO_x	PM_{10}	$PM_{2.5}$[3]
Phase 1				
Net Generator Emissions[4]	0.036	0.58	0.0065	0.0065
Architectural Coating	2.8	--	--	--
Consumer Products[5]	13	--	--	--
Hearths	0.16	0.092	0.24	0.24
Landscaping	0.44	0.17	0.082	0.082
Building Energy Use	0.61	5.5	0.42	0.42
On-Road Fugitive Dust[6]	--	--	11	3.1
On-Road Exhaust[6]	6.6	24	0.23	0.22
Total Phase 1 Emissions	**23**	**31**	**12**	**4.0**
Phase 1 - 2				
Net Generator Emissions[4]	0.06	1.1	0.011	0.011
Architectural Coating	6.9	--	--	--
Consumer Products[5]	22.7	--	--	--
Hearths	0.35	0.19	0.50	0.50
Landscaping	0.94	0.36	0.17	0.17
Building Energy Use	0.87	7.8	0.60	0.60
On-Road Fugitive Dust[6]	--	--	15	4.4
On-Road Exhaust[6]	8.3	32	0.31	0.29
Total Phase 1 - 2 Emissions	**40**	**42**	**17**	**6.0**
Phase 1 - 3				
Net Generator Emissions[4]	0.13	3.8	0.031	0.031
Architectural Coating	6.4	--	--	--
Consumer Products[5]	30	--	--	--
Hearths	0.35	0.19	0.50	0.50
Landscaping	0.94	0.36	0.17	0.17
Building Energy Use	1.2	11	0.83	0.83
On-Road Fugitive Dust[6]	--	--	18	5.2
On-Road Exhaust[6]	8.7	35	0.32	0.30
Total Phase 1 - 3 Emissions	**48**	**51**	**20**	**7.0**
Phase 1 - 4				
Net Generator Emissions[4]	0.18	5.5	0.043	0.043
Architectural Coating	9.8	--	--	--
Consumer Products[5]	45	--	--	--
Hearths	0.64	0.36	0.92	0.92
Landscaping	1.72	0.66	0.32	0.32
Building Energy Use	1.6	14	1.1	1.1
On-Road Fugitive Dust[6]	--	--	25	7.2
On-Road Exhaust[6]	10	45	0.34	0.32
TRUs[7]	0.050	0.38	0.0023	0.0021
Total Phase 1 - 4 Emissions	**69**	**66**	**28**	**10**

Table AQ-8h
Project Operational CAP Average Daily Emissions (Controlled) for Interim Years
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase 1 - 5				
Net Generator Emissions[4]	0.27	8.7	0.066	0.066
Architectural Coating	13	--	--	--
Consumer Products[5]	57	--	--	--
Hearths	0.81	0.5	1.2	1.2
Landscaping	2.2	0.84	0.41	0.41
Building Energy Use	2.0	18	1.4	1.4
On-Road Fugitive Dust[6]	--	--	29	8.4
On-Road Exhaust[6]	11	50	0.37	0.35
TRUs[7]	0.050	0.38	0.0023	0.0021
Total Phase 1 - 5 Emissions	**86**	**79**	**32**	**12**

Notes:

1. Emissions estimated using CalEEMod version 2016.3.2. Emissions controls include Tier 4 emergency generators and TRUs plugged in during unloading.
2. PPS Project will be built in several phases. Operation emissions were estimated for each interim year, which is the first year of phase 1 and each overlapping phases. This is conservative because emissions are likely to be lowered in subsequent years of operation due to cleaner vehicles.
3. Average daily emissions were calculated assuming 365 days of operation per year.
4. $PM_{2.5}$ are assumed to be equivalent to PM_{10} emissions for the emergency generators.
5. San Francisco's ROG emissions from consumer products was 5.30 tons and San Francisco's assumed square footage was 703,541,231 square feet. Therefore, the emission factor would be (5.30 tons/day * 2,000 lbs/ton)/703,541,231 sq.ft = 1.51e-5 lbs/(sq.ft-day). This was used as the emission factor for ROG for the Project.
6. Based on the project description, Block 5 (Phase 4) is identified as a potential location for a grocery store. Therefore, TRU emissions assocciated with grocery operation will occur starting phase 4. TRU emissions were calculated using the engine operating hours multiplied by the engine size, load factor, and CAP emission factors from California Air Resources Board OFFROAD2017 model. Operating hours were estimated based on the truck travel time plus unloading time; truck travel time is calculated as distance based on CalEEMod default value of 7.3 miles per one way trip for a Commercial-NonWork Trip, divided by the travel speed of 10 miles per hour, assuming 5 trucks per day. Loading time is based on average delivery time of 27 minutes from McCormack et al. (2010) "Truck Trip Generation by Grocery Stores", prepared by University of Washington. In the mitigated case, TRUs are assumed to be plugged in while unloading.

Abbreviations:

BAAQMD: Bay Area Air Quality Management District
CalEEMod: California Emissions Estimator Model
CAP: Criteria Air Pollutant
lb: pounds
TRU: Transport Refrigeration Unit
NO_x: nitrogen oxide compounds (NO + NO_2)
ROG: reactive organic gases
$PM_{2.5}$ - particulate matter < 2.5 μm
PM_{10} - particulate matter < 10 μm

References:

CalEEMod® 2016.3.2. Available Online at: http://www.caleemod.com

McCormack et al. (2010). "Truck Trip Generation by Grocery Stores", prepared by University of Washington for Transportation Northwest (TransNow) and Washington State Department of Transportation. Available online at: http://www.wsdot.wa.gov/NR/rdonlyres/E7164661-25E6-421B-B828-C2EF5F909180/0/TruckTripGenerationGroceryStoresreportAugust2010.pdf

Table AQ-9a
Operational Emissions for HRA Modeling - Emergency Generators (Uncontrolled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Building Block	Modeled Source Group Name	Fuel	DPM[1]	$PM_{2.5}$[1]
			[g/s]	
1B	O5-Gen1	Diesel	1.5E-04	1.5E-04
5B	O4-Gen5	Diesel	2.5E-04	2.5E-04
6	O4-Gen6	Diesel	1.7E-04	1.7E-04
7B	O2-Gen7	Diesel	1.4E-04	1.4E-04
8	O1-Gen8	Diesel	1.5E-04	1.5E-04
14	O5-Gen14	Diesel	7.7E-05	7.7E-05
2	O5-Gen2a	Diesel	9.6E-04	9.6E-04
2	O5-Gen2b	Diesel	9.6E-04	9.6E-04
3	O3-Gen3a	Diesel	9.6E-04	9.6E-04
3	O3-Gen3b	Diesel	9.6E-04	9.6E-04
10	O4-Gen10	Diesel	1.7E-04	1.7E-04
11	O2-Gen11	Diesel	1.7E-04	1.7E-04
12	O1-Gen12	Diesel	1.7E-04	1.7E-04
9	O1-Gen9	Diesel	1.1E-04	1.1E-04
SPS	O1-GenSPS	Diesel	3.8E-05	3.8E-05

Notes:

1. DPM and PM2.5 are both converted from PM tons/year emissions shown in Table AQ-7a.

Abbreviations:

DPM - diesel particulate matter
$PM_{2.5}$ - particulate matter < 2.5 μm
g - gram
s - second

References:

USEPA. 2010. Conversion Factors for Hydrocarbon Emission Components, Report No. NR-002d. EPA-420-R-10-015. July.

Table AQ-9b
Operational Emissions for HRA Modeling - Emergency Generators (Controlled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Building Block	Modeled Source Group Name	Fuel	DPM[1]	$PM_{2.5}$[1]
			[g/s]	
1B	O5-Gen1	Diesel	1.6E-05	1.6E-05
5B	O4-Gen5	Diesel	2.7E-05	2.7E-05
6	O4-Gen6	Diesel	1.9E-05	1.9E-05
7B	O2-Gen7	Diesel	7.7E-06	7.7E-06
8	O1-Gen8	Diesel	8.1E-06	8.1E-06
14	O5-Gen14	Diesel	4.1E-06	4.1E-06
2	O5-Gen2a	Diesel	1.0E-04	1.0E-04
2	O5-Gen2b	Diesel	1.0E-04	1.0E-04
3	O3-Gen3a	Diesel	1.0E-04	1.0E-04
3	O3-Gen3b	Diesel	1.0E-04	1.0E-04
10	O4-Gen10	Diesel	1.8E-05	1.8E-05
11	O2-Gen11	Diesel	1.8E-05	1.8E-05
12	O1-Gen12	Diesel	1.8E-05	1.8E-05
9	O1-Gen9	Diesel	5.8E-06	5.8E-06
SPS	O1-GenSPS	Diesel	2.0E-06	2.0E-06

Notes:
1. DPM and PM2.5 are both converted from PM tons/year emissions shown in Table AQ-7b.

Abbreviations:

DPM - diesel particulate matter
$PM_{2.5}$ - particulate matter < 2.5 µm
g - gram
s - second

References:

USEPA. 2010. Conversion Factors for Hydrocarbon Emission Components, Report No. NR-002d. EPA-420-R-10-015. July.

Table AQ-10
Operational Traffic Volumes for Screening Analysis
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Street	Link ID[1]	Project Traffic[2,3]
		# vehicles/day
Illinois St	N-1	2,080
Illinois St	1-2	4,015
Illinois St	2-3	4,810
Illinois St	3-4	5,540
Illinois St	4-5	4,216
Illinois St	5-6	4,214
Illinois St	6-7	3,384
Third St	N-9	5,139
Third St	9-10	3,350
Third St	10-11	4,530
Third St	11-12	6,332
Third St	12-13	5,007
Third St	S-13	560
Indiana St	14-15	757
Pennsylvania Ave	N-16	774
Pennsylvania Ave	16-17	1,759
Pennsylvania Ave	17-18	4,703
Pennsylvania Ave	S-18	3,785
20th St	1-9	1,935
20th St	W-9	146
22nd St	E-2	6,032
22nd St	2-10	3,147
22nd St	W-10	880
Humboldt	E-3	4,020
23rd St	E-4	10,071
23rd St	4-11	8,746
23rd St	11-14	1,331
23rd St	14-16	1,331
25th St	6-12	830
25th St	12-15	2,157
25th St	15-17	1,399
Cesar Chavez St	7-13	3,385
Cesar Chavez St	13-18	7,832
Cesar Chavez St	W-18	3,494

Notes:

1. Link IDs are identified by a starting and ending node, where node numbers correspond to study intersections as defined by the Transportation Engineer. Refer to Fehr and Peers (2018) Figure 1 "Peak Hour Traffic Volumes and Lane Configurations: Existing" for a depiction of study intersections. Links with letter nodes indicate segments starting at a numbered node and extending out in a particular direction (i.e., N-1 refers to the link beginning at node 1 and extending out Northward).
2. Average annual daily traffic volumes were provided by the Transportation Engineer (Fehr and Peers).
3. Project-only traffic volumes are used in the HRA screening analysis provided by the transportation Engineer.

References:

Fehr and Peers (2018). Turning movements at the study intersections, Figure 1: "Peak Hour Traffic Volumes and Lane Configurations: Existing".

Table AQ-11a
Construction Modeling Parameters
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Source	Source Type[1]	Modeled Source group	Description	Source Area	Release Height[1]	Initial Vertical Dimension[1]
				m^2	m	m
Construction Equipment	Area	C0	Phase 0 Construction	114,952	5.0	1.4
		C0_1	Phase 0.1 Construction	18,975	5.0	1.4
		C1	Phase 1 Construction	50,700	5.0	1.4
		C2	Phase 2 Construction	11,645	5.0	1.4
		C3	Phase 3 Construction	10,798	5.0	1.4
		C4	Phase 4 Construction	12,737	5.0	1.4
		C5	Phase 5 Construction	11,585	5.0	1.4
		C6	Phase 6 Construction	17,107	5.0	1.4
		CM	Marine construction	3,369	5.0	1.4
		C0S	Phase 0 Construction Staging	20,634	5.0	1.4
		C1S	Phase 1 Construction Staging	24,392	5.0	1.4
		C2S	Phase 2 Construction Staging	31,358	5.0	1.4
		C3S	Phase 3 Construction Staging	21,497	5.0	1.4
		C4S	Phase 4 Construction Staging	10,801	5.0	1.4
		C5S	Phase 5 Construction Staging	5,093	5.0	1.4
		C6S	Phase 6 Construction Staging	11,915	5.0	1.4

Source	Source Type[2]	Source Group	Release Height[3]	Initial Lateral Dimension[4]	Initial Vertical Dimension[3]
Onroad Vehicles	Volume	See Table AQ-12b	2.5	4.19	2.30

Notes:

1. Onsite construction equipment was modeled as area sources with initial vertical dimensions of 1.4 meters, consistent with the CRRP-HRA. Release height was not specified in the CRRP-HRA, so the default value from South Coast Air Quality Management District (SCAQMD) Local Significance Threshold Methodology was used (SCAQMD 2008).
2. Onroad vehicles including vendor and haul trucks, were modeled as a series of adjacent volume sources, consistent with the CRRP-HRA.
3. Volume source parameters are consistent with the CRRP-HRA modeling files (BAAQMD 2012).
4. Initial lateral dimension was fixed at 4.19 meters (9 m/2.15).

Abbreviations:

AERMOD - United States Environmental Protection Agency Regulatory Air dispersion Model
BAAQMD - Bay Area Air Quality Management District
CRRP - Community Risk Reduction Plan
HRA - health risk assessment
m - meter
m^2 - square meter
SCAQMD - South Coast Air Quality Management District

References:

BAAQMD. 2012. The San Francisco Community Risk Reduction Plan: Technical Support Documentation. December. Available at: http://www.gsweventcenter.com/Draft_SEIR_References%5C2012_12_BAAQMD_SF_CRRP_Methods_and_Findings_v9.pdf
SCAQMD. 2008. Final Localized Significance Threshold Methodology. July. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2.

Table AQ-11b
Construction Source Groups for Modeling
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Modeled Source Group Name	Source IDs	Description
Haul truck routes		
OnRd1	OnRd1_001-OnRd1_105	23rd St (I280 <--> 3rd St)
OnRd2	OnRd2_106-OnRd2_182	Illinois St (23rd <--> Cesar Chavez)
OnRd3	OnRd3_183-OnRd3_248	3rd Street (23rd <--> Cesar Chavez)
OnRd4	OnRd4_249-OnRd4_284	Cesar Chavez (US101 <--> I280)
OnRd5	OnRd5_285-OnRd5_312	I280 Ramp (I280 <--> Cesar Chavez)
OnRd6	OnRd6_313-OnRd6_331	Humboldt St (Maryland <--> Illionis)
OnRd7	OnRd7_332-OnRd7_348	Maryland St (Humboldt <--> 23rd)
OnRd8	OnRd8_349-OnRd8_367	Cesar Chavez (I280 <--> Indiana)
OnRd9	OnRd9_368-OnRd9_450	Indiana (I280 <--> Cesar Chavez)
OnRd10	OnRd10_451-OnRd10_479	Cesar Chavez (Indiana <--> 3rd)
OnRd11	OnRd11_480-OnRd11_514	23rd Street (East of Illinois)
OnRd12	OnRd12_515-OnRd12_531	Delaware St
OnRd13	OnRd13_532-OnRd13_547	Humboldt St (Delaware <--> Maryland)
OnRd14	OnRd14_548-OnRd14_564	Illinois St (Humboldt <--> 23rd)
OnRd15	OnRd15_565-OnRd15_574	23rd Street (3rd <--> Illinois)
I280	I280_001-I280_118	Interstate 280
Construction Areas		
C0	C0	Phase 0 Construction
C0_1	C0_1	Phase 0.1 Construction
C1	C1	Phase 1 Construction
C2	C2	Phase 2 Construction
C3	C3	Phase 3 Construction
C4	C4	Phase 4 Construction
C5	C5	Phase 5 Construction
C6	C6	Phase 6 Construction
CM	CM1	Marine Construction
Construction staging areas		
C0S1	C0S1	Phase 0 Construction Staging
	C0S2	
	C0S3	
C1S1	C1S1	Phase 1 Construction Staging
	C1S2	
	C1S3	
C2S1	C2S1	Phase 2 Construction Staging
	C2S2	
	C2S3	
C3S1	C3S1	Phase 3 Construction Staging
	C3S2	
	C3S3	
C4S	C4S1	Phase 4 Construction Staging
C5S	C5S1	Phase 5 Construction Staging
C6S	C6S1	Phase 6 Construction Staging

Table AQ-11c
Operational Modeling Parameters
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Building Block	Source Type	Modeled Source Group Name	Number of Sources	Stack Height Above Grade[1]	Stack Temperature[1]	Stack Velocity[1]	Stack Diameter[1]
				m	K	m/s	m
5	Point	O5-Gen1	1	4.572	749.0	96.10	0.18
5	Point	O5-Gen2a	1	4.572	755.0	276.10	0.18
5	Point	O5-Gen2b	1	4.572	755.0	276.10	0.18
3	Point	O3-Gen3a	1	4.572	755.0	276.10	0.18
3	Point	O3-Gen3b	1	4.572	755.0	276.10	0.18
4	Point	O4-Gen5	1	4.572	750.0	144.70	0.18
4	Point	O4-Gen6	1	4.572	749.0	96.10	0.18
2	Point	O2-Gen7	1	4.572	756.0	65.00	0.18
1	Point	O1-Gen8	1	4.572	756.0	65.00	0.18
1	Point	O1-Gen9	1	4.572	756.0	65.00	0.18
4	Point	O4-Gen10	1	4.572	749.0	96.10	0.18
2	Point	O2-Gen11	1	4.572	749.0	96.10	0.18
1	Point	O1-Gen12	1	4.572	749.0	96.10	0.18
5	Point	O5-Gen14	1	4.572	825.0	41.20	0.18
1	Point	O1-GenSPS	1	4.572	740.0	45.30	0.18

Notes:

1. The Project Sponsor provided details regarding the generators, including source location, stack height, stack temperature and stack flow rate to be used for air dispersion modeling in AERMOD. The default stack diameter value from the BAAQMD was assumed and stack velocity was calculated from the provided stack flow rates and assumed stack diameter.
2. Onroad vehicles, including concrete trucks, haul trucks, and vendor trucks, were modeled as a series of adjacent volume sources, consistent with the CRRP-HRA.
3. Volume source parameters are consistent with the CRRP-HRA modeling files (BAAQMD 2012).
4. Initial lateral dimension was fixed at 4.19 meters (9 meters divided by 2.15).

Abbreviations:

AERMOD - United States Environmental Protection Agency Regulatory Air dispersion Model
BAAQMD - Bay Area Air Quality Management District
CRRP - Community Risk Reduction Plan
HRA - Health Risk Assessment
K - Kelvin
m - meter
m/s - meters per second

References:

BAAQMD. 2012. The San Francisco Community Risk Reduction Plan: Technical Support Documentation. December. Available at: http://www.gsweventcenter.com/Draft_SEIR_References%5C2012_12_BAAQMD_SF_CRRP_Methods_and_Findings_v9.pdf

Table AQ-12a
Exposure Parameters
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Receptor Type	Period	Receptor Age Group	Exposure Parameters					
			Daily Breathing Rate (DBR)[1] [L/kg-day]	Exposure Duration (ED)[2,3] [years]	Fraction of Time at Home (FAH)[4] [unitless]	Exposure Frequency (EF)[5] [days/year]	Averaging Time (AT) [days]	Intake Factor, Inhalation (IF_{inh}) [m^3/kg-day]
Off-Site Resident[2]	Construction Phase 0-6, Operation Phase 1-6	3rd Trimester	361	0.25	1.0	350	25,550	0.0012
		Age 0-<2 Years	1,090	2.0	1.0			0.030
		Age 2-<16 Years	572	14.0	1.0			0.110
		Age 16-30 Years	261	14.0	0.73			0.037
On-Site Resident and Daycare[3]	Construction Phase 1-6, Operation Phase 1-6	3rd Trimester	361	0.25	1.0	350	25,550	0.0012
		Age 0-<2 Years	1,090	2.0	1.0			0.030
		Age 2-<16 Years	572	14.0	1.0			0.110
		Age 16-30 Years	261	14.0	0.73			0.037

Notes:

1. Daily breathing rates for residents reflect default breathing rates from OEHHA 2015 and BAAQMD 2016 as follows: 95th percentile 24-hour daily breathing rate for 3rd trimester and age 0-<2 years; 80th percentile for ages 2 years and older (per BAAQMD 2016 guidance). Daily breathing rates for the daycare children reflect default 8-hour breathing rates for moderate intensity activities from OEHHA 2015.

2. The exposure duration for the off-site resident is based on an analysis of a fetus at the beginning of its third trimester and reflects thirteen emission scenarios due to the phasing of the construction activities and commencement of building operation. These scenarios are reflected in Table 12b (labeled F1-F13).

   Note that the total duration of exposure is calculated out to 30 years for all thirteen scenarios listed above. Due to the phasing of the construction activities, the off-site resident will be exposed to different durations of construction and operation emissions in each of the thirteen emission scenarios.

3. The exposure duration for the on-site resident is based on an analysis of a fetus at the beginning of its third trimester and reflects eight emission scenarios due to the phasing of the construction activities and commencement of building operation. These scenarios are reflected in Table 12b (labeled N1-N8).

   Note that the total duration of exposure is calculated out to 30 years for all eight scenarios listed above. Due to the phasing of the construction activities, the on-site resident will be exposed to different durations of construction and operation emissions in each of the nine emission scenarios.

   Daycare locations are conservatively assessed using the residential exposure scenario.

Table AQ-12a
Exposure Parameters
Potrero Power Station Mixed-Use Development Project
San Francisco, California

4. Fraction of time spent at home (FAH) is conservatively assumed to be 1.0 (i.e., 24 hours/day) for age groups from the third trimester to less than 16 years old based on the recommendation from BAAQMD (BAAQMD 2016) and OEHHA (OEHHA 2015). The fraction of time at home for adults age 16-30 reflects default OEHHA guidance (OEHHA 2015) as recommended by BAAQMD (2016). FAH is not applicable for the daycare children.

5. Exposure frequency for residents reflects default residential exposure frequency from OEHHA 2015. Exposure frequency for daycare children reflect the default exposure frequency for workers from OEHHA 2015 assuming the children are at the daycare center when their parents are at work.

Calculation:

IF_{inh} = DBR * FAH * EF * ED * CF / AT

CF = 0.001 (m^3/L)

Abbreviations:

AT - averaging time
BAAQMD - Bay Area Air Quality Management District
DBR - daily breathing rate
ED - exposure duration
EF - exposure frequency
FAH - fraction of time at home
IF_{inh} - intake factor
kg - kilogram
L - liter
m^3 - cubic meter
OEHHA - Office of Environmental Health Hazard Assessment

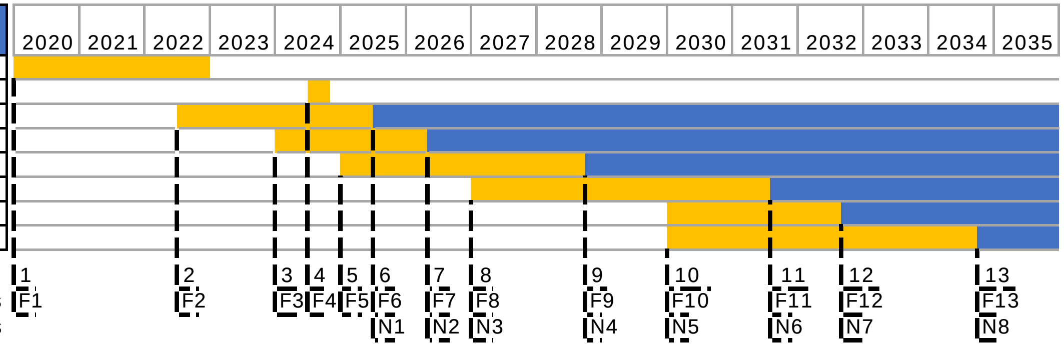
References:

BAAQMD. 2016. Air Toxics NSR ProgramHealth Risk Assessment (HRA) Guidelines. January.

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Table AQ-12b
Emission Scenarios for Exposure Assessment
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Phase	Start Date	End Date	# of Months	Start Month
0	1/1/20	12/31/22	36	1
0.1	7/1/24	10/31/24	4	55
1	7/1/22	6/30/25	36	31
2	1/1/24	4/30/26	28	49
3	1/1/25	9/30/28	45	61
4	1/1/27	7/31/31	55	85
5	1/1/30	8/31/32	32	121
6	1/1/30	9/30/34	57	121



Criteria Pollutant Emission Profile Changes
Offsite Receptors
Onsite Receptors

Legend
Construction
Operation

Table AQ-13
Carcinogenic Toxicity Values
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Source	Chemical	CAS Number	Cancer Potency Factor
			[mg/kg-day]$^{-1}$
Construction Sources and Emergency Generators	Diesel PM	9901	1.1

Abbreviations:

ARB - California Air Resources Board
Cal/EPA - California Environmental Protection Agency
CAS - chemical abstract services
mg/kg-day - milligrams per kilogram per day
OEHHA - Office of Environmental Health Hazard

Reference:

Cal/EPA. 2017. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. February. Available at: http://www.arb.ca.gov/toxics/healthval/contable.pdf.

Table AQ-14
Age Sensitivity Factor
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Receptor Age Group [1]	Age Sensitivity Factor [2]
3rd Trimester	10
Age 0-<2 Years	10
Age 2-<16 Years	3
Age >16 Years	1

Notes:

1. Age sensitivity factors are applicable for the age groups relevant to each receptor type listed in Table AQ-13 Exposure Parameters.
2. The age sensitivity factors are as recommended in the 2015 OEHHA Hot Spots Guidance (OEHHA 2015) for each age group.

Abbreviation:

OEHHA - Office of Environmental Health Hazard Assessment

Source:

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Table AQ-15a
Modeled Excess Lifetime Cancer Risk at Project Off-Site and On-Site MEISR (Uncontrolled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Source Category	Lifetime Excess Cancer Risk[2] [in a million]			
	Off-Site Resident (Pier 70)[3]	**Off-Site Resident (non-Pier 70)[4]**	**School Receptor**	**On-Site Resident[5]**
Construction Off-Road Equipment[1]	384	42	8.8	338
Construction On-Road Vehicles[1]	0.0087	0.025	0.0039	0.031
Emergency Generator[1]	4.0	0.57	0.059	7.9
Operational Traffic[1]	0.49	4.4	1.5	3.2
Total	**388**	**47**	**10**	**349**

MEISR Location:

MEISR Type	UTMx	UTMy	Receptor Height
	[m]		[m]
Off-Site Resident (Pier 70)	554,400	4,179,120	1.8
Off-Site Resident (Non-Pier 70)	553,880	4,178,960	1.8
School Receptor	553,800	4,179,440	1.8
On-Site Resident	554,240	4,179,020	1.8

Notes:

1. Emissions are calculated based on default CalEEMod® off-road construction equipment tiers for each piece of equipment in the emissions year being modeled.

2. Lifetime excess cancer risk from construction and operations are combined since cancer risk is evaluated over a 30-year period. Thus, the risk takes into account a receptor living near the project site beginning during construction and continuing through operations. The cancer risks were estimated using the following equation:

$Risk_{inh} = C_i \times CF \times IF_{inh} \times CPF_i \times ASF$

Where:

$Risk_{inh}$ = Cancer Risk for the Inhalation Pathway (unitless)

C_i = Annual Average Air Concentration for Chemical "i" ($\mu g/m^3$)

CF = Conversion Factor (mg/µg)

IF_{inh} = Intake Factor for Inhalation (m^3/kg-day)

CPF_i = Cancer Potency Factor for Chemical "i" $(mg/kg\text{-}day)^{-1}$

ASF = Age Sensitivity Factor (unitless)

3. Off-site Resident (Pier 70) Project MEISR was identified as the off-site sensitive receptor location on the Pier 70 property located within residential blocks with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation. The analysis assumes Pier 70 resident will move in while construction of the Potrero Power Plant (PPP) Project is ongoing. The cancer risk from PPP emissions for the Pier 70 resident assumes exposure to PPP emissions begins in 2024.

4. Off-site Resident (Non-Pier 70) MEISR was identified as the off-site sensitive receptor location on residential parcels with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation. The cancer risk from PPP emissions for non-Pier 70 populations assumes exposure to Potrero Power Plant (PPP) emissions begins in 2020.

5. On-site Resident MEISR is the receptor located on the Project site on residential blocks with the maximum health impact. Onsite sensitive receptors include residents and potential daycare centers. Residential exposure parameters were assumed for the daycare, as presented in Table AQ-13.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
kg - kilogram
m^3 = cubic meter
MEISR - Maximally Exposed Individual Sensitive Receptor
mg - milligram
$\mu g/m^3$ - microgram per cubic meter
UTM - Universal Transverse Mercator

Table AQ-15b
Modeled Excess Lifetime Cancer Risk at Project Off-Site and On-Site MEISR (Controlled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Source Category	Lifetime Excess Cancer Risk[2] [in a million]			
	Off-Site Resident (Pier 70)[3]	Off-Site Resident (non-Pier 70)[4]	School Receptor	On-Site Resident[5]
Construction Off-Road Equipment[1]	32	4.2	1.0	36
Construction On-Road Vehicles[1]	0.0057	0.012	0.0022	0.023
Emergency Generator[1]	0.38	0.053	0.0051	0.78
Operational Traffic[1]	0.49	4.4	1.5	3.2
Total	**33**	**8.7**	**2.4**	**40**

MEISR Location:

MEISR Type	UTMx	UTMy	Receptor Height
	[m]		[m]
Off-Site Resident (Pier 70)	554,400	4,179,120	1.8
Off-Site Resident (Non-Pier 70)	553,880	4,178,960	1.8
School Receptor	553,800	4,179,440	1.8
On-Site Resident	554,240	4,179,020	1.8

Notes:

1. Emissions are calculated based on Tier 4 emission factors for construction equipment and emergency generators, Tier 3 in-water equipment, and usage of model year 2010 or newer haul trucks.

2. Lifetime excess cancer risk from construction and operations are combined since cancer risk is evaluated over a 30-year period. Thus, the risk takes into account a receptor living near the project site beginning during construction and continuing through operations. The cancer risks were estimated using the following equation:

$Risk_{inh} = C_i \times CF \times IF_{inh} \times CPF_i \times ASF$

Where:

$Risk_{inh}$ = Cancer Risk for the Inhalation Pathway (unitless)

C_i = Annual Average Air Concentration for Chemical "i" ($\mu g/m^3$)

CF = Conversion Factor (mg/µg)

IF_{inh} = Intake Factor for Inhalation (m^3/kg-day)

CPF_i = Cancer Potency Factor for Chemical "i" $(mg/kg\text{-}day)^{-1}$

ASF = Age Sensitivity Factor (unitless)

Table AQ-15b
Modeled Excess Lifetime Cancer Risk at Project Off-Site and On-Site MEISR (Controlled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

3. Off-site Resident (Pier 70) Project MEISR was identified as the off-site sensitive receptor location on the Pier 70 property located within residential blocks with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation. The analysis assumes Pier 70 resident will move in while construction of the Portero Power Plant (PPP) Project is ongoing. The cancer risk from PPP emissions for the Pier 70 resident assumes exposure to PPP emissions begins in 2024.

4. Off-site Resident (Non-Pier 70) MEISR was identified as the off-site sensitive receptor location on residential parcels with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation. The cancer risk from PPP emissions for non-Pier 70 populations assumes exposure to Potrero Power Plant (PPP) emissions begins in 2020.

5. On-site Resident MEISR is the receptor located on the Project site on residential blocks with the maximum health impact. Onsite sensitive receptors include residents and potential daycare centers. Residential exposure parameters were assumed for the daycare, as presented in Table AQ-13.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
kg - kilogram
m^3 = cubic meter
MEISR - Maximally Exposed Individual Sensitive Receptor
mg - milligram
$\mu g/m^3$ - microgram per cubic meter
UTM - Universal Transverse Mercator

Table AQ-16a
Modeled PM2.5 Concentration at Project Off-Site and On-Site MEISR (Uncontrolled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Source Category	$PM_{2.5}$ Concentration [µg / m³]			
	Off-Site Resident (Pier 70)[2]	Off-Site Resident (non-Pier 70)[3]	School Receptor	On-Site Resident[4]
Construction Off-Road Equipment[1]	0.99	0.099	0.028	0.82
Construction On-Road Vehicles[1]	3.3E-04	1.6E-03	1.7E-04	0.0022
Emergency Generator[1,6]	5.5E-04	0	0	0.0020
Operational Traffic[1]	0.018	0.21	0.055	0.12
Maximum Annual $PM_{2.5}$ Concentration[5]	**1.0**	**0.31**	**0.084**	**0.94**

MEISR Location:

MEISR Type	UTMx	UTMy	Receptor Height
	[m]		[m]
Off-Site Resident (Pier 70)	554,400	4,179,120	1.8
Off-Site Resident (Non-Pier 70)	553,880	4,178,880	1.8
School Receptor	553,800	4,179,440	1.8
On-Site Resident	554,240	4,179,020	1.8

Notes:

1. Emissions are calculated based on default CalEEMod® off-road construction equipment tiers for each piece of equipment in the emissions year being modeled.
2. Off-site Resident (Pier 70) Project MEISR was identified as the off-site sensitive receptor location on the Pier 70 property located within residential blocks with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation. The analysis assumes Pier 70 resident will move in while construction of the Potrero Power Plant (PPP) Project is ongoing.
3. Off-site Resident (Non-Pier 70) MEISR was identified as the off-site sensitive receptor location on residential parcels with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation.
4. On-site Resident MEISR is the receptor located on the Project site on residential blocks with the maximum health impact. Onsite sensitive receptors include residents and potential daycare centers. Residential exposure parameters were assumed for the daycare, as presented in Table AQ-13.
5. The Maximum Annual $PM_{2.5}$ Concentration occurred in the following years at the corresponding MEISRs: Off-Site Resident (Pier 70): 2025; Off-site Resident (Non-Pier 70): 2024; School Receptor: 2024; On-Site Resident: 2027.
6. The Annual $PM_{2.5}$ Concentrations from emergency generators for the Off-site Resident (Non-Pier 70) and School Receptor MEISRs are zero because the maximum annual $PM_{2.5}$ concentrations occurred in years before the emergency generators would be operational.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
m - meter
m^3 - cubic meter
µg - microgram
MEISR - Maximally Exposed Individual Sensitive Receptor
$PM_{2.5}$ - particulate matter 2.5 microns or less
UTM - Universal Transverse Mercator

Table AQ-16b
Modeled PM2.5 Concentration at Project Off-Site and On-Site MEISR (Controlled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Source Category	$PM_{2.5}$ Concentration [μg/m^3]			
	Off-Site Resident (Pier 70)[2]	Off-Site Resident (non-Pier 70)[3]	School Receptor	On-Site Resident[4]
Construction Off-Road Equipment[1]	0.10	0.010	0.0029	0.11
Construction On-Road Vehicles[1]	5.5E-04	1.8E-03	1.1E-04	0.0012
Emergency Generator[1,6]	1.8E-04	0	0	4.9E-04
Operational Traffic[1]	0.16	0.21	0.055	0.062
Maximum Annual $PM_{2.5}$ Concentration[5]	**0.26**	**0.22**	**0.058**	**0.17**

MEISR Location:

MEISR Type	UTMx	UTMy	Receptor Height
	[m]		[m]
Off-Site Resident (Pier 70)	554,160	4,179,120	1.8
Off-Site Resident (Non-Pier 70)	554,020	4,178,700	1.8
School Receptor	553,800	4,179,440	1.8
On-Site Resident	554,120	4,178,980	1.8

Notes:

1. Emissions are calculated based on Tier 4 emission factors for construction equipment, Tier 3 in-water equipment, and emergency generators, and usage of model year 2010 or newer haul trucks.
2. Off-site Resident (Pier 70) Project MEISR was identified as the off-site sensitive receptor location on the Pier 70 property located within residential blocks with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation. The analysis assumes Pier 70 resident will move in while construction of the Potrero Power Plant (PPP) Project is ongoing.
3. Off-site Resident (Non-Pier 70) MEISR was identified as the off-site sensitive receptor location on residential parcels with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation.
4. On-site Resident MEISR is the receptor located on the Project site on residential blocks with the maximum health impact. Onsite sensitive receptors include residents and potential daycare centers. Residential exposure parameters were assumed for the daycare, as presented in Table AQ-13.
5. The Maximum Annual $PM_{2.5}$ Concentration occurred in the following years at the corresponding MEISRs: Off-Site Resident (Pier 70): 2030; Off-site Resident (Non-Pier 70): 2022; School Receptor: 2022; On-Site Resident: 2031-2032.
6. The Annual $PM_{2.5}$ Concentrations from emergency generators for the Off-site Resident (non-Pier 70) and School Receptor MEISRs are zero because the maximum annual $PM_{2.5}$ concentrations occurred in years before the emergency generators would be operational.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
m - meter
m^3 - cubic meter
μg - microgram
MEISR - Maximally Exposed Individual Sensitive Receptor
$PM_{2.5}$ - particulate matter 2.5 microns or less
UTM - Universal Transverse Mercator

Table AQ-17a
Cumulative Excess Lifetime Cancer Risk at Off-site and On-Site Project MEISR (Uncontrolled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Source Category	Lifetime Excess Cancer Risk[2] [in a million]							
	Off-Site Resident (Pier 70)[3]		Off-Site Resident (non-Pier 70)[4]		School Receptor		On-Site Resident[5]	
	2014 CRRP	2040 CRRP	2014 CRRP	2040 CRRP	2014 CRRP	2040 CRRP	2014 CRRP	2040 CRRP
Construction[1,6]	384		42		8.8		338	
Operations[1,7]	4.5		5.0		1.5		11	
Scaled CRRP Background[8]	31	30	54	56	39	46	38	38
Total Project + Background	**419**	**419**	**100.1**	**102**	**49**	**57**	**387**	**387**
Future Construction Projects not in CRRP								
Pier 70 [9]	4.7		6.9		1.8		11	
Total Non-Project	**4.7**	**4.7**	**6.9**	**6.9**	**1.8**	**1.8**	**11**	**11**
Cumulative Total[10]	**424**	**423**	**107**	**109**	**51**	**59**	**398**	**398**

MEISR Location:

MEISR Type	UTMx	UTMy	Receptor Height
	[m]		[m]
Off-Site Resident (Pier 70)	554,400	4,179,120	1.8
Off-Site Resident (Non-Pier 70)	553,880	4,178,960	1.8
School Receptor	553,800	4,179,440	1.8
On-Site Resident	554,240	4,179,020	1.8

Notes:

1. Emissions are calculated based on default CalEEMod ® off-road construction equipment tiers for each piece of equipment in the emissions year being modeled.

2. Lifetime excess cancer risk from construction and operations are combined since cancer risk is evaluated over a 30-year period beginning at the start of construction and continuing through 23 years of operations (after 7-year construction period). Thus, the risk takes into account a receptor living near the project site beginning during construction and continuing through operations. The cancer risks were estimated using the following equation:

$Risk_{inh} = C_i \times CF \times IF_{inh} \times CPF_i \times ASF$

Where:

$Risk_{inh}$ = Cancer Risk for the Inhalation Pathway (unitless)

C_i = Annual Average Air Concentration for Chemical "i" ($\mu g/m^3$)

CF = Conversion Factor (mg/µg)

IF_{inh} = Intake Factor for Inhalation (m^3/kg-day)

CPF_i = Cancer Potency Factor for Chemical "i" $(mg/kg\text{-}day)^{-1}$

ASF = Age Sensitivity Factor (unitless)

Table AQ-17a
Cumulative Excess Lifetime Cancer Risk at Off-site and On-Site Project MEISR (Uncontrolled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

3. Off-site Resident (Pier 70) Project MEISR was identified as the off-site sensitive receptor location on the Pier 70 property located within residential blocks with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation. The analysis assumes Pier 70 resident will move in while construction of the Potrero Power Plant (PPP) Project is ongoing. The cancer risk from PPP emissions for the Pier 70 resident assumes exposure to PPP emissions begins in 2024.
4. Off-site Resident (Non-Pier 70) MEISR was identified as the off-site sensitive receptor location on residential parcels with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation. The cancer risk from PPP emissions for non-Pier 70 populations assumes exposure to Potrero Power Plant (PPP) emissions begins in 2 020, at the beginning of PPP construction.
5. On-site Resident MEISR is the receptor located on the Project site on residential blocks with the maximum health impact. Onsite sensitive receptors include residents and potential daycare centers. Residential exposure parameters were assumed for the daycare, as presented in Table AQ-13.
6. Construction includes impacts from off-road construction equipment and on-road construction trips.
7. Operational impacts include emergency generator impacts and operational traffic impacts.
8. Background cancer risks for 2014 were obtained from the San Francisco Community Risk Reduction Plan (CRRP) model output database (BAAQMD, SFDPH, SFEP 2012). The background cancer risks obtained from the model output database were adjusted (scaled by 1.3744) to be consistent with updated exposure assumptions from the 2015 OEHHA Guidelines. Background cancer risks for 2040 were previously calculated by Ramboll Environ based on 2014 risks adjusted for 2040 traffic and on-road vehicle fleet.
9. For the purpose of the cumulative analysis for the Pier 70 resident, the Pier 70 construction schedule was modified to represent a reasonable worst case exposure scenario and Pier 70 Phase 2-5 construction emissions are assumed to be mitigated using Tier IV equipment. The Pier 70 construction schedule was modified in the following manner: 1) Phase 1 construction occurs 2019-2020, 2) Phase 3 and Phase 5 are concurrent and occur 2021 - 2023, 3) Phase 2 and Phase 4 are concurrent and occur 2024 - 2026. For the purpose of the cumulative analysis for non-Pier 70 and on-site populations, the original Pier 70 construction schedule and mitigation scenarios as presented in the Pier 70 Mixed-Used District Project EIR is used as this resulted in the maximum cancer risks. This analysis assumes the school receptor MEI is exposed to Potrero Power Plant (PPP) Project and Pier 70 emissions concurrently.
10. Cumulative total health impacts are the sum of the Proposed Project impacts, background impacts included in the CRRP, and impacts from future projects not included in the CRRP.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
CRRP - Community Risk Reduction Plan
m - meter
OEHHA - Office of Environmental Health Hazard Assessment
MEISR - Maximally Exposed Individual Sensitive Receptor
$PM_{2.5}$ - particulate matter 2.5 microns or less
SFDPH - San Francisco Department of Public Health
SFEP - San Francisco Environmental Planning
UTM - Universal Transverse Mercator

Table AQ-17b
Cumulative Excess Lifetime Cancer Risk at Off-site and On-Site Project MEISR (Controlled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Source Category	Lifetime Excess Cancer Risk[2] [in a million]							
	Off-Site Resident (Pier 70)[3]		Off-Site Resident (non-Pier 70)[4]		School Receptor		On-Site Resident[5]	
	2014 CRRP	2040 CRRP	2014 CRRP	2040 CRRP	2014 CRRP	2040 CRRP	2014 CRRP	2040 CRRP
Construction[1,6]	32		4.2		1.0		36	
Operations[1,7]	0.87		4.5		1.5		3.9	
Scaled CRRP Background[8]	31	30	54	56	39	46	38	38
Total Project + Background	**63**	**63**	**62**	**64**	**42**	**49**	**77**	**78**
Future Construction Projects not in CRRP								
Pier 70 [9]	4.7		6.9		1.8		11	
Total Non-Project	**4.7**	**4.7**	**6.9**	**6.9**	**1.8**	**1.8**	**11**	**11**
Cumulative Total[10]	**68**	**68**	**69**	**71**	**43**	**51**	**88**	**89**

MEISR Location:

MEISR Type	UTMx	UTMy	Receptor Height
	[m]		[m]
Off-Site Resident (Pier 70)	554,400	4,179,120	1.8
Off-Site Resident (Non-Pier 70)	553,880	4,178,960	1.8
School Receptor	553,800	4,179,440	1.8
On-Site Resident	554,240	4,179,020	1.8

Notes:

1. Emissions are calculated based on Tier 4 emission factors for construction equipment and emergency generators, Tier 3 in-water equipment, and usage of model year 2010 or newer haul trucks.
2. Lifetime excess cancer risk from construction and operations are combined since cancer risk is evaluated over a 30-year period beginning at the start of construction and continuing through 23 years of operations (after 7-year construction period). Thus, the risk takes into account a receptor living near the project site beginning during construction and continuing through operations. The cancer risks were estimated using the following equation:

$Risk_{inh} = C_i \times CF \times IF_{inh} \times CPF_i \times ASF$

Where:

$Risk_{inh}$ = Cancer Risk for the Inhalation Pathway (unitless)

C_i = Annual Average Air Concentration for Chemical "i" ($\mu g/m^3$)

CF = Conversion Factor (mg/µg)

IF_{inh} = Intake Factor for Inhalation (m^3/kg-day)

CPF_i = Cancer Potency Factor for Chemical "i" $(mg/kg\text{-}day)^{-1}$

ASF = Age Sensitivity Factor (unitless)

Table AQ-17b
Cumulative Excess Lifetime Cancer Risk at Off-site and On-Site Project MEISR (Controlled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

3. Off-site Resident (Pier 70) Project MEISR was identified as the off-site sensitive receptor location on the Pier 70 property located within residential blocks with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation. The analysis assumes Pier 70 resident will move in while construction of the Potrero Power Plant (PPP) Project is ongoing. The cancer risk from PPP emissions for the Pier 70 resident assumes exposure to PPP emissions begins in 2024.

4. Off-site Resident (Non-Pier 70) MEISR was identified as the off-site sensitive receptor location on residential parcels with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation. The cancer risk from Potrero Power Plant (PPP) emissions for non-Pier 70 populations assumes exposure to PPP emissions begins in 2020, at the beginning of PPP construction.

5. On-site Resident MEISR is the receptor located on the Project site on residential blocks with the maximum health impact. Onsite sensitive receptors include residents and potential daycare centers. Residential exposure parameters were assumed for the daycare, as presented in Table AQ-13.

6. Construction includes impacts from off-road construction equipment and on-road construction trips.

7. Operational impacts include emergency generator impacts and operational traffic impacts.

8. Background cancer risks for 2014 were obtained from the San Francisco Community Risk Reduction Plan (CRRP) model output database (BAAQMD, SFDPH, SFEP 2012). The background cancer risks obtained from the model output database were adjusted (scaled by 1.3744) to be consistent with the 2015 OEHHA Guidelines. Background cancer risks for 2040 were previously calculated by Ramboll Environ based on 2014 risks adjusted for 2040 traffic and on-road vehicle fleet.

9. For the purpose of the cumulative analysis for the Pier 70 resident, the Pier 70 construction schedule was modified to represent a reasonable worst case exposure scenario and Pier 70 Phase 2-5 construction emissions are assumed to be mitigated using Tier IV equipment. The Pier 70 construction schedule was modified in the following manner: 1) Phase 1 construction occurs 2019-2020, 2) Phase 3 and Phase 5 are concurrent and occur 2021 - 2023, 3) Phase 2 and Phase 4 are concurrent and occur 2024 - 2026. For the purpose of the cumulative analysis for non- Pier 70 and on-site populations, the original Pier 70 construction schedule and mitigation scenarios as presented in the Pier 70 Mixed-Used District Project EIR is used as this resulted in the maximum cancer risks. This analysis assumes the school receptor MEI is exposed to Potrero Power Plant (PPP) Project and Pier 70 emissions concurrently.

10. Cumulative total health impacts are the sum of the Proposed Project impacts, background impacts included in the CRRP, and impacts from future projects not included in the CRRP.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
CRRP - Community Risk Reduction Plan
m - meter
OEHHA - Office of Environmental Health Hazard Assessment
MEISR - Maximally Exposed Individual Sensitive Receptor
$PM_{2.5}$ - particulate matter 2.5 microns or less
SFDPH - San Francisco Department of Public Health
SFEP - San Francisco Environmental Planning
UTM - Universal Transverse Mercator

Table AQ-18a
Cumulative PM2.5 Concentration at Project Off-Site and On-Site MEISR (Uncontrolled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Source Category	$PM_{2.5}$ Concentration[2]							
	Off-Site Resident (Pier 70)[3]		Off-Site Resident (non-Pier 70)[4]		School Receptor		On-Site Resident[5]	
	2014 CRRP	2040 CRRP	2014 CRRP	2040 CRRP	2014 CRRP	2040 CRRP	2014 CRRP	2040 CRRP
Construction[6]	0.99		0.10		0.028		0.82	
Operations[7]	0.019		0.21		0.055		0.12	
CRRP Background[8]	8.3	8.4	8.6	8.8	8.4	8.7	8.4	8.4
Total Project + Background	**9.3**	**9.4**	**8.9**	**9.1**	**8.5**	**8.7**	**9.3**	**9.4**
Future Construction Projects not in CRRP								
Pier 70[9]	0.018		0.017		0.038		0.032	
Total Non-Project	**0.018**	**0.018**	**0.017**	**0.017**	**0.038**	**0.038**	**0.032**	**0.032**
Cumulative Total[10]	**9.4**	**9.4**	**8.9**	**9.1**	**8.5**	**8.8**	**9.4**	**9.4**

MEISR Location:

MEISR Type	UTMx	UTMy	Receptor Height
	[m]		[m]
Off-Site Resident (Pier 70)	554,400	4,179,120	1.8
Off-Site Resident (Non-Pier 70)	553,880	4,178,880	1.8
School Receptor	553,800	4,179,440	1.8
On-Site Resident	554,240	4,179,020	1.8

Notes:

1. Emissions are calculated based on default CalEEMod® off-road construction equipment tiers for each piece of equipment in the emissions year being modeled.

2. The Maximum Annual $PM_{2.5}$ Concentration occurred in the following years at the corresponding MSEIRs: Off-Site Resident (Pier 70): 2025; Off-site Resident (Non-Pier 70): 2024; School Receptor: 2024; On-Site Resident: 2027.

3. Off-site Resident (Pier 70) Project MEISR was identified as the off-site sensitive receptor location on the Pier 70 property located within residential blocks with the maximum annual PM2.5 concentration attributed to the emissions associated with the Project construction and emergency generator operation. The analysis assumes Pier 70 resident will move in while construction of the Potrero Power Plant (PPP) Project is ongoing.

Table AQ-18a
Cumulative PM2.5 Concentration at Project Off-Site and On-Site MEISR (Uncontrolled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

4. Off-site Resident (Non-Pier 70) MEISR was identified as the off-site sensitive receptor location on residential parcels with the maximum annual PM2.5 concentration attributed to the emissions associated with the Project construction and emergency generator operation.

5. On-site Resident MEISR is the receptor located on the Project site on residential blocks with the maximum health impact. Onsite sensitive receptors include residents and potential daycare centers. Residential exposure parameters were assumed for the daycare, as presented in Table AQ-13.

6. Construction includes impacts from off-road construction equipment and on-road construction trips.

7. Operational impacts include emergency generator impacts and operational traffic impacts.

8. Background $PM_{2.5}$ concentration for 2014 were obtained from the San Francisco Community Risk Reduction Plan (CRRP) model output database (BAAQMD, SFDPH, SFEP 2012). Background PM2.5 concentration for 2040 were previously calculated by Ramboll Environ based on 2014 values adjusted for 2040 traffic and on-road vehicle fleet.

9. For the purpose of the cumulative analysis for the Pier 70 resident, the Pier 70 construction schedule was modified to represent a reasonable worst case exposure scenario and Pier 70 Phase 2-5 construction emissions are assumed to be mitigated using Tier IV equipment. The Pier 70 construction schedule was modified in the following manner: 1) Phase 1 construction occurs 2019-2020, 2) Phase 3 and Phase 5 are concurrent and occur 2021 - 2023, 3) Phase 2 and Phase 4 are concurrent and occur 2024 - 2026. For the purpose of the cumulative analysis for non- Pier 70 and on-site populations, the original Pier 70 construction schedule and mitigation scenarios as presented in the Pier 70 Mixed-Used District Project EIR is used as this resulted in the maximum cancer risks. This analysis assumes the school receptor MEI is exposed to PPP Project and Pier 70 emissions concurrently.

10. Cumulative total health impacts are the sum of the Proposed Project impacts, background impacts included in the CRRP, and impacts from future projects not included in the CRRP.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District

CRRP - Community Risk Reduction Plan

m - meter

OEHHA - Office of Environmental Health Hazard Assessment

MEISR - Maximally Exposed Individual Sensitive Receptor

$PM_{2.5}$ - particulate matter 2.5 microns or less

SFDPH - San Francisco Department of Public Health

SFEP - San Francisco Environmental Planning

UTM - Universal Transverse Mercator

Table AQ-18b
Cumulative PM2.5 Concentration at Project Off-Site and On-Site MEISR (Controlled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Source Category	$PM_{2.5}$ Concentration[2]							
	Off-Site Resident (Pier 70)[3]		Off-Site Resident (non-Pier 70)[4]		School Receptor		On-Site Resident[5]	
	2014 CRRP	2040 CRRP	2014 CRRP	2040 CRRP	2014 CRRP	2040 CRRP	2014 CRRP	2040 CRRP
Construction[6]	0.10		0.012		0.0030		0.11	
Operations[7]	0.16		0.21		0.055		0.062	
CRRP Background[8]	8.4	8.5	8.5	8.6	8.4	8.7	8.4	8.5
Total Project + Background	**8.7**	**8.8**	**8.8**	**8.9**	**8.5**	**8.7**	**8.6**	**8.7**
Future Construction Projects not in CRRP								
Pier 70 [9,10]	0.019		0.034		0.038		0.0059	
Total Non-Project	**0.019**	**0.019**	**0.034**	**0.034**	**0.038**	**0.038**	**0.0059**	**0.0059**
Cumulative Total[11]	**8.7**	**8.8**	**8.8**	**8.9**	**8.5**	**8.7**	**8.6**	**8.7**

MEISR Location:

MEISR Type	UTMx	UTMy	Receptor Height
	[m]		[m]
Off-Site Resident (Pier 70)	554,160	4,179,120	1.8
Off-Site Resident (Non-Pier 70)	554,020	4,178,700	1.8
School Receptor	553,800	4,179,440	1.8
On-Site Resident	554,120	4,178,980	1.8

Notes:

1. Emissions are calculated based on Tier 4 emission factors for construction equipment and emergency generators, and usage of model year 2010 or newer haul trucks.

2. The Maximum Annual $PM_{2.5}$ Concentration occurred in the following years at the corresponding MSEIRs: Off-Site Resident (Pier 70): 2030; Off-site Resident (Non-Pier 70): 2022; School Receptor: 2022; On-Site Resident: 2031-2032.

3. Off-site Resident (Pier 70) Project MEISR was identified as the off-site sensitive receptor location on the Pier 70 property located within residential blocks with the maximum annual PM2.5 concentration attributed to the emissions associated with the Project construction and emergency generator operation. The analysis assumes Pier 70 resident will move in while construction of the Potrero Power Plant (PPP) Project is ongoing.

4. Off-site Resident (Non-Pier 70) MEISR was identified as the off-site sensitive receptor location on residential parcels with the maximum annual PM2.5 concentration attributed to the emissions associated with the Project construction and emergency generator operation.

5. On-site Resident MEISR is the receptor located on the Project site on residential blocks with the maximum health impact. Onsite sensitive receptors include residents and potential daycare centers. Residential exposure parameters were assumed for the daycare, as presented in Table AQ-13.

6. Construction includes impacts from off-road construction equipment and on-road construction trips.

7. Operational impacts include emergency generator impacts and operational traffic impacts.

8. Background $PM_{2.5}$ concentration for 2014 were obtained from the San Francisco Community Risk Reduction Plan (CRRP) model output database (BAAQMD, SFDPH, SFEP 2012). Background PM2.5 concentration for 2040 were previously calculated by Ramboll Environ based on 2014 values adjusted for 2040 traffic and on-road vehicle fleet.

9. For the purpose of the cumulative analysis for the Pier 70 resident, the Pier 70 construction schedule was modified to represent a reasonable worst case exposure scenario and Phase 2-5 construction emissions are assumed to be mitigated using Tier IV equipment. The Pier 70 construction schedule was modified in the following manner: 1) Phase 1 construction occurs 2019-2020, 2) Phase 3 and Phase 5 are concurrent and occur 2021 - 2023, 3) Phase 2 and Phase 4 are concurrent and occur 2024 - 2026. For the purpose of the cumulative analysis for non- Pier 70 and on-site populations, the original Pier 70 construction schedule and mitigation scenarios as presented in the Pier 70 Mixed-Used District Project EIR is used as this resulted in the maximum cancer risks. This analysis assumes the school receptor MEI is exposed to PPP Project and Pier 70 emissions concurrently.

10. $PM_{2.5}$ concentrations at the MEISRs from Pier 70 are different in the controlled scenario (Table AQ-18b) versus the uncontrolled scenario (Table AQ-18a) because the location of the MEISRs are different depending on whether or not emissions from the project are unmitigated or mitigated. The location of the MEISRs is shown in the second table above.

11. Cumulative total health impacts are the sum of the Proposed Project impacts, background impacts included in the CRRP, and impacts from future projects not included in the CRRP.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
CRRP - Community Risk Reduction Plan
m - meter
OEHHA - Office of Environmental Health Hazard Assessment
MEISR - Maximally Exposed Individual Sensitive Receptor
$PM_{2.5}$ - particulate matter 2.5 microns or less
SFDPH - San Francisco Department of Public Health
SFEP - San Francisco Environmental Planning
UTM - Universal Transverse Mercator

B. FIGURES

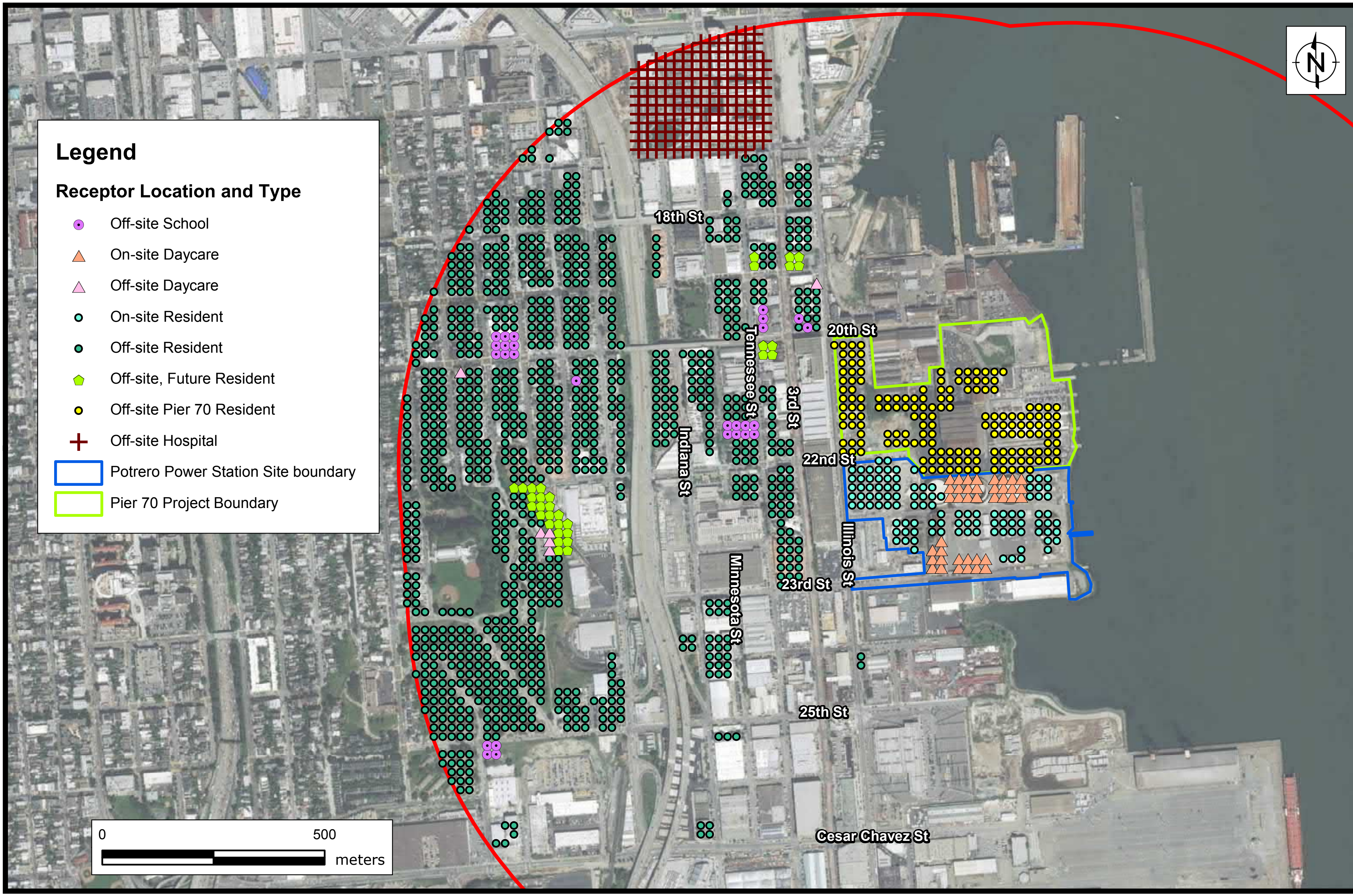
RAMBØLL

DRAFTED BY: AA | DATE: 5/8/2018

Project Boundary and Modeling Extent
Potrero Power Station Mixed-Use Development Project
San Francisco, California

FIGURE 1

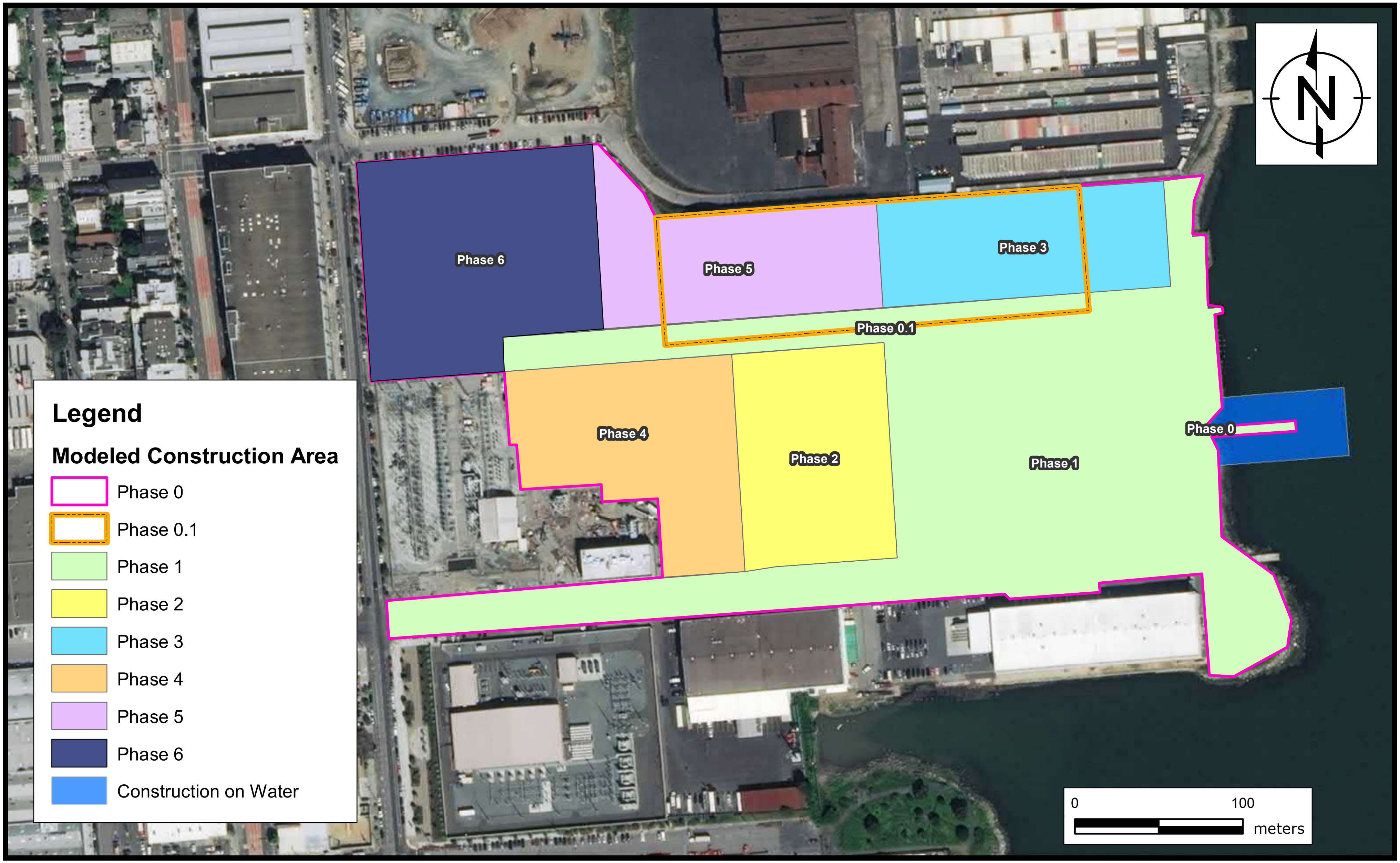
PROJECT: 03-43667A



Sensitive Receptor Locations
Potrero Power Station Mixed-Use Development Project
San Francisco, California

FIGURE
2

DRAFTED BY: AA | DATE: 5/9/2018 | PROJECT: 03-43667A



RAMBOLL

DRAFTED BY: AA | DATE: 6/26/2018

Modeled Construction Areas Extent
Potrero Power Station Mixed-Use Development Project
San Francisco, California

FIGURE
3

PROJECT: 03-43667A

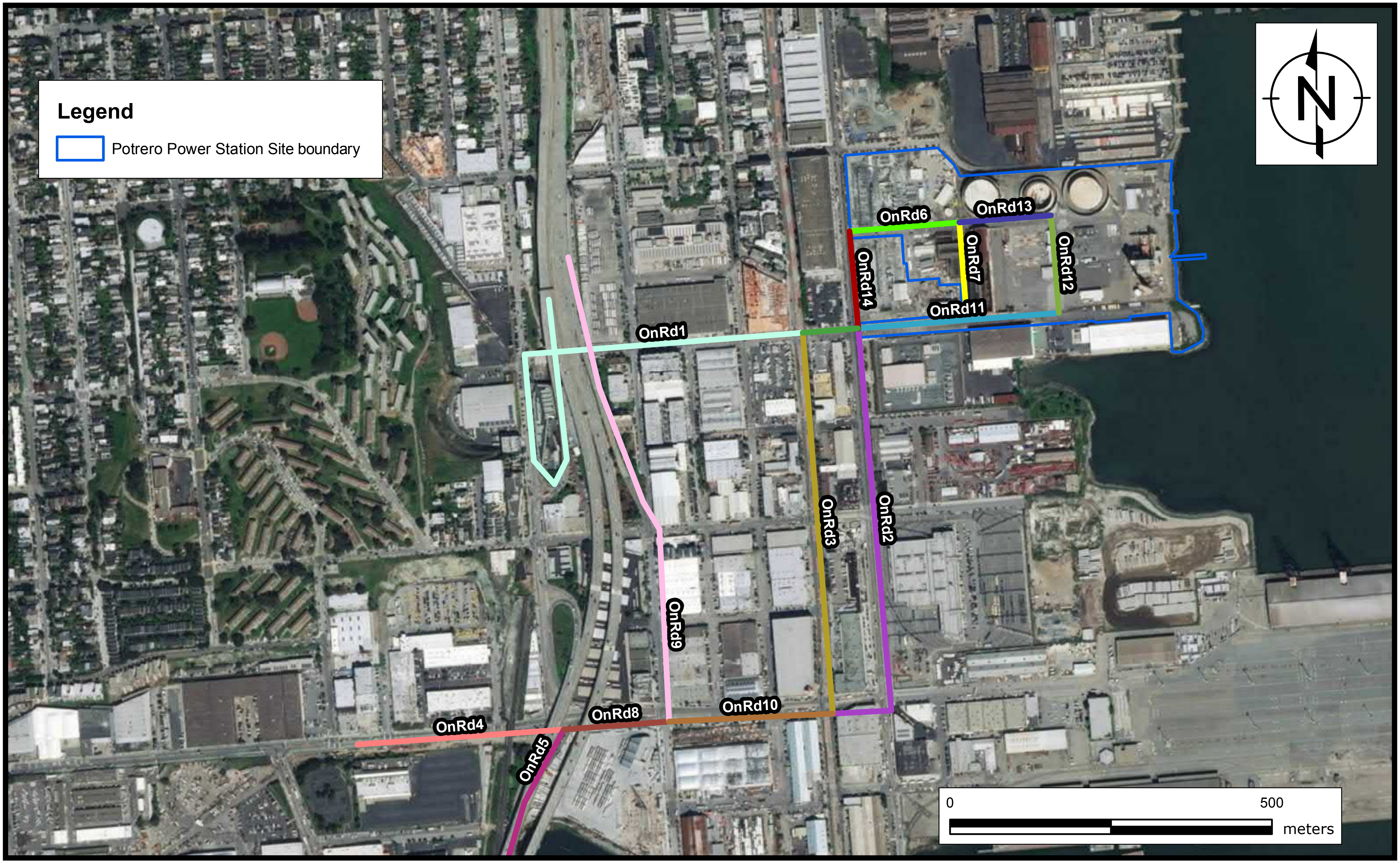
RAMBOLL

DRAFTED BY: AA | DATE: 6/26/2018

Modeled Construction Staging Areas
Potrero Power Station Mixed-Use Development Project
San Francisco, California

FIGURE
4

PROJECT: 03-43667A



RAMBOLL	**Modeled Construction Haul Truck Routes** **Potrero Power Station Mixed-Use Development Project** San Francisco, California	FIGURE **5**
DRAFTED BY: AA DATE: 5/9/2018		PROJECT: 03-43667A

RAMBØLL

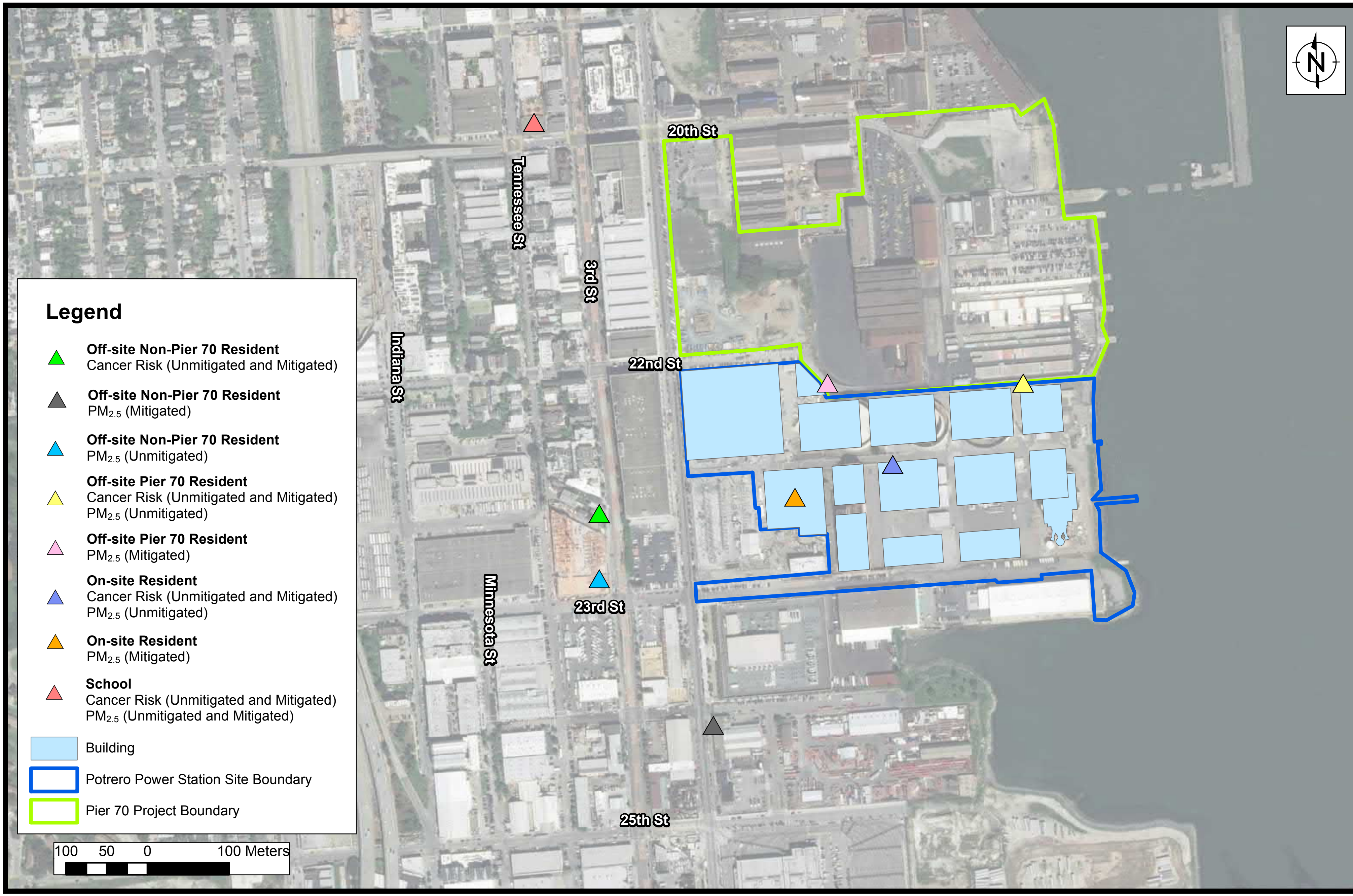
Modeled Operational Generators
Potrero Power Station Mixed-Use Development Project
San Francisco, California

FIGURE 6

DRAFTED BY: AA

DATE: 5/9/2018

PROJECT: 03-43667A



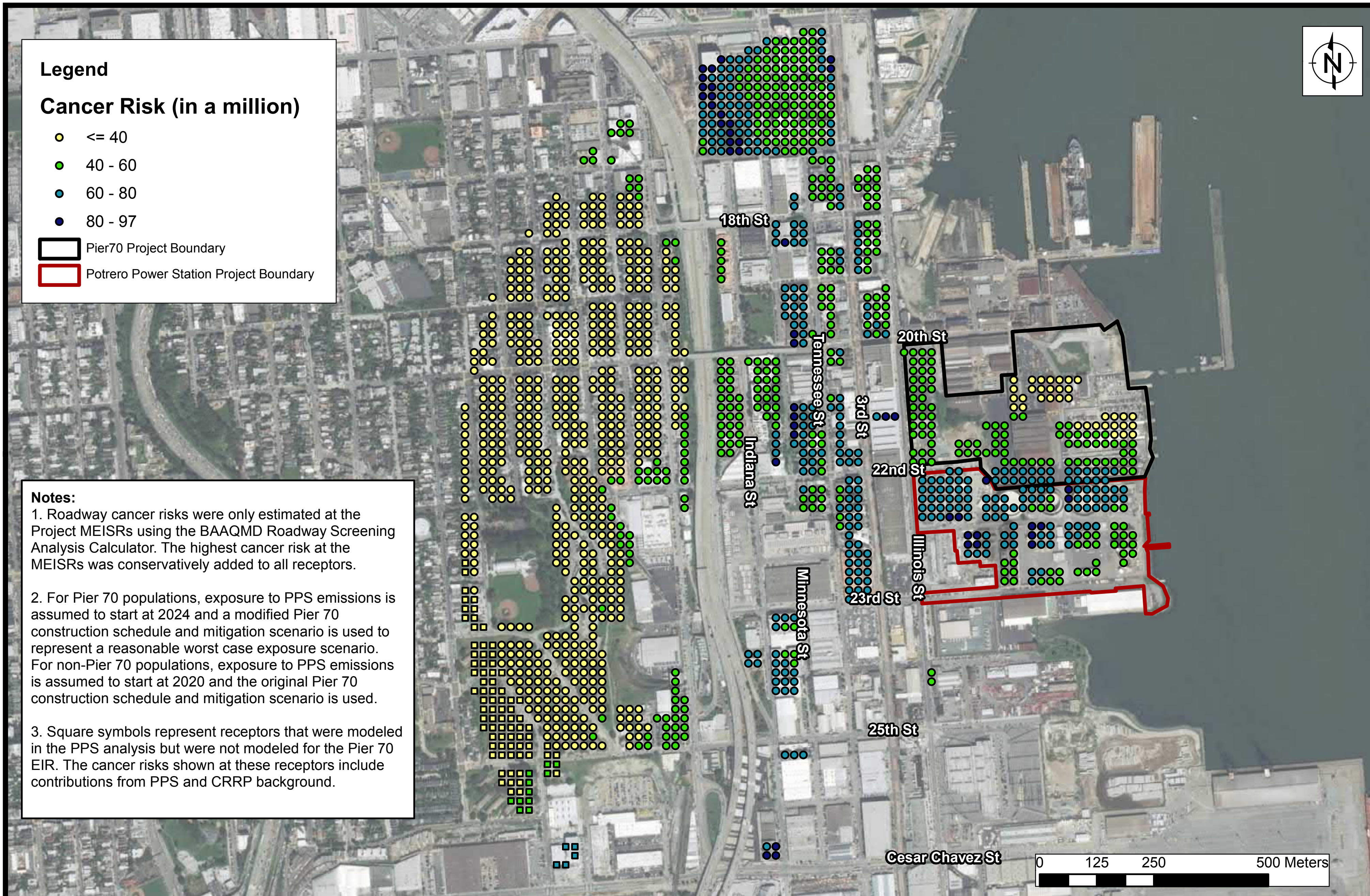
RAMBOLL

DRAFTED BY: AA | DATE: 8/13/2018

Maximally Exposed Individual Sensitive Receptors (MEISRs)
Unmitigated and Mitigated
Potrero Power Station Mixed-Use Development Project
San Francisco, California

FIGURE
7

PROJECT: 03-43667A



Notes:

1. Roadway cancer risks were only estimated at the Project MEISRs using the BAAQMD Roadway Screening Analysis Calculator. The highest cancer risk at the MEISRs was conservatively added to all receptors.

2. For Pier 70 populations, exposure to PPS emissions is assumed to start at 2024 and a modified Pier 70 construction schedule and mitigation scenario is used to represent a reasonable worst case exposure scenario. For non-Pier 70 populations, exposure to PPS emissions is assumed to start at 2020 and the original Pier 70 construction schedule and mitigation scenario is used.

3. Square symbols represent receptors that were modeled in the PPS analysis but were not modeled for the Pier 70 EIR. The cancer risks shown at these receptors include contributions from PPS and CRRP background.

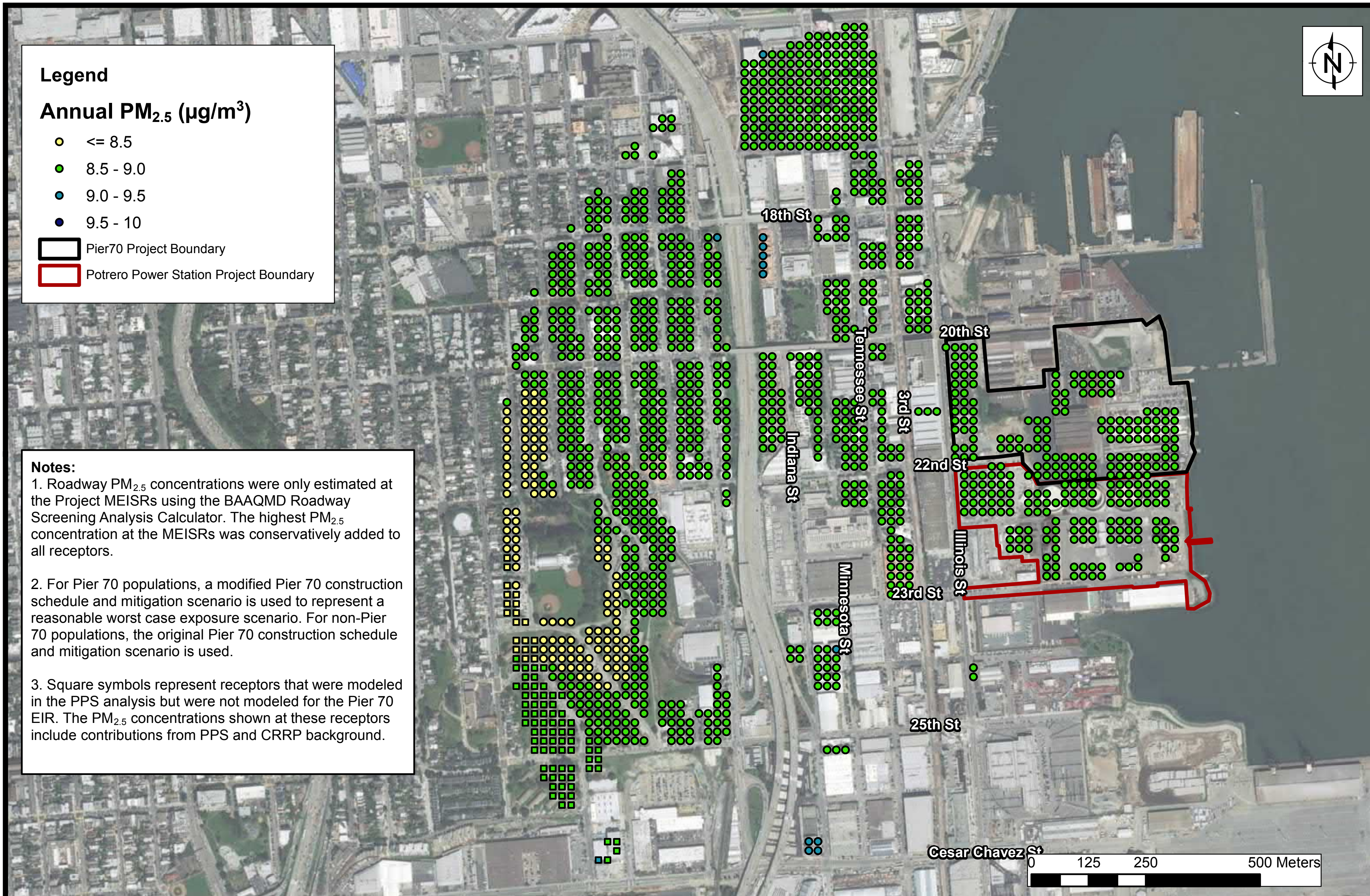
RAMBOLL

DRAFTED BY: AA | DATE: 8/14/2018

Cumulative Cancer Risk From Pier 70 and Potrero Power Station and CRRP Background at Sensitive Receptors
Potrero Power Station Mixed-Use Development Project
San Francisco, California

FIGURE
8

PROJECT: 03-43667A



Notes:

1. Roadway $PM_{2.5}$ concentrations were only estimated at the Project MEISRs using the BAAQMD Roadway Screening Analysis Calculator. The highest $PM_{2.5}$ concentration at the MEISRs was conservatively added to all receptors.

2. For Pier 70 populations, a modified Pier 70 construction schedule and mitigation scenario is used to represent a reasonable worst case exposure scenario. For non-Pier 70 populations, the original Pier 70 construction schedule and mitigation scenario is used.

3. Square symbols represent receptors that were modeled in the PPS analysis but were not modeled for the Pier 70 EIR. The $PM_{2.5}$ concentrations shown at these receptors include contributions from PPS and CRRP background.

RAMBOLL

DRAFTED BY: AA | DATE: 8/15/2018

Cumulative Annual $PM_{2.5}$ From Pier 70, Potrero Power Station and CRRP Background at Sensitive Receptors
Potrero Power Station Mixed-Use Development Project
San Francisco, California

FIGURE **9**

PROJECT: 03-43667A

RAMBOLL

C. CALEEMOD OUTPUT FOR OPERATIONAL EMISSIONS

CALEEMOD OUTPUTS

Potrero Power Station Operational Emissions
Full Buildout (2034)

PPP Project

San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	814.24	1000sqft	18.69	814,240.00	0
Research & Development	645.74	1000sqft	14.82	645,738.00	0
General Light Industry	45.04	1000sqft	1.03	45,040.00	0
Enclosed Parking with Elevator	902.86	1000sqft	20.73	902,856.00	0
Health Club	100.94	1000sqft	2.32	100,938.00	0
High Turnover (Sit Down Restaurant)	25.00	1000sqft	0.57	25,000.00	0
Hotel	220.00	Room	7.33	241,574.00	0
Condo/Townhouse High Rise	2,441.00	Dwelling Unit	38.14	2,441,667.00	6981
Supermarket	107.44	1000sqft	2.47	107,440.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 4.6 **Precipitation Freq (Days)** 64

Climate Zone 5 **Operational Year** 2034

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 641.35 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use based on project information

Off-road Equipment -

Vehicle Trips - Trip rates based on project specific information

Road Dust - Composite silt loading based on project specific information

Woodstoves - All NG fireplaces

Consumer Products - Derived based on on ARB inventory

Energy Use -

Water And Wastewater -

Solid Waste -

Table Name	Column Name	Default Value	New Value
tblConsumerProducts	ROG_EF	2.14E-05	1.52E-05
tblFireplaces	NumberGas	366.15	781.12
tblFireplaces	NumberWood	414.97	0.00
tblLandUse	LandUseSquareFeet	645,740.00	645,738.00
tblLandUse	LandUseSquareFeet	902,860.00	902,856.00
tblLandUse	LandUseSquareFeet	100,940.00	100,938.00
tblLandUse	LandUseSquareFeet	319,440.00	241,574.00
tblLandUse	LandUseSquareFeet	2,441,000.00	2,441,667.00
tblRoadDust	RoadSiltLoading	0.1	0.041
tblVehicleTrips	ST_TR	4.31	2.19
tblVehicleTrips	ST_TR	1.32	0.84
tblVehicleTrips	ST_TR	2.46	0.99
tblVehicleTrips	ST_TR	20.87	7.53
tblVehicleTrips	ST_TR	158.37	274.72
tblVehicleTrips	ST_TR	8.19	1.15

tblVehicleTrips	ST_TR	1.90	0.46
tblVehicleTrips	ST_TR	177.59	46.37
tblVehicleTrips	SU_TR	3.43	1.74
tblVehicleTrips	SU_TR	0.68	0.43
tblVehicleTrips	SU_TR	1.05	0.42
tblVehicleTrips	SU_TR	26.73	9.64
tblVehicleTrips	SU_TR	131.84	228.70
tblVehicleTrips	SU_TR	5.95	0.83
tblVehicleTrips	SU_TR	1.11	0.27
tblVehicleTrips	SU_TR	166.44	43.46
tblVehicleTrips	WD_TR	4.18	2.12
tblVehicleTrips	WD_TR	6.97	4.44
tblVehicleTrips	WD_TR	11.03	4.45
tblVehicleTrips	WD_TR	32.93	11.88
tblVehicleTrips	WD_TR	127.15	220.56
tblVehicleTrips	WD_TR	8.17	1.15
tblVehicleTrips	WD_TR	8.11	1.97
tblVehicleTrips	WD_TR	102.24	26.69

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	15.8389	0.3213	19.8817	7.1800e-003		0.3917	0.3917		0.3917	0.3917	38.0716	127.1720	165.2436	0.2082	1.7900e-003	170.9810
Energy	0.3972	3.5482	2.5735	0.0217		0.2744	0.2744		0.2744	0.2744	0.0000	15,303.1370	15,303.1370	0.5896	0.1785	15,371.0561
Mobile	2.3690	11.1472	24.8122	0.1125	6.7281	0.0730	6.8010	1.9503	0.0679	2.0181	0.0000	10,456.7128	10,456.7128	0.4125	0.0000	10,467.0246
Waste						0.0000	0.0000		0.0000	0.0000	727.5785	0.0000	727.5785	42.9987	0.0000	1,802.5449
Water						0.0000	0.0000		0.0000	0.0000	210.6768	1,242.9847	1,453.6615	21.6947	0.5226	2,151.7529
Total	**18.6051**	**15.0167**	**47.2674**	**0.1414**	**6.7281**	**0.7391**	**7.4672**	**1.9503**	**0.7340**	**2.6843**	**976.3269**	**27,130.0065**	**28,106.3334**	**65.9036**	**0.7028**	**29,963.3596**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	15.8389	0.3213	19.8817	7.1800e-003		0.3917	0.3917		0.3917	0.3917	38.0716	127.1720	165.2436	0.2082	1.7900e-003	170.9810
Energy	0.3972	3.5482	2.5735	0.0217		0.2744	0.2744		0.2744	0.2744	0.0000	15,303.1370	15,303.1370	0.5896	0.1785	15,371.0561
Mobile	2.3690	11.1472	24.8122	0.1125	6.7281	0.0730	6.8010	1.9503	0.0679	2.0181	0.0000	10,456.7128	10,456.7128	0.4125	0.0000	10,467.0246
Waste						0.0000	0.0000		0.0000	0.0000	727.5785	0.0000	727.5785	42.9987	0.0000	1,802.5449
Water						0.0000	0.0000		0.0000	0.0000	210.6768	1,242.9847	1,453.6615	21.6947	0.5226	2,151.7529
Total	**18.6051**	**15.0167**	**47.2674**	**0.1414**	**6.7281**	**0.7391**	**7.4672**	**1.9503**	**0.7340**	**2.6843**	**976.3269**	**27,130.0065**	**28,106.3334**	**65.9036**	**0.7028**	**29,963.3596**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Construction emissions were calculated outside CalEEMod using CalEEMod equivalent method.

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.3690	11.1472	24.8122	0.1125	6.7281	0.0730	6.8010	1.9503	0.0679	2.0181	0.0000	10,456.71 28	10,456.71 28	0.4125	0.0000	10,467.02 46
Unmitigated	2.3690	11.1472	24.8122	0.1125	6.7281	0.0730	6.8010	1.9503	0.0679	2.0181	0.0000	10,456.71 28	10,456.71 28	0.4125	0.0000	10,467.02 46

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse High Rise	5,174.92	5,345.79	4247.34	11,702,361	11,702,361
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Light Industry	199.98	37.83	19.37	440,883	440,883
General Office Building	3,623.37	806.10	341.98	6,576,913	6,576,913
Health Club	1,199.17	760.08	973.06	1,907,585	1,907,585
High Turnover (Sit Down Restaurant)	5,514.00	6,868.00	5717.50	6,655,858	6,655,858
Hotel	253.00	253.00	182.60	461,575	461,575
Research & Development	1,272.11	297.04	174.35	2,446,072	2,446,072
Supermarket	2,867.57	4,981.99	4669.34	3,898,052	3,898,052
Total	20,104.11	19,349.83	16,325.54	34,089,299	34,089,299

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Research & Development	9.50	7.30	7.30	33.00	48.00	19.00	82	15	3
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse High Rise	0.600716	0.035893	0.192967	0.093036	0.011951	0.005350	0.036586	0.009964	0.004352	0.001985	0.005616	0.000953	0.000632
Enclosed Parking with Elevator	0.600716	0.035893	0.192967	0.093036	0.011951	0.005350	0.036586	0.009964	0.004352	0.001985	0.005616	0.000953	0.000632
General Light Industry	0.600716	0.035893	0.192967	0.093036	0.011951	0.005350	0.036586	0.009964	0.004352	0.001985	0.005616	0.000953	0.000632
General Office Building	0.600716	0.035893	0.192967	0.093036	0.011951	0.005350	0.036586	0.009964	0.004352	0.001985	0.005616	0.000953	0.000632
Health Club	0.600716	0.035893	0.192967	0.093036	0.011951	0.005350	0.036586	0.009964	0.004352	0.001985	0.005616	0.000953	0.000632
High Turnover (Sit Down Restaurant)	0.600716	0.035893	0.192967	0.093036	0.011951	0.005350	0.036586	0.009964	0.004352	0.001985	0.005616	0.000953	0.000632
Hotel	0.600716	0.035893	0.192967	0.093036	0.011951	0.005350	0.036586	0.009964	0.004352	0.001985	0.005616	0.000953	0.000632
Research & Development	0.600716	0.035893	0.192967	0.093036	0.011951	0.005350	0.036586	0.009964	0.004352	0.001985	0.005616	0.000953	0.000632
Supermarket	0.600716	0.035893	0.192967	0.093036	0.011951	0.005350	0.036586	0.009964	0.004352	0.001985	0.005616	0.000953	0.000632

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	11,372.2525	11,372.2525	0.5142	0.1064	11,416.8124
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	11,372.2525	11,372.2525	0.5142	0.1064	11,416.8124
NaturalGas Mitigated	0.3972	3.5482	2.5735	0.0217		0.2744	0.2744		0.2744	0.2744	0.0000	3,930.8845	3,930.8845	0.0753	0.0721	3,954.2438
NaturalGas Unmitigated	0.3972	3.5482	2.5735	0.0217		0.2744	0.2744		0.2744	0.2744	0.0000	3,930.8845	3,930.8845	0.0753	0.0721	3,954.2438

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	2.1311e+007	0.1149	0.9820	0.4179	6.2700e-003		0.0794	0.0794		0.0794	0.0794	0.0000	1,137.2350	1,137.2350	0.0218	0.0209	1,143.9931
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	1.11474e+006	6.0100e-003	0.0546	0.0459	3.3000e-004		4.1500e-003	4.1500e-003		4.1500e-003	4.1500e-003	0.0000	59.4868	59.4868	1.1400e-003	1.0900e-003	59.8403
General Office Building	1.57393e+007	0.0849	0.7715	0.6481	4.6300e-003		0.0586	0.0586		0.0586	0.0586	0.0000	839.9068	839.9068	0.0161	0.0154	844.8980
Health Club	2.49822e+006	0.0135	0.1225	0.1029	7.3000e-004		9.3100e-003	9.3100e-003		9.3100e-003	9.3100e-003	0.0000	133.3143	133.3143	2.5600e-003	2.4400e-003	134.1065
High Turnover (Sit Down Restaurant)	4.198e+006	0.0226	0.2058	0.1729	1.2300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	224.0213	224.0213	4.2900e-003	4.1100e-003	225.3525
Hotel	8.81987e+006	0.0476	0.4324	0.3632	2.5900e-003		0.0329	0.0329		0.0329	0.0329	0.0000	470.6617	470.6617	9.0200e-003	8.6300e-003	473.4586
Research & Development	1.5982e+007	0.0862	0.7834	0.6581	4.7000e-003		0.0595	0.0595		0.0595	0.0595	0.0000	852.8612	852.8612	0.0164	0.0156	857.9293
Supermarket	3.99892e+006	0.0216	0.1960	0.1647	1.1800e-003		0.0149	0.0149		0.0149	0.0149	0.0000	213.3974	213.3974	4.0900e-003	3.9100e-003	214.6655
Total		**0.3972**	**3.5482**	**2.5735**	**0.0217**		**0.2744**	**0.2744**		**0.2744**	**0.2744**	**0.0000**	**3,930.8845**	**3,930.8845**	**0.0754**	**0.0721**	**3,954.2438**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	2.1311e +007	0.1149	0.9820	0.4179	6.2700e-003		0.0794	0.0794		0.0794	0.0794	0.0000	1,137.2350	1,137.2350	0.0218	0.0209	1,143.9931
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	1.11474e +006	6.0100e-003	0.0546	0.0459	3.3000e-004		4.1500e-003	4.1500e-003		4.1500e-003	4.1500e-003	0.0000	59.4868	59.4868	1.1400e-003	1.0900e-003	59.8403
General Office Building	1.57393e +007	0.0849	0.7715	0.6481	4.6300e-003		0.0586	0.0586		0.0586	0.0586	0.0000	839.9068	839.9068	0.0161	0.0154	844.8980
Health Club	2.49822e +006	0.0135	0.1225	0.1029	7.3000e-004		9.3100e-003	9.3100e-003		9.3100e-003	9.3100e-003	0.0000	133.3143	133.3143	2.5600e-003	2.4400e-003	134.1065
High Turnover (Sit Down Restaurant)	4.198e +006	0.0226	0.2058	0.1729	1.2300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	224.0213	224.0213	4.2900e-003	4.1100e-003	225.3525
Hotel	8.81987e +006	0.0476	0.4324	0.3632	2.5900e-003		0.0329	0.0329		0.0329	0.0329	0.0000	470.6617	470.6617	9.0200e-003	8.6300e-003	473.4586
Research & Development	1.5982e +007	0.0862	0.7834	0.6581	4.7000e-003		0.0595	0.0595		0.0595	0.0595	0.0000	852.8612	852.8612	0.0164	0.0156	857.9293
Supermarket	3.99892e +006	0.0216	0.1960	0.1647	1.1800e-003		0.0149	0.0149		0.0149	0.0149	0.0000	213.3974	213.3974	4.0900e-003	3.9100e-003	214.6655
Total		**0.3972**	**3.5482**	**2.5735**	**0.0217**		**0.2744**	**0.2744**		**0.2744**	**0.2744**	**0.0000**	**3,930.8845**	**3,930.8845**	**0.0754**	**0.0721**	**3,954.2438**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	1.09397e+007	3,182.4864	0.1439	0.0298	3,194.9563
Enclosed Parking with Elevator	5.29074e+006	1,539.1358	0.0696	0.0144	1,545.1666
General Light Industry	340502	99.0561	4.4800e-003	9.3000e-004	99.4442
General Office Building	1.01617e+007	2,956.1595	0.1337	0.0277	2,967.7426
Health Club	763091	221.9920	0.0100	2.0800e-003	222.8618
High Turnover (Sit Down Restaurant)	724500	210.7654	9.5300e-003	1.9700e-003	211.5912
Hotel	1.97366e+006	574.1602	0.0260	5.3700e-003	576.4099
Research & Development	4.88178e+006	1,420.1656	0.0642	0.0133	1,425.7302
Supermarket	4.01611e+006	1,168.3316	0.0528	0.0109	1,172.9095
Total		**11,372.2525**	**0.5142**	**0.1064**	**11,416.8124**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	1.09397e+007	3,182.4864	0.1439	0.0298	3,194.9563
Enclosed Parking with Elevator	5.29074e+006	1,539.1358	0.0696	0.0144	1,545.1666
General Light Industry	340502	99.0561	4.4800e-003	9.3000e-004	99.4442
General Office Building	1.01617e+007	2,956.1595	0.1337	0.0277	2,967.7426
Health Club	763091	221.9920	0.0100	2.0800e-003	222.8618
High Turnover (Sit Down Restaurant)	724500	210.7654	9.5300e-003	1.9700e-003	211.5912
Hotel	1.97366e+006	574.1602	0.0260	5.3700e-003	576.4099
Research & Development	4.88178e+006	1,420.1656	0.0642	0.0133	1,425.7302
Supermarket	4.01611e+006	1,168.3316	0.0528	0.0109	1,172.9095
Total		**11,372.2525**	**0.5142**	**0.1064**	**11,416.8124**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	15.8389	0.3213	19.8817	7.1800e-003		0.3917	0.3917		0.3917	0.3917	38.0716	127.1720	165.2436	0.2082	1.7900e-003	170.9810
Unmitigated	15.8389	0.3213	19.8817	7.1800e-003		0.3917	0.3917		0.3917	0.3917	38.0716	127.1720	165.2436	0.2082	1.7900e-003	170.9810

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.7701					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	12.3240					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.2018	0.1126	1.7788	6.2200e-003		0.2911	0.2911		0.2911	0.2911	38.0716	97.5145	135.5861	0.1799	1.7900e-003	140.6150
Landscaping	0.5431	0.2086	18.1030	9.6000e-004		0.1006	0.1006		0.1006	0.1006	0.0000	29.6575	29.6575	0.0283	0.0000	30.3660
Total	**15.8389**	**0.3213**	**19.8817**	**7.1800e-003**		**0.3918**	**0.3918**		**0.3918**	**0.3918**	**38.0716**	**127.1720**	**165.2436**	**0.2082**	**1.7900e-003**	**170.9810**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.7701					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	12.3240					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.2018	0.1126	1.7788	6.2200e-003		0.2911	0.2911		0.2911	0.2911	38.0716	97.5145	135.5861	0.1799	1.7900e-003	140.6150
Landscaping	0.5431	0.2086	18.1030	9.6000e-004		0.1006	0.1006		0.1006	0.1006	0.0000	29.6575	29.6575	0.0283	0.0000	30.3660
Total	**15.8389**	**0.3213**	**19.8817**	**7.1800e-003**		**0.3918**	**0.3918**		**0.3918**	**0.3918**	**38.0716**	**127.1720**	**165.2436**	**0.2082**	**1.7900e-003**	**170.9810**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,453.661 5	21.6947	0.5226	2,151.752 9
Unmitigated	1,453.661 5	21.6947	0.5226	2,151.752 9

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	159.041 / 100.265	402.8951	5.1983	0.1257	570.3001
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	10.4155 / 0	19.6996	0.3401	8.1700e-003	30.6367
General Office Building	144.718 / 88.6981	364.0275	4.7300	0.1143	516.3461
Health Club	5.96991 / 3.65898	15.0169	0.1951	4.7200e-003	21.3003
High Turnover (Sit Down Restaurant)	7.58834 / 0.484362	14.8456	0.2478	5.9500e-003	22.8158
Hotel	5.58069 / 0.620077	11.1865	0.1823	4.3800e-003	17.0492
Research & Development	317.506 / 0	600.5240	10.3686	0.2490	933.9297
Supermarket	13.2439 / 0.409606	25.4663	0.4325	0.0104	39.3751
Total		**1,453.6615**	**21.6947**	**0.5226**	**2,151.7529**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	159.041 / 100.265	402.8951	5.1983	0.1257	570.3001
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	10.4155 / 0	19.6996	0.3401	8.1700e-003	30.6367
General Office Building	144.718 / 88.6981	364.0275	4.7300	0.1143	516.3461
Health Club	5.96991 / 3.65898	15.0169	0.1951	4.7200e-003	21.3003
High Turnover (Sit Down Restaurant)	7.58834 / 0.484362	14.8456	0.2478	5.9500e-003	22.8158
Hotel	5.58069 / 0.620077	11.1865	0.1823	4.3800e-003	17.0492
Research & Development	317.506 / 0	600.5240	10.3686	0.2490	933.9297
Supermarket	13.2439 / 0.409606	25.4663	0.4325	0.0104	39.3751
Total		**1,453.6615**	**21.6947**	**0.5226**	**2,151.7529**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	727.5785	42.9987	0.0000	1,802.544 9
Unmitigated	727.5785	42.9987	0.0000	1,802.544 9

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	1122.86	227.9304	13.4703	0.0000	564.6880
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	55.85	11.3371	0.6700	0.0000	28.0871
General Office Building	757.24	153.7129	9.0842	0.0000	380.8172
Health Club	575.36	116.7929	6.9023	0.0000	289.3494
High Turnover (Sit Down Restaurant)	297.5	60.3898	3.5689	0.0000	149.6132
Hotel	120.45	24.4503	1.4450	0.0000	60.5745
Research & Development	49.07	9.9608	0.5887	0.0000	24.6774
Supermarket	605.96	123.0044	7.2694	0.0000	304.7382
Total		**727.5785**	**42.9987**	**0.0000**	**1,802.5449**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	1122.86	227.9304	13.4703	0.0000	564.6880
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	55.85	11.3371	0.6700	0.0000	28.0871
General Office Building	757.24	153.7129	9.0842	0.0000	380.8172
Health Club	575.36	116.7929	6.9023	0.0000	289.3494
High Turnover (Sit Down Restaurant)	297.5	60.3898	3.5689	0.0000	149.6132
Hotel	120.45	24.4503	1.4450	0.0000	60.5745
Research & Development	49.07	9.9608	0.5887	0.0000	24.6774
Supermarket	605.96	123.0044	7.2694	0.0000	304.7382
Total		**727.5785**	**42.9987**	**0.0000**	**1,802.5449**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CALEEMOD OUTPUTS

Potrero Power Station Operational Emissions

Phase 1 (2025)

PPP P1 - 2025

San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	175.77	1000sqft	4.04	175,771.00	0
Research & Development	0.00	1000sqft	0.00	0.00	0
General Light Industry	14.57	1000sqft	0.33	14,570.00	0
Enclosed Parking with Elevator	151.32	1000sqft	3.47	151,316.00	0
Health Club	0.00	1000sqft	0.00	0.00	0
High Turnover (Sit Down Restaurant)	25.00	1000sqft	0.57	25,000.00	0
Hotel	220.00	Room	7.33	241,574.00	0
Condo/Townhouse High Rise	361.00	Dwelling Unit	5.64	361,000.00	1032
Supermarket	15.93	1000sqft	0.37	15,930.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	4.6	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use based on project information

Off-road Equipment -

Vehicle Trips - Trip rates based on project specific information

Road Dust - Composite silt loading based on project specific information

Woodstoves - All NG fireplaces

Consumer Products - Derived based on on ARB inventory

Energy Use -

Water And Wastewater -

Solid Waste -

Table Name	Column Name	Default Value	New Value
tblConsumerProducts	ROG_EF	2.14E-05	1.52E-05
tblFireplaces	NumberGas	54.15	115.52
tblFireplaces	NumberWood	61.37	0.00
tblLandUse	LandUseSquareFeet	175,770.00	175,771.00
tblLandUse	LandUseSquareFeet	151,320.00	151,316.00
tblLandUse	LandUseSquareFeet	319,440.00	241,574.00
tblRoadDust	RoadSiltLoading	0.1	0.041
tblVehicleTrips	ST_TR	4.31	2.19
tblVehicleTrips	ST_TR	1.32	0.84
tblVehicleTrips	ST_TR	2.46	0.99
tblVehicleTrips	ST_TR	20.87	7.53
tblVehicleTrips	ST_TR	158.37	274.72
tblVehicleTrips	ST_TR	8.19	1.15
tblVehicleTrips	ST_TR	1.90	0.46
tblVehicleTrips	ST_TR	177.59	46.37

tblVehicleTrips	SU_TR	3.43	1.74
tblVehicleTrips	SU_TR	0.68	0.43
tblVehicleTrips	SU_TR	1.05	0.42
tblVehicleTrips	SU_TR	26.73	9.64
tblVehicleTrips	SU_TR	131.84	228.70
tblVehicleTrips	SU_TR	5.95	0.83
tblVehicleTrips	SU_TR	1.11	0.27
tblVehicleTrips	SU_TR	166.44	43.46
tblVehicleTrips	WD_TR	4.18	2.12
tblVehicleTrips	WD_TR	6.97	4.44
tblVehicleTrips	WD_TR	11.03	4.45
tblVehicleTrips	WD_TR	32.93	11.88
tblVehicleTrips	WD_TR	127.15	220.56
tblVehicleTrips	WD_TR	8.17	1.15
tblVehicleTrips	WD_TR	8.11	1.97
tblVehicleTrips	WD_TR	102.24	26.69

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.9375	0.0476	2.9465	1.0600e-003		0.0579	0.0579		0.0579	0.0579	5.6304	18.8107	24.4411	0.0308	2.6000e-004	25.2904
Energy	0.1107	0.9967	0.7770	6.0400e-003		0.0765	0.0765		0.0765	0.0765	0.0000	3,452.0235	3,452.0235	0.1276	0.0421	3,467.7662
Mobile	1.3438	5.0062	12.6129	0.0438	2.1757	0.0476	2.2233	0.6317	0.0444	0.6762	0.0000	4,037.1484	4,037.1484	0.1770	0.0000	4,041.5737
Waste						0.0000	0.0000		0.0000	0.0000	173.6385	0.0000	173.6385	10.2617	0.0000	430.1820
Water						0.0000	0.0000		0.0000	0.0000	23.2429	151.1045	174.3475	2.3941	0.0578	251.4192
Total	**4.3919**	**6.0504**	**16.3364**	**0.0509**	**2.1757**	**0.1820**	**2.3577**	**0.6317**	**0.1788**	**0.8105**	**202.5118**	**7,659.0872**	**7,861.5990**	**12.9912**	**0.1002**	**8,216.2314**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.9375	0.0476	2.9465	1.0600e-003		0.0579	0.0579		0.0579	0.0579	5.6304	18.8107	24.4411	0.0308	2.6000e-004	25.2904
Energy	0.1107	0.9967	0.7770	6.0400e-003		0.0765	0.0765		0.0765	0.0765	0.0000	3,452.0235	3,452.0235	0.1276	0.0421	3,467.7662
Mobile	1.3438	5.0062	12.6129	0.0438	2.1757	0.0476	2.2233	0.6317	0.0444	0.6762	0.0000	4,037.1484	4,037.1484	0.1770	0.0000	4,041.5737
Waste						0.0000	0.0000		0.0000	0.0000	173.6385	0.0000	173.6385	10.2617	0.0000	430.1820
Water						0.0000	0.0000		0.0000	0.0000	23.2429	151.1045	174.3475	2.3941	0.0578	251.4192
Total	**4.3919**	**6.0504**	**16.3364**	**0.0509**	**2.1757**	**0.1820**	**2.3577**	**0.6317**	**0.1788**	**0.8105**	**202.5118**	**7,659.0872**	**7,861.5990**	**12.9912**	**0.1002**	**8,216.2314**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Construction emissions were calculated outside CalEEMod using CalEEMod equivalent method.

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.3438	5.0062	12.6129	0.0438	2.1757	0.0476	2.2233	0.6317	0.0444	0.6762	0.0000	4,037.148 4	4,037.148 4	0.1770	0.0000	4,041.573 7
Unmitigated	1.3438	5.0062	12.6129	0.0438	2.1757	0.0476	2.2233	0.6317	0.0444	0.6762	0.0000	4,037.148 4	4,037.148 4	0.1770	0.0000	4,041.573 7

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse High Rise	765.32	790.59	628.14	1,730,665	1,730,665
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Light Industry	64.69	12.24	6.27	142,621	142,621
General Office Building	782.18	174.01	73.82	1,419,758	1,419,758
Health Club	0.00	0.00	0.00		
High Turnover (Sit Down Restaurant)	5,514.00	6,868.00	5717.50	6,655,858	6,655,858
Hotel	253.00	253.00	182.60	461,575	461,575
Research & Development	0.00	0.00	0.00		
Supermarket	425.17	738.67	692.32	577,960	577,960
Total	7,804.36	8,836.52	7,300.65	10,988,436	10,988,436

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Research & Development	9.50	7.30	7.30	33.00	48.00	19.00	82	15	3
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse High Rise	0.604343	0.037677	0.192702	0.090337	0.013384	0.005111	0.031913	0.009324	0.004273	0.003317	0.006138	0.000948	0.000534
Enclosed Parking with Elevator	0.604343	0.037677	0.192702	0.090337	0.013384	0.005111	0.031913	0.009324	0.004273	0.003317	0.006138	0.000948	0.000534
General Light Industry	0.604343	0.037677	0.192702	0.090337	0.013384	0.005111	0.031913	0.009324	0.004273	0.003317	0.006138	0.000948	0.000534
General Office Building	0.604343	0.037677	0.192702	0.090337	0.013384	0.005111	0.031913	0.009324	0.004273	0.003317	0.006138	0.000948	0.000534
Health Club	0.604343	0.037677	0.192702	0.090337	0.013384	0.005111	0.031913	0.009324	0.004273	0.003317	0.006138	0.000948	0.000534
High Turnover (Sit Down Restaurant)	0.604343	0.037677	0.192702	0.090337	0.013384	0.005111	0.031913	0.009324	0.004273	0.003317	0.006138	0.000948	0.000534
Hotel	0.604343	0.037677	0.192702	0.090337	0.013384	0.005111	0.031913	0.009324	0.004273	0.003317	0.006138	0.000948	0.000534
Research & Development	0.604343	0.037677	0.192702	0.090337	0.013384	0.005111	0.031913	0.009324	0.004273	0.003317	0.006138	0.000948	0.000534
Supermarket	0.604343	0.037677	0.192702	0.090337	0.013384	0.005111	0.031913	0.009324	0.004273	0.003317	0.006138	0.000948	0.000534

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,356.959 4	2,356.959 4	0.1066	0.0221	2,366.194 6
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,356.959 4	2,356.959 4	0.1066	0.0221	2,366.194 6
NaturalGas Mitigated	0.1107	0.9967	0.7770	6.0400e-003		0.0765	0.0765		0.0765	0.0765	0.0000	1,095.064 2	1,095.064 2	0.0210	0.0201	1,101.571 6
NaturalGas Unmitigated	0.1107	0.9967	0.7770	6.0400e-003		0.0765	0.0765		0.0765	0.0765	0.0000	1,095.064 2	1,095.064 2	0.0210	0.0201	1,101.571 6

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	3.15169e+006	0.0170	0.1452	0.0618	9.3000e-004		0.0117	0.0117		0.0117	0.0117	0.0000	168.1859	168.1859	3.2200e-003	3.0800e-003	169.1854
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	360608	1.9400e-003	0.0177	0.0149	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	19.2434	19.2434	3.7000e-004	3.5000e-004	19.3577
General Office Building	3.39765e+006	0.0183	0.1666	0.1399	1.0000e-003		0.0127	0.0127		0.0127	0.0127	0.0000	181.3117	181.3117	3.4800e-003	3.3200e-003	182.3892
Health Club	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	4.198e+006	0.0226	0.2058	0.1729	1.2300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	224.0213	224.0213	4.2900e-003	4.1100e-003	225.3525
Hotel	8.81987e+006	0.0476	0.4324	0.3632	2.5900e-003		0.0329	0.0329		0.0329	0.0329	0.0000	470.6617	470.6617	9.0200e-003	8.6300e-003	473.4586
Research & Development	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Supermarket	592915	3.2000e-003	0.0291	0.0244	1.7000e-004		2.2100e-003	2.2100e-003		2.2100e-003	2.2100e-003	0.0000	31.6402	31.6402	6.1000e-004	5.8000e-004	31.8282
Total		**0.1107**	**0.9966**	**0.7770**	**6.0300e-003**		**0.0765**	**0.0765**		**0.0765**	**0.0765**	**0.0000**	**1,095.0642**	**1,095.0642**	**0.0210**	**0.0201**	**1,101.5716**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	3.15169e+006	0.0170	0.1452	0.0618	9.3000e-004		0.0117	0.0117		0.0117	0.0117	0.0000	168.1859	168.1859	3.2200e-003	3.0800e-003	169.1854
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	360608	1.9400e-003	0.0177	0.0149	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003	0.0000	19.2434	19.2434	3.7000e-004	3.5000e-004	19.3577
General Office Building	3.39765e+006	0.0183	0.1666	0.1399	1.0000e-003		0.0127	0.0127		0.0127	0.0127	0.0000	181.3117	181.3117	3.4800e-003	3.3200e-003	182.3892
Health Club	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	4.198e+006	0.0226	0.2058	0.1729	1.2300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	224.0213	224.0213	4.2900e-003	4.1100e-003	225.3525
Hotel	8.81987e+006	0.0476	0.4324	0.3632	2.5900e-003		0.0329	0.0329		0.0329	0.0329	0.0000	470.6617	470.6617	9.0200e-003	8.6300e-003	473.4586
Research & Development	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Supermarket	592915	3.2000e-003	0.0291	0.0244	1.7000e-004		2.2100e-003	2.2100e-003		2.2100e-003	2.2100e-003	0.0000	31.6402	31.6402	6.1000e-004	5.8000e-004	31.8282
Total		**0.1107**	**0.9966**	**0.7770**	**6.0300e-003**		**0.0765**	**0.0765**		**0.0765**	**0.0765**	**0.0000**	**1,095.0642**	**1,095.0642**	**0.0210**	**0.0201**	**1,101.5716**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	1.61788e+006	470.6586	0.0213	4.4000e-003	472.5028
Enclosed Parking with Elevator	886712	257.9546	0.0117	2.4100e-003	258.9654
General Light Industry	110149	32.0437	1.4500e-003	3.0000e-004	32.1692
General Office Building	2.19362e+006	638.1498	0.0289	5.9700e-003	640.6503
Health Club	0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	724500	210.7654	9.5300e-003	1.9700e-003	211.5912
Hotel	1.97366e+006	574.1602	0.0260	5.3700e-003	576.4099
Research & Development	0	0.0000	0.0000	0.0000	0.0000
Supermarket	595463	173.2271	7.8300e-003	1.6200e-003	173.9059
Total		**2,356.9594**	**0.1066**	**0.0220**	**2,366.1946**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	1.61788e+006	470.6586	0.0213	4.4000e-003	472.5028
Enclosed Parking with Elevator	886712	257.9546	0.0117	2.4100e-003	258.9654
General Light Industry	110149	32.0437	1.4500e-003	3.0000e-004	32.1692
General Office Building	2.19362e+006	638.1498	0.0289	5.9700e-003	640.6503
Health Club	0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	724500	210.7654	9.5300e-003	1.9700e-003	211.5912
Hotel	1.97366e+006	574.1602	0.0260	5.3700e-003	576.4099
Research & Development	0	0.0000	0.0000	0.0000	0.0000
Supermarket	595463	173.2271	7.8300e-003	1.6200e-003	173.9059
Total		**2,356.9594**	**0.1066**	**0.0220**	**2,366.1946**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.9375	0.0476	2.9465	1.0600e-003		0.0579	0.0579		0.0579	0.0579	5.6304	18.8107	24.4411	0.0308	2.6000e-004	25.2904
Unmitigated	2.9375	0.0476	2.9465	1.0600e-003		0.0579	0.0579		0.0579	0.0579	5.6304	18.8107	24.4411	0.0308	2.6000e-004	25.2904

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5038					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.3229					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0298	0.0167	0.2631	9.2000e-004		0.0431	0.0431		0.0431	0.0431	5.6304	14.4214	20.0519	0.0266	2.6000e-004	20.7956
Landscaping	0.0809	0.0309	2.6835	1.4000e-004		0.0149	0.0149		0.0149	0.0149	0.0000	4.3893	4.3893	4.2200e-003	0.0000	4.4948
Total	**2.9375**	**0.0476**	**2.9465**	**1.0600e-003**		**0.0579**	**0.0579**		**0.0579**	**0.0579**	**5.6304**	**18.8107**	**24.4411**	**0.0308**	**2.6000e-004**	**25.2904**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5038					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.3229					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0298	0.0167	0.2631	9.2000e-004		0.0431	0.0431		0.0431	0.0431	5.6304	14.4214	20.0519	0.0266	2.6000e-004	20.7956
Landscaping	0.0809	0.0309	2.6835	1.4000e-004		0.0149	0.0149		0.0149	0.0149	0.0000	4.3893	4.3893	4.2200e-003	0.0000	4.4948
Total	**2.9375**	**0.0476**	**2.9465**	**1.0600e-003**		**0.0579**	**0.0579**		**0.0579**	**0.0579**	**5.6304**	**18.8107**	**24.4411**	**0.0308**	**2.6000e-004**	**25.2904**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	174.3475	2.3941	0.0578	251.4192
Unmitigated	174.3475	2.3941	0.0578	251.4192

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	23.5206 / 14.8282	59.5842	0.7688	0.0186	84.3418
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	3.36931 / 0	6.3726	0.1100	2.6400e-003	9.9107
General Office Building	31.2403 / 19.1473	78.5826	1.0211	0.0247	111.4636
Health Club	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	7.58834 / 0.484362	14.8456	0.2478	5.9500e-003	22.8158
Hotel	5.58069 / 0.620077	11.1865	0.1823	4.3800e-003	17.0492
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	1.96366 / 0.0607318	3.7759	0.0641	1.5400e-003	5.8381
Total		**174.3475**	**2.3941**	**0.0578**	**251.4192**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	23.5206 / 14.8282	59.5842	0.7688	0.0186	84.3418
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	3.36931 / 0	6.3726	0.1100	2.6400e-003	9.9107
General Office Building	31.2403 / 19.1473	78.5826	1.0211	0.0247	111.4636
Health Club	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	7.58834 / 0.484362	14.8456	0.2478	5.9500e-003	22.8158
Hotel	5.58069 / 0.620077	11.1865	0.1823	4.3800e-003	17.0492
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	1.96366 / 0.0607318	3.7759	0.0641	1.5400e-003	5.8381
Total		**174.3475**	**2.3941**	**0.0578**	**251.4192**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	173.6385	10.2617	0.0000	430.1820
Unmitigated	173.6385	10.2617	0.0000	430.1820

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	166.06	33.7087	1.9921	0.0000	83.5118
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	18.07	3.6681	0.2168	0.0000	9.0874
General Office Building	163.47	33.1829	1.9611	0.0000	82.2093
Health Club	0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	297.5	60.3898	3.5689	0.0000	149.6132
Hotel	120.45	24.4503	1.4450	0.0000	60.5745
Research & Development	0	0.0000	0.0000	0.0000	0.0000
Supermarket	89.85	18.2387	1.0779	0.0000	45.1857
Total		**173.6385**	**10.2618**	**0.0000**	**430.1820**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	166.06	33.7087	1.9921	0.0000	83.5118
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	18.07	3.6681	0.2168	0.0000	9.0874
General Office Building	163.47	33.1829	1.9611	0.0000	82.2093
Health Club	0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	297.5	60.3898	3.5689	0.0000	149.6132
Hotel	120.45	24.4503	1.4450	0.0000	60.5745
Research & Development	0	0.0000	0.0000	0.0000	0.0000
Supermarket	89.85	18.2387	1.0779	0.0000	45.1857
Total		**173.6385**	**10.2618**	**0.0000**	**430.1820**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CALEEMOD OUTPUTS

Potrero Power Station Operational Emissions
Phase 1 and 2 (2026)

PPP P1 P2 - 2026

San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	372.50	1000sqft	8.55	372,501.00	0
Research & Development	0.00	1000sqft	0.00	0.00	0
General Light Industry	28.89	1000sqft	0.66	28,886.00	0
Enclosed Parking with Elevator	213.88	1000sqft	4.91	213,882.00	0
Health Club	15.51	1000sqft	0.36	15,508.00	0
High Turnover (Sit Down Restaurant)	25.00	1000sqft	0.57	25,000.00	0
Hotel	220.00	Room	7.33	241,574.00	0
Condo/Townhouse High Rise	768.00	Dwelling Unit	12.00	768,000.00	2196
Supermarket	35.02	1000sqft	0.80	35,022.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 4.6 **Precipitation Freq (Days)** 64

Climate Zone 5 **Operational Year** 2026

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 641.35 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use based on project information

Off-road Equipment -

Vehicle Trips - Trip rates based on project specific information

Road Dust - Composite silt loading based on project specific information

Woodstoves - All NG fireplaces

Consumer Products - Derived based on on ARB inventory

Energy Use -

Water And Wastewater -

Solid Waste -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	359,246.00	682,115.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	1,077,737.00	2,046,344.00
tblAreaCoating	Area_Nonresidential_Exterior	359246	682115
tblAreaCoating	Area_Nonresidential_Interior	1077737	2046344
tblConsumerProducts	ROG_EF	2.14E-05	1.52E-05
tblFireplaces	NumberGas	115.20	245.76
tblFireplaces	NumberWood	130.56	0.00
tblLandUse	LandUseSquareFeet	372,500.00	372,501.00
tblLandUse	LandUseSquareFeet	28,890.00	28,886.00
tblLandUse	LandUseSquareFeet	213,880.00	213,882.00
tblLandUse	LandUseSquareFeet	15,510.00	15,508.00
tblLandUse	LandUseSquareFeet	319,440.00	241,574.00
tblLandUse	LandUseSquareFeet	35,020.00	35,022.00
tblRoadDust	RoadSiltLoading	0.1	0.041
tblTripsAndVMT	VendorTripNumber	235.00	341.00

tblTripsAndVMT	WorkerTripNumber	904.00	1,110.00
tblTripsAndVMT	WorkerTripNumber	181.00	222.00
tblVehicleTrips	ST_TR	4.31	2.19
tblVehicleTrips	ST_TR	1.32	0.84
tblVehicleTrips	ST_TR	2.46	0.99
tblVehicleTrips	ST_TR	20.87	7.53
tblVehicleTrips	ST_TR	158.37	274.72
tblVehicleTrips	ST_TR	8.19	1.15
tblVehicleTrips	ST_TR	1.90	0.00
tblVehicleTrips	ST_TR	177.59	46.37
tblVehicleTrips	SU_TR	3.43	1.74
tblVehicleTrips	SU_TR	0.68	0.43
tblVehicleTrips	SU_TR	1.05	0.42
tblVehicleTrips	SU_TR	26.73	9.64
tblVehicleTrips	SU_TR	131.84	228.70
tblVehicleTrips	SU_TR	5.95	0.83
tblVehicleTrips	SU_TR	1.11	0.00
tblVehicleTrips	SU_TR	166.44	43.46
tblVehicleTrips	WD_TR	4.18	2.12
tblVehicleTrips	WD_TR	6.97	4.44
tblVehicleTrips	WD_TR	11.03	4.45
tblVehicleTrips	WD_TR	32.93	11.88
tblVehicleTrips	WD_TR	127.15	220.56
tblVehicleTrips	WD_TR	8.17	1.15
tblVehicleTrips	WD_TR	8.11	0.00
tblVehicleTrips	WD_TR	102.24	26.69

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.6291	0.1011	6.2651	2.2600e-003		0.1232	0.1232		0.1232	0.1232	11.9783	40.0117	51.9900	0.0656	5.6000e-004	53.7963
Energy	0.1581	1.4178	1.0629	8.6300e-003		0.1093	0.1093		0.1093	0.1093	0.0000	5,546.6193	5,546.6193	0.2100	0.0659	5,571.5203
Mobile	1.7096	6.6002	16.5296	0.0602	3.0983	0.0641	3.1623	0.8994	0.0598	0.9591	0.0000	5,557.5180	5,557.5180	0.2384	0.0000	5,563.4779
Waste						0.0000	0.0000		0.0000	0.0000	292.1852	0.0000	292.1852	17.2677	0.0000	723.8765
Water						0.0000	0.0000		0.0000	0.0000	44.8369	297.7362	342.5731	4.6186	0.1115	491.2732
Total	**7.4969**	**8.1192**	**23.8576**	**0.0711**	**3.0983**	**0.2966**	**3.3948**	**0.8994**	**0.2923**	**1.1916**	**349.0004**	**11,441.8851**	**11,790.8855**	**22.4003**	**0.1780**	**12,403.9440**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.6291	0.1011	6.2651	2.2600e-003		0.1232	0.1232		0.1232	0.1232	11.9783	40.0117	51.9900	0.0656	5.6000e-004	53.7963
Energy	0.1581	1.4178	1.0629	8.6300e-003		0.1093	0.1093		0.1093	0.1093	0.0000	5,546.6193	5,546.6193	0.2100	0.0659	5,571.5203
Mobile	1.7096	6.6002	16.5296	0.0602	3.0983	0.0641	3.1623	0.8994	0.0598	0.9591	0.0000	5,557.5180	5,557.5180	0.2384	0.0000	5,563.4779
Waste						0.0000	0.0000		0.0000	0.0000	292.1852	0.0000	292.1852	17.2677	0.0000	723.8765
Water						0.0000	0.0000		0.0000	0.0000	44.8369	297.7362	342.5731	4.6186	0.1115	491.2732
Total	**7.4969**	**8.1192**	**23.8576**	**0.0711**	**3.0983**	**0.2966**	**3.3948**	**0.8994**	**0.2923**	**1.1916**	**349.0004**	**11,441.8851**	**11,790.8855**	**22.4003**	**0.1780**	**12,403.9440**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Construction emissions were calculated outside CalEEMod using CalEEMod equivalent method.

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.7096	6.6002	16.5296	0.0602	3.0983	0.0641	3.1623	0.8994	0.0598	0.9591	0.0000	5,557.5180	5,557.5180	0.2384	0.0000	5,563.4779
Unmitigated	1.7096	6.6002	16.5296	0.0602	3.0983	0.0641	3.1623	0.8994	0.0598	0.9591	0.0000	5,557.5180	5,557.5180	0.2384	0.0000	5,563.4779

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse High Rise	1,628.16	1,681.92	1336.32	3,681,857	3,681,857
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Light Industry	128.27	24.27	12.42	282,796	282,796
General Office Building	1,657.63	368.78	156.45	3,008,818	3,008,818
Health Club	184.26	116.79	149.52	293,111	293,111
High Turnover (Sit Down Restaurant)	5,514.00	6,868.00	5717.50	6,655,858	6,655,858
Hotel	253.00	253.00	182.60	461,575	461,575
Research & Development	0.00	0.00	0.00		
Supermarket	934.68	1,623.88	1521.97	1,270,568	1,270,568
Total	10,300.00	10,936.63	9,076.78	15,654,582	15,654,582

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Research & Development	9.50	7.30	7.30	33.00	48.00	19.00	82	15	3
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse High Rise	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
Enclosed Parking with Elevator	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
General Light Industry	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
General Office Building	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
Health Club	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
High Turnover (Sit Down Restaurant)	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
Hotel	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
Research & Development	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
Supermarket	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,981.6962	3,981.6962	0.1800	0.0373	3,997.2976
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,981.6962	3,981.6962	0.1800	0.0373	3,997.2976
NaturalGas Mitigated	0.1581	1.4178	1.0629	8.6300e-003		0.1093	0.1093		0.1093	0.1093	0.0000	1,564.9231	1,564.9231	0.0300	0.0287	1,574.2227
NaturalGas Unmitigated	0.1581	1.4178	1.0629	8.6300e-003		0.1093	0.1093		0.1093	0.1093	0.0000	1,564.9231	1,564.9231	0.0300	0.0287	1,574.2227

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	6.70497e +006	0.0362	0.3090	0.1315	1.9700e-003		0.0250	0.0250		0.0250	0.0250	0.0000	357.8028	357.8028	6.8600e-003	6.5600e-003	359.9290
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	714929	3.8600e-003	0.0351	0.0294	2.1000e-004		2.6600e-003	2.6600e-003		2.6600e-003	2.6600e-003	0.0000	38.1513	38.1513	7.3000e-004	7.0000e-004	38.3780
General Office Building	7.20044e +006	0.0388	0.3530	0.2965	2.1200e-003		0.0268	0.0268		0.0268	0.0268	0.0000	384.2431	384.2431	7.3600e-003	7.0400e-003	386.5265
Health Club	383823	2.0700e-003	0.0188	0.0158	1.1000e-004		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003	0.0000	20.4823	20.4823	3.9000e-004	3.8000e-004	20.6040
High Turnover (Sit Down Restaurant)	4.198e +006	0.0226	0.2058	0.1729	1.2300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	224.0213	224.0213	4.2900e-003	4.1100e-003	225.3525
Hotel	8.81987e +006	0.0476	0.4324	0.3632	2.5900e-003		0.0329	0.0329		0.0329	0.0329	0.0000	470.6617	470.6617	9.0200e-003	8.6300e-003	473.4586
Research & Development	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Supermarket	1.30352e +006	7.0300e-003	0.0639	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	69.5607	69.5607	1.3300e-003	1.2800e-003	69.9741
Total		**0.1581**	**1.4178**	**1.0629**	**8.6100e-003**		**0.1093**	**0.1093**		**0.1093**	**0.1093**	**0.0000**	**1,564.9231**	**1,564.9231**	**0.0300**	**0.0287**	**1,574.2227**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	6.70497e+006	0.0362	0.3090	0.1315	1.9700e-003		0.0250	0.0250		0.0250	0.0250	0.0000	357.8028	357.8028	6.8600e-003	6.5600e-003	359.9290
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	714929	3.8600e-003	0.0351	0.0294	2.1000e-004		2.6600e-003	2.6600e-003		2.6600e-003	2.6600e-003	0.0000	38.1513	38.1513	7.3000e-004	7.0000e-004	38.3780
General Office Building	7.20044e+006	0.0388	0.3530	0.2965	2.1200e-003		0.0268	0.0268		0.0268	0.0268	0.0000	384.2431	384.2431	7.3600e-003	7.0400e-003	386.5265
Health Club	383823	2.0700e-003	0.0188	0.0158	1.1000e-004		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003	0.0000	20.4823	20.4823	3.9000e-004	3.8000e-004	20.6040
High Turnover (Sit Down Restaurant)	4.198e+006	0.0226	0.2058	0.1729	1.2300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	224.0213	224.0213	4.2900e-003	4.1100e-003	225.3525
Hotel	8.81987e+006	0.0476	0.4324	0.3632	2.5900e-003		0.0329	0.0329		0.0329	0.0329	0.0000	470.6617	470.6617	9.0200e-003	8.6300e-003	473.4586
Research & Development	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Supermarket	1.30352e+006	7.0300e-003	0.0639	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	69.5607	69.5607	1.3300e-003	1.2800e-003	69.9741
Total		**0.1581**	**1.4178**	**1.0629**	**8.6100e-003**		**0.1093**	**0.1093**		**0.1093**	**0.1093**	**0.0000**	**1,564.9231**	**1,564.9231**	**0.0300**	**0.0287**	**1,574.2227**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	3.44191e+006	1,001.2903	0.0453	9.3700e-003	1,005.2136
Enclosed Parking with Elevator	1.25335e+006	364.6135	0.0165	3.4100e-003	366.0421
General Light Industry	218378	63.5287	2.8700e-003	5.9000e-004	63.7776
General Office Building	4.64881e+006	1,352.3929	0.0612	0.0127	1,357.6919
Health Club	117240	34.1066	1.5400e-003	3.2000e-004	34.2402
High Turnover (Sit Down Restaurant)	724500	210.7654	9.5300e-003	1.9700e-003	211.5912
Hotel	1.97366e+006	574.1602	0.0260	5.3700e-003	576.4099
Research & Development	0	0.0000	0.0000	0.0000	0.0000
Supermarket	1.30912e+006	380.8387	0.0172	3.5600e-003	382.3309
Total		**3,981.6962**	**0.1800**	**0.0372**	**3,997.2976**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	3.44191e+006	1,001.2903	0.0453	9.3700e-003	1,005.2136
Enclosed Parking with Elevator	1.25335e+006	364.6135	0.0165	3.4100e-003	366.0421
General Light Industry	218378	63.5287	2.8700e-003	5.9000e-004	63.7776
General Office Building	4.64881e+006	1,352.3929	0.0612	0.0127	1,357.6919
Health Club	117240	34.1066	1.5400e-003	3.2000e-004	34.2402
High Turnover (Sit Down Restaurant)	724500	210.7654	9.5300e-003	1.9700e-003	211.5912
Hotel	1.97366e+006	574.1602	0.0260	5.3700e-003	576.4099
Research & Development	0	0.0000	0.0000	0.0000	0.0000
Supermarket	1.30912e+006	380.8387	0.0172	3.5600e-003	382.3309
Total		**3,981.6962**	**0.1800**	**0.0372**	**3,997.2976**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.6291	0.1011	6.2651	2.2600e-003		0.1232	0.1232		0.1232	0.1232	11.9783	40.0117	51.9900	0.0656	5.6000e-004	53.7963
Unmitigated	5.6291	0.1011	6.2651	2.2600e-003		0.1232	0.1232		0.1232	0.1232	11.9783	40.0117	51.9900	0.0656	5.6000e-004	53.7963

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2565					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.1374					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0635	0.0354	0.5596	1.9600e-003		0.0916	0.0916		0.0916	0.0916	11.9783	30.6805	42.6588	0.0566	5.6000e-004	44.2410
Landscaping	0.1718	0.0657	5.7054	3.0000e-004		0.0316	0.0316		0.0316	0.0316	0.0000	9.3312	9.3312	8.9600e-003	0.0000	9.5553
Total	**5.6291**	**0.1011**	**6.2651**	**2.2600e-003**		**0.1232**	**0.1232**		**0.1232**	**0.1232**	**11.9783**	**40.0117**	**51.9900**	**0.0655**	**5.6000e-004**	**53.7963**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2565					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.1374					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0635	0.0354	0.5596	1.9600e-003		0.0916	0.0916		0.0916	0.0916	11.9783	30.6805	42.6588	0.0566	5.6000e-004	44.2410
Landscaping	0.1718	0.0657	5.7054	3.0000e-004		0.0316	0.0316		0.0316	0.0316	0.0000	9.3312	9.3312	8.9600e-003	0.0000	9.5553
Total	**5.6291**	**0.1011**	**6.2651**	**2.2600e-003**		**0.1232**	**0.1232**		**0.1232**	**0.1232**	**11.9783**	**40.0117**	**51.9900**	**0.0655**	**5.6000e-004**	**53.7963**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	342.5731	4.6186	0.1115	491.2732
Unmitigated	342.5731	4.6186	0.1115	491.2732

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	50.0383 / 31.5459	126.7609	1.6355	0.0395	179.4307
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	6.68081 / 0	12.6359	0.2182	5.2400e-003	19.6513
General Office Building	66.2058 / 40.5778	166.5360	2.1639	0.0523	236.2190
Health Club	0.91731 / 0.562222	2.3074	0.0300	7.2000e-004	3.2729
High Turnover (Sit Down Restaurant)	7.58834 / 0.484362	14.8456	0.2478	5.9500e-003	22.8158
Hotel	5.58069 / 0.620077	11.1865	0.1823	4.3800e-003	17.0492
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	4.31685 / 0.133511	8.3007	0.1410	3.3900e-003	12.8343
Total		**342.5731**	**4.6186**	**0.1115**	**491.2732**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	50.0383 / 31.5459	126.7609	1.6355	0.0395	179.4307
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	6.68081 / 0	12.6359	0.2182	5.2400e-003	19.6513
General Office Building	66.2058 / 40.5778	166.5360	2.1639	0.0523	236.2190
Health Club	0.91731 / 0.562222	2.3074	0.0300	7.2000e-004	3.2729
High Turnover (Sit Down Restaurant)	7.58834 / 0.484362	14.8456	0.2478	5.9500e-003	22.8158
Hotel	5.58069 / 0.620077	11.1865	0.1823	4.3800e-003	17.0492
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	4.31685 / 0.133511	8.3007	0.1410	3.3900e-003	12.8343
Total		**342.5731**	**4.6186**	**0.1115**	**491.2732**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	292.1852	17.2677	0.0000	723.8765
Unmitigated	292.1852	17.2677	0.0000	723.8765

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	353.28	71.7127	4.2381	0.0000	177.6651
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	35.82	7.2711	0.4297	0.0000	18.0139
General Office Building	346.43	70.3222	4.1559	0.0000	174.2202
Health Club	88.41	17.9464	1.0606	0.0000	44.4615
High Turnover (Sit Down Restaurant)	297.5	60.3898	3.5689	0.0000	149.6132
Hotel	120.45	24.4503	1.4450	0.0000	60.5745
Research & Development	0	0.0000	0.0000	0.0000	0.0000
Supermarket	197.51	40.0928	2.3694	0.0000	99.3281
Total		**292.1852**	**17.2677**	**0.0000**	**723.8764**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	353.28	71.7127	4.2381	0.0000	177.6651
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	35.82	7.2711	0.4297	0.0000	18.0139
General Office Building	346.43	70.3222	4.1559	0.0000	174.2202
Health Club	88.41	17.9464	1.0606	0.0000	44.4615
High Turnover (Sit Down Restaurant)	297.5	60.3898	3.5689	0.0000	149.6132
Hotel	120.45	24.4503	1.4450	0.0000	60.5745
Research & Development	0	0.0000	0.0000	0.0000	0.0000
Supermarket	197.51	40.0928	2.3694	0.0000	99.3281
Total		**292.1852**	**17.2677**	**0.0000**	**723.8764**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CALEEMOD OUTPUTS

Potrero Power Station Operational Emissions
Phase 1, 2 and 3 (2028)

PPP P1 P2 P3 - 2028

San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	530.70	1000sqft	12.18	530,698.00	0
Research & Development	318.24	1000sqft	7.31	318,240.00	0
General Light Industry	28.89	1000sqft	0.66	28,886.00	0
Enclosed Parking with Elevator	301.11	1000sqft	6.91	301,110.00	0
Health Club	15.51	1000sqft	0.36	15,508.00	0
High Turnover (Sit Down Restaurant)	25.00	1000sqft	0.57	25,000.00	0
Hotel	220.00	Room	7.33	241,574.00	0
Condo/Townhouse High Rise	768.00	Dwelling Unit	12.00	768,000.00	2196
Supermarket	45.18	1000sqft	1.04	45,180.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	4.6	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2028
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use based on project information

Off-road Equipment -

Vehicle Trips - Trip rates based on project specific information

Road Dust - Composite silt loading based on project specific information

Woodstoves - All NG fireplaces

Consumer Products - Derived based on on ARB inventory

Energy Use -

Water And Wastewater -

Solid Waste -

Table Name	Column Name	Default Value	New Value
tblConsumerProducts	ROG_EF	2.14E-05	1.52E-05
tblFireplaces	NumberGas	115.20	245.76
tblFireplaces	NumberWood	130.56	0.00
tblLandUse	LandUseSquareFeet	530,700.00	530,698.00
tblLandUse	LandUseSquareFeet	28,890.00	28,886.00
tblLandUse	LandUseSquareFeet	15,510.00	15,508.00
tblLandUse	LandUseSquareFeet	319,440.00	241,574.00
tblRoadDust	RoadSiltLoading	0.1	0.041
tblVehicleTrips	ST_TR	4.31	2.19
tblVehicleTrips	ST_TR	1.32	0.84
tblVehicleTrips	ST_TR	2.46	0.99
tblVehicleTrips	ST_TR	20.87	7.53
tblVehicleTrips	ST_TR	158.37	274.72
tblVehicleTrips	ST_TR	8.19	1.15
tblVehicleTrips	ST_TR	1.90	0.46

tblVehicleTrips	ST_TR	177.59	46.37
tblVehicleTrips	SU_TR	3.43	1.74
tblVehicleTrips	SU_TR	0.68	0.43
tblVehicleTrips	SU_TR	1.05	0.42
tblVehicleTrips	SU_TR	26.73	9.64
tblVehicleTrips	SU_TR	131.84	228.70
tblVehicleTrips	SU_TR	5.95	0.83
tblVehicleTrips	SU_TR	1.11	0.27
tblVehicleTrips	SU_TR	166.44	43.46
tblVehicleTrips	WD_TR	4.18	2.12
tblVehicleTrips	WD_TR	6.97	4.44
tblVehicleTrips	WD_TR	11.03	4.45
tblVehicleTrips	WD_TR	32.93	11.88
tblVehicleTrips	WD_TR	127.15	220.56
tblVehicleTrips	WD_TR	8.17	1.15
tblVehicleTrips	WD_TR	8.11	1.97
tblVehicleTrips	WD_TR	102.24	26.69

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.9039	0.1012	6.2703	2.2600e-003		0.1233	0.1233		0.1233	0.1233	11.9783	40.0220	52.0002	0.0656	5.6000e-004	53.8072
Energy	0.2191	1.9723	1.5287	0.0120		0.1514	0.1514		0.1514	0.1514	0.0000	7,683.7061	7,683.7061	0.2909	0.0914	7,718.2028
Mobile	1.7852	7.2466	17.5260	0.0675	3.6595	0.0657	3.7253	1.0618	0.0613	1.1231	0.0000	6,240.6360	6,240.6360	0.2620	0.0000	6,247.1859
Waste						0.0000	0.0000		0.0000	0.0000	338.5910	0.0000	338.5910	20.0102	0.0000	838.8448
Water						0.0000	0.0000		0.0000	0.0000	103.7974	607.8676	711.6650	10.6885	0.2574	1,055.5869
Total	**8.9082**	**9.3201**	**25.3250**	**0.0817**	**3.6595**	**0.3404**	**3.9999**	**1.0618**	**0.3359**	**1.3978**	**454.3667**	**14,572.2316**	**15,026.5983**	**31.3171**	**0.3493**	**15,913.6275**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.9039	0.1012	6.2703	2.2600e-003		0.1233	0.1233		0.1233	0.1233	11.9783	40.0220	52.0002	0.0656	5.6000e-004	53.8072
Energy	0.2191	1.9723	1.5287	0.0120		0.1514	0.1514		0.1514	0.1514	0.0000	7,683.7061	7,683.7061	0.2909	0.0914	7,718.2028
Mobile	1.7852	7.2466	17.5260	0.0675	3.6595	0.0657	3.7253	1.0618	0.0613	1.1231	0.0000	6,240.6360	6,240.6360	0.2620	0.0000	6,247.1859
Waste						0.0000	0.0000		0.0000	0.0000	338.5910	0.0000	338.5910	20.0102	0.0000	838.8448
Water						0.0000	0.0000		0.0000	0.0000	103.7974	607.8676	711.6650	10.6885	0.2574	1,055.5869
Total	**8.9082**	**9.3201**	**25.3250**	**0.0817**	**3.6595**	**0.3404**	**3.9999**	**1.0618**	**0.3359**	**1.3978**	**454.3667**	**14,572.2316**	**15,026.5983**	**31.3171**	**0.3493**	**15,913.6275**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Construction emissions were calculated outside CalEEMod using CalEEMod equivalent method.

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.7852	7.2466	17.5260	0.0675	3.6595	0.0657	3.7253	1.0618	0.0613	1.1231	0.0000	6,240.636 0	6,240.636 0	0.2620	0.0000	6,247.185 9
Unmitigated	1.7852	7.2466	17.5260	0.0675	3.6595	0.0657	3.7253	1.0618	0.0613	1.1231	0.0000	6,240.636 0	6,240.636 0	0.2620	0.0000	6,247.185 9

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse High Rise	1,628.16	1,681.92	1336.32	3,681,857	3,681,857
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Light Industry	128.27	24.27	12.42	282,796	282,796
General Office Building	2,361.62	525.39	222.89	4,286,657	4,286,657
Health Club	184.26	116.79	149.52	293,111	293,111
High Turnover (Sit Down Restaurant)	5,514.00	6,868.00	5717.50	6,655,858	6,655,858
Hotel	253.00	253.00	182.60	461,575	461,575
Research & Development	626.93	146.39	85.92	1,205,498	1,205,498
Supermarket	1,205.85	2,095.00	1963.52	1,639,185	1,639,185
Total	11,902.09	11,710.76	9,670.70	18,506,536	18,506,536

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Research & Development	9.50	7.30	7.30	33.00	48.00	19.00	82	15	3
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse High Rise	0.603121	0.036702	0.193108	0.091392	0.012677	0.005212	0.033773	0.009540	0.004270	0.002802	0.005874	0.000957	0.000573
Enclosed Parking with Elevator	0.603121	0.036702	0.193108	0.091392	0.012677	0.005212	0.033773	0.009540	0.004270	0.002802	0.005874	0.000957	0.000573
General Light Industry	0.603121	0.036702	0.193108	0.091392	0.012677	0.005212	0.033773	0.009540	0.004270	0.002802	0.005874	0.000957	0.000573
General Office Building	0.603121	0.036702	0.193108	0.091392	0.012677	0.005212	0.033773	0.009540	0.004270	0.002802	0.005874	0.000957	0.000573
Health Club	0.603121	0.036702	0.193108	0.091392	0.012677	0.005212	0.033773	0.009540	0.004270	0.002802	0.005874	0.000957	0.000573
High Turnover (Sit Down Restaurant)	0.603121	0.036702	0.193108	0.091392	0.012677	0.005212	0.033773	0.009540	0.004270	0.002802	0.005874	0.000957	0.000573
Hotel	0.603121	0.036702	0.193108	0.091392	0.012677	0.005212	0.033773	0.009540	0.004270	0.002802	0.005874	0.000957	0.000573
Research & Development	0.603121	0.036702	0.193108	0.091392	0.012677	0.005212	0.033773	0.009540	0.004270	0.002802	0.005874	0.000957	0.000573
Supermarket	0.603121	0.036702	0.193108	0.091392	0.012677	0.005212	0.033773	0.009540	0.004270	0.002802	0.005874	0.000957	0.000573

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5,515.1065	5,515.1065	0.2494	0.0516	5,536.7164
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5,515.1065	5,515.1065	0.2494	0.0516	5,536.7164
NaturalGas Mitigated	0.2191	1.9723	1.5287	0.0120		0.1514	0.1514		0.1514	0.1514	0.0000	2,168.5995	2,168.5995	0.0416	0.0398	2,181.4864
NaturalGas Unmitigated	0.2191	1.9723	1.5287	0.0120		0.1514	0.1514		0.1514	0.1514	0.0000	2,168.5995	2,168.5995	0.0416	0.0398	2,181.4864

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	6.70497e+006	0.0362	0.3090	0.1315	1.9700e-003		0.0250	0.0250		0.0250	0.0250	0.0000	357.8028	357.8028	6.8600e-003	6.5600e-003	359.9290
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	714929	3.8600e-003	0.0351	0.0294	2.1000e-004		2.6600e-003	2.6600e-003		2.6600e-003	2.6600e-003	0.0000	38.1513	38.1513	7.3000e-004	7.0000e-004	38.3780
General Office Building	1.02584e+007	0.0553	0.5029	0.4224	3.0200e-003		0.0382	0.0382		0.0382	0.0382	0.0000	547.4269	547.4269	0.0105	0.0100	550.6800
Health Club	383823	2.0700e-003	0.0188	0.0158	1.1000e-004		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003	0.0000	20.4823	20.4823	3.9000e-004	3.8000e-004	20.6040
High Turnover (Sit Down Restaurant)	4.198e+006	0.0226	0.2058	0.1729	1.2300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	224.0213	224.0213	4.2900e-003	4.1100e-003	225.3525
Hotel	8.81987e+006	0.0476	0.4324	0.3632	2.5900e-003		0.0329	0.0329		0.0329	0.0329	0.0000	470.6617	470.6617	9.0200e-003	8.6300e-003	473.4586
Research & Development	7.87644e+006	0.0425	0.3861	0.3243	2.3200e-003		0.0293	0.0293		0.0293	0.0293	0.0000	420.3168	420.3168	8.0600e-003	7.7100e-003	422.8146
Supermarket	1.6816e+006	9.0700e-003	0.0824	0.0692	4.9000e-004		6.2600e-003	6.2600e-003		6.2600e-003	6.2600e-003	0.0000	89.7366	89.7366	1.7200e-003	1.6500e-003	90.2698
Total		**0.2191**	**1.9723**	**1.5287**	**0.0119**		**0.1514**	**0.1514**		**0.1514**	**0.1514**	**0.0000**	**2,168.5995**	**2,168.5995**	**0.0416**	**0.0398**	**2,181.4864**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	6.70497e+006	0.0362	0.3090	0.1315	1.9700e-003		0.0250	0.0250		0.0250	0.0250	0.0000	357.8028	357.8028	6.8600e-003	6.5600e-003	359.9290
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	714929	3.8600e-003	0.0351	0.0294	2.1000e-004		2.6600e-003	2.6600e-003		2.6600e-003	2.6600e-003	0.0000	38.1513	38.1513	7.3000e-004	7.0000e-004	38.3780
General Office Building	1.02584e+007	0.0553	0.5029	0.4224	3.0200e-003		0.0382	0.0382		0.0382	0.0382	0.0000	547.4269	547.4269	0.0105	0.0100	550.6800
Health Club	383823	2.0700e-003	0.0188	0.0158	1.1000e-004		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003	0.0000	20.4823	20.4823	3.9000e-004	3.8000e-004	20.6040
High Turnover (Sit Down Restaurant)	4.198e+006	0.0226	0.2058	0.1729	1.2300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	224.0213	224.0213	4.2900e-003	4.1100e-003	225.3525
Hotel	8.81987e+006	0.0476	0.4324	0.3632	2.5900e-003		0.0329	0.0329		0.0329	0.0329	0.0000	470.6617	470.6617	9.0200e-003	8.6300e-003	473.4586
Research & Development	7.87644e+006	0.0425	0.3861	0.3243	2.3200e-003		0.0293	0.0293		0.0293	0.0293	0.0000	420.3168	420.3168	8.0600e-003	7.7100e-003	422.8146
Supermarket	1.6816e+006	9.0700e-003	0.0824	0.0692	4.9000e-004		6.2600e-003	6.2600e-003		6.2600e-003	6.2600e-003	0.0000	89.7366	89.7366	1.7200e-003	1.6500e-003	90.2698
Total		**0.2191**	**1.9723**	**1.5287**	**0.0119**		**0.1514**	**0.1514**		**0.1514**	**0.1514**	**0.0000**	**2,168.5995**	**2,168.5995**	**0.0416**	**0.0398**	**2,181.4864**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	3.44191e +006	1,001.290 3	0.0453	9.3700e-003	1,005.213 6
Enclosed Parking with Elevator	1.7645e +006	513.3146	0.0232	4.8000e-003	515.3259
General Light Industry	218378	63.5287	2.8700e-003	5.9000e-004	63.7776
General Office Building	6.62311e +006	1,926.739 0	0.0871	0.0180	1,934.288 5
Health Club	117240	34.1066	1.5400e-003	3.2000e-004	34.2402
High Turnover (Sit Down Restaurant)	724500	210.7654	9.5300e-003	1.9700e-003	211.5912
Hotel	1.97366e +006	574.1602	0.0260	5.3700e-003	576.4099
Research & Development	2.40589e +006	699.9023	0.0317	6.5500e-003	702.6447
Supermarket	1.68883e +006	491.2996	0.0222	4.6000e-003	493.2246
Total		**5,515.106 5**	**0.2494**	**0.0516**	**5,536.716 3**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	3.44191e+006	1,001.2903	0.0453	9.3700e-003	1,005.2136
Enclosed Parking with Elevator	1.7645e+006	513.3146	0.0232	4.8000e-003	515.3259
General Light Industry	218378	63.5287	2.8700e-003	5.9000e-004	63.7776
General Office Building	6.62311e+006	1,926.7390	0.0871	0.0180	1,934.2885
Health Club	117240	34.1066	1.5400e-003	3.2000e-004	34.2402
High Turnover (Sit Down Restaurant)	724500	210.7654	9.5300e-003	1.9700e-003	211.5912
Hotel	1.97366e+006	574.1602	0.0260	5.3700e-003	576.4099
Research & Development	2.40589e+006	699.9023	0.0317	6.5500e-003	702.6447
Supermarket	1.68883e+006	491.2996	0.0222	4.6000e-003	493.2246
Total		**5,515.1065**	**0.2494**	**0.0516**	**5,536.7163**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.9039	0.1012	6.2703	2.2600e-003		0.1233	0.1233		0.1233	0.1233	11.9783	40.0220	52.0002	0.0656	5.6000e-004	53.8072
Unmitigated	6.9039	0.1012	6.2703	2.2600e-003		0.1233	0.1233		0.1233	0.1233	11.9783	40.0220	52.0002	0.0656	5.6000e-004	53.8072

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1753					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.4928					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0635	0.0354	0.5596	1.9600e-003		0.0916	0.0916		0.0916	0.0916	11.9783	30.6805	42.6588	0.0566	5.6000e-004	44.2410
Landscaping	0.1723	0.0658	5.7107	3.0000e-004		0.0317	0.0317		0.0317	0.0317	0.0000	9.3414	9.3414	8.9900e-003	0.0000	9.5662
Total	**6.9039**	**0.1012**	**6.2703**	**2.2600e-003**		**0.1233**	**0.1233**		**0.1233**	**0.1233**	**11.9783**	**40.0219**	**52.0002**	**0.0656**	**5.6000e-004**	**53.8072**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.1753					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.4928					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0635	0.0354	0.5596	1.9600e-003		0.0916	0.0916		0.0916	0.0916	11.9783	30.6805	42.6588	0.0566	5.6000e-004	44.2410
Landscaping	0.1723	0.0658	5.7107	3.0000e-004		0.0317	0.0317		0.0317	0.0317	0.0000	9.3414	9.3414	8.9900e-003	0.0000	9.5662
Total	**6.9039**	**0.1012**	**6.2703**	**2.2600e-003**		**0.1233**	**0.1233**		**0.1233**	**0.1233**	**11.9783**	**40.0219**	**52.0002**	**0.0656**	**5.6000e-004**	**53.8072**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	711.6650	10.6885	0.2574	1,055.586 9
Unmitigated	711.6650	10.6885	0.2574	1,055.586 9

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	50.0383 / 31.5459	126.7609	1.6355	0.0395	179.4307
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	6.68081 / 0	12.6359	0.2182	5.2400e-003	19.6513
General Office Building	94.3233 / 57.8111	237.2635	3.0829	0.0745	336.5407
Health Club	0.91731 / 0.562222	2.3074	0.0300	7.2000e-004	3.2729
High Turnover (Sit Down Restaurant)	7.58834 / 0.484362	14.8456	0.2478	5.9500e-003	22.8158
Hotel	5.58069 / 0.620077	11.1865	0.1823	4.3800e-003	17.0492
Research & Development	156.477 / 0	295.9562	5.1099	0.1227	460.2685
Supermarket	5.56926 / 0.172245	10.7089	0.1819	4.3700e-003	16.5578
Total		**711.6650**	**10.6885**	**0.2574**	**1,055.5869**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	50.0383 / 31.5459	126.7609	1.6355	0.0395	179.4307
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	6.68081 / 0	12.6359	0.2182	5.2400e-003	19.6513
General Office Building	94.3233 / 57.8111	237.2635	3.0829	0.0745	336.5407
Health Club	0.91731 / 0.562222	2.3074	0.0300	7.2000e-004	3.2729
High Turnover (Sit Down Restaurant)	7.58834 / 0.484362	14.8456	0.2478	5.9500e-003	22.8158
Hotel	5.58069 / 0.620077	11.1865	0.1823	4.3800e-003	17.0492
Research & Development	156.477 / 0	295.9562	5.1099	0.1227	460.2685
Supermarket	5.56926 / 0.172245	10.7089	0.1819	4.3700e-003	16.5578
Total		**711.6650**	**10.6885**	**0.2574**	**1,055.5869**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	338.5910	20.0102	0.0000	838.8448
Unmitigated	338.5910	20.0102	0.0000	838.8448

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	353.28	71.7127	4.2381	0.0000	177.6651
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	35.82	7.2711	0.4297	0.0000	18.0139
General Office Building	493.55	100.1862	5.9208	0.0000	248.2070
Health Club	88.41	17.9464	1.0606	0.0000	44.4615
High Turnover (Sit Down Restaurant)	297.5	60.3898	3.5689	0.0000	149.6132
Hotel	120.45	24.4503	1.4450	0.0000	60.5745
Research & Development	24.18	4.9083	0.2901	0.0000	12.1602
Supermarket	254.82	51.7262	3.0569	0.0000	128.1494
Total		**338.5910**	**20.0102**	**0.0000**	**838.8448**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	353.28	71.7127	4.2381	0.0000	177.6651
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	35.82	7.2711	0.4297	0.0000	18.0139
General Office Building	493.55	100.1862	5.9208	0.0000	248.2070
Health Club	88.41	17.9464	1.0606	0.0000	44.4615
High Turnover (Sit Down Restaurant)	297.5	60.3898	3.5689	0.0000	149.6132
Hotel	120.45	24.4503	1.4450	0.0000	60.5745
Research & Development	24.18	4.9083	0.2901	0.0000	12.1602
Supermarket	254.82	51.7262	3.0569	0.0000	128.1494
Total		**338.5910**	**20.0102**	**0.0000**	**838.8448**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CALEEMOD OUTPUTS

Potrero Power Station Operational Emissions
Phase 1, 2, 3 and 4 (2031)

PPP P1 P2 P3 P4 - 2031

San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	755.92	1000sqft	17.35	755,920.00	0
Research & Development	318.24	1000sqft	7.31	318,240.00	0
General Light Industry	45.04	1000sqft	1.03	45,040.00	0
Enclosed Parking with Elevator	660.50	1000sqft	15.16	660,500.00	0
Health Club	15.51	1000sqft	0.36	15,508.00	0
High Turnover (Sit Down Restaurant)	25.00	1000sqft	0.57	25,000.00	0
Hotel	220.00	Room	7.33	241,574.00	0
Condo/Townhouse High Rise	1,410.00	Dwelling Unit	22.03	1,410,000.00	4033
Supermarket	105.04	1000sqft	2.41	105,039.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 4.6 **Precipitation Freq (Days)** 64

Climate Zone 5 **Operational Year** 2031

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 641.35 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use based on project information

Off-road Equipment -

Vehicle Trips - Trip rates based on project specific information

Road Dust - Composite silt loading based on project specific information

Woodstoves - All NG fireplaces

Consumer Products - Derived based on on ARB inventory

Energy Use -

Water And Wastewater -

Solid Waste -

Table Name	Column Name	Default Value	New Value
tblConsumerProducts	ROG_EF	2.14E-05	1.52E-05
tblFireplaces	NumberGas	211.50	451.20
tblFireplaces	NumberWood	239.70	0.00
tblLandUse	LandUseSquareFeet	15,510.00	15,508.00
tblLandUse	LandUseSquareFeet	319,440.00	241,574.00
tblLandUse	LandUseSquareFeet	105,040.00	105,039.00
tblRoadDust	RoadSiltLoading	0.1	0.041
tblVehicleTrips	ST_TR	4.31	2.19
tblVehicleTrips	ST_TR	1.32	0.84
tblVehicleTrips	ST_TR	2.46	0.99
tblVehicleTrips	ST_TR	20.87	7.53
tblVehicleTrips	ST_TR	158.37	274.72
tblVehicleTrips	ST_TR	8.19	1.15
tblVehicleTrips	ST_TR	1.90	0.46
tblVehicleTrips	ST_TR	177.59	46.37

tblVehicleTrips	SU_TR	3.43	1.74
tblVehicleTrips	SU_TR	0.68	0.43
tblVehicleTrips	SU_TR	1.05	0.42
tblVehicleTrips	SU_TR	26.73	9.64
tblVehicleTrips	SU_TR	131.84	228.70
tblVehicleTrips	SU_TR	5.95	0.83
tblVehicleTrips	SU_TR	1.11	0.27
tblVehicleTrips	SU_TR	166.44	43.46
tblVehicleTrips	WD_TR	4.18	2.12
tblVehicleTrips	WD_TR	6.97	4.44
tblVehicleTrips	WD_TR	11.03	4.45
tblVehicleTrips	WD_TR	32.93	11.88
tblVehicleTrips	WD_TR	127.15	220.56
tblVehicleTrips	WD_TR	8.17	1.15
tblVehicleTrips	WD_TR	8.11	1.97
tblVehicleTrips	WD_TR	102.24	26.69

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	10.3550	0.1856	11.4888	4.1500e-003		0.2263	0.2263		0.2263	0.2263	21.9914	73.4674	95.4588	0.1203	1.0300e-003	98.7735
Energy	0.2870	2.5728	1.9261	0.0157		0.1983	0.1983		0.1983	0.1983	0.0000	11,309.1745	11,309.1745	0.4374	0.1313	11,359.2365
Mobile	2.0970	9.1856	21.1056	0.0884	5.0824	0.0704	5.1528	1.4738	0.0656	1.5393	0.0000	8,202.3050	8,202.3050	0.3283	0.0000	8,210.5118
Waste						0.0000	0.0000		0.0000	0.0000	513.6544	0.0000	513.6544	30.3561	0.0000	1,272.5571
Water						0.0000	0.0000		0.0000	0.0000	133.2930	806.2789	939.5720	13.7269	0.3308	1,381.3250
Total	**12.7390**	**11.9440**	**34.5205**	**0.1082**	**5.0824**	**0.4950**	**5.5774**	**1.4738**	**0.4902**	**1.9639**	**668.9388**	**20,391.2258**	**21,060.1647**	**44.9690**	**0.4631**	**22,322.4039**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	10.3550	0.1856	11.4888	4.1500e-003		0.2263	0.2263		0.2263	0.2263	21.9914	73.4674	95.4588	0.1203	1.0300e-003	98.7735
Energy	0.2870	2.5728	1.9261	0.0157		0.1983	0.1983		0.1983	0.1983	0.0000	11,309.1745	11,309.1745	0.4374	0.1313	11,359.2365
Mobile	2.0970	9.1856	21.1056	0.0884	5.0824	0.0704	5.1528	1.4738	0.0656	1.5393	0.0000	8,202.3050	8,202.3050	0.3283	0.0000	8,210.5118
Waste						0.0000	0.0000		0.0000	0.0000	513.6544	0.0000	513.6544	30.3561	0.0000	1,272.5571
Water						0.0000	0.0000		0.0000	0.0000	133.2930	806.2789	939.5720	13.7269	0.3308	1,381.3250
Total	**12.7390**	**11.9440**	**34.5205**	**0.1082**	**5.0824**	**0.4950**	**5.5774**	**1.4738**	**0.4902**	**1.9639**	**668.9388**	**20,391.2258**	**21,060.1647**	**44.9690**	**0.4631**	**22,322.4039**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Construction emissions were calculated outside CalEEMod using CalEEMod equivalent method.

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.0970	9.1856	21.1056	0.0884	5.0824	0.0704	5.1528	1.4738	0.0656	1.5393	0.0000	8,202.305 0	8,202.305 0	0.3283	0.0000	8,210.511 8
Unmitigated	2.0970	9.1856	21.1056	0.0884	5.0824	0.0704	5.1528	1.4738	0.0656	1.5393	0.0000	8,202.305 0	8,202.305 0	0.3283	0.0000	8,210.511 8

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse High Rise	2,989.20	3,087.90	2453.40	6,759,660	6,759,660
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Light Industry	199.98	37.83	19.37	440,883	440,883
General Office Building	3,363.84	748.36	317.49	6,105,841	6,105,841
Health Club	184.26	116.79	149.52	293,111	293,111
High Turnover (Sit Down Restaurant)	5,514.00	6,868.00	5717.50	6,655,858	6,655,858
Hotel	253.00	253.00	182.60	461,575	461,575
Research & Development	626.93	146.39	85.92	1,205,498	1,205,498
Supermarket	2,803.52	4,870.70	4565.04	3,810,977	3,810,977
Total	15,934.73	16,128.98	13,490.83	25,733,402	25,733,402

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Research & Development	9.50	7.30	7.30	33.00	48.00	19.00	82	15	3
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse High Rise	0.601973	0.036168	0.193150	0.092307	0.012222	0.005292	0.035273	0.009746	0.004298	0.002300	0.005708	0.000958	0.000606
Enclosed Parking with Elevator	0.601973	0.036168	0.193150	0.092307	0.012222	0.005292	0.035273	0.009746	0.004298	0.002300	0.005708	0.000958	0.000606
General Light Industry	0.601973	0.036168	0.193150	0.092307	0.012222	0.005292	0.035273	0.009746	0.004298	0.002300	0.005708	0.000958	0.000606
General Office Building	0.601973	0.036168	0.193150	0.092307	0.012222	0.005292	0.035273	0.009746	0.004298	0.002300	0.005708	0.000958	0.000606
Health Club	0.601973	0.036168	0.193150	0.092307	0.012222	0.005292	0.035273	0.009746	0.004298	0.002300	0.005708	0.000958	0.000606
High Turnover (Sit Down Restaurant)	0.601973	0.036168	0.193150	0.092307	0.012222	0.005292	0.035273	0.009746	0.004298	0.002300	0.005708	0.000958	0.000606
Hotel	0.601973	0.036168	0.193150	0.092307	0.012222	0.005292	0.035273	0.009746	0.004298	0.002300	0.005708	0.000958	0.000606
Research & Development	0.601973	0.036168	0.193150	0.092307	0.012222	0.005292	0.035273	0.009746	0.004298	0.002300	0.005708	0.000958	0.000606
Supermarket	0.601973	0.036168	0.193150	0.092307	0.012222	0.005292	0.035273	0.009746	0.004298	0.002300	0.005708	0.000958	0.000606

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	8,468.925 2	8,468.925 2	0.3829	0.0792	8,502.109 0
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	8,468.925 2	8,468.925 2	0.3829	0.0792	8,502.109 0
NaturalGas Mitigated	0.2870	2.5728	1.9261	0.0157		0.1983	0.1983		0.1983	0.1983	0.0000	2,840.249 3	2,840.249 3	0.0544	0.0521	2,857.127 5
NaturalGas Unmitigated	0.2870	2.5728	1.9261	0.0157		0.1983	0.1983		0.1983	0.1983	0.0000	2,840.249 3	2,840.249 3	0.0544	0.0521	2,857.127 5

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	1.23099e+007	0.0664	0.5672	0.2414	3.6200e-003		0.0459	0.0459		0.0459	0.0459	0.0000	656.9035	656.9035	0.0126	0.0120	660.8071
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	1.11474e+006	6.0100e-003	0.0546	0.0459	3.3000e-004		4.1500e-003	4.1500e-003		4.1500e-003	4.1500e-003	0.0000	59.4868	59.4868	1.1400e-003	1.0900e-003	59.8403
General Office Building	1.46119e+007	0.0788	0.7163	0.6017	4.3000e-003		0.0544	0.0544		0.0544	0.0544	0.0000	779.7484	779.7484	0.0150	0.0143	784.3821
Health Club	383823	2.0700e-003	0.0188	0.0158	1.1000e-004		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003	0.0000	20.4823	20.4823	3.9000e-004	3.8000e-004	20.6040
High Turnover (Sit Down Restaurant)	4.198e+006	0.0226	0.2058	0.1729	1.2300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	224.0213	224.0213	4.2900e-003	4.1100e-003	225.3525
Hotel	8.81987e+006	0.0476	0.4324	0.3632	2.5900e-003		0.0329	0.0329		0.0329	0.0329	0.0000	470.6617	470.6617	9.0200e-003	8.6300e-003	473.4586
Research & Development	7.87644e+006	0.0425	0.3861	0.3243	2.3200e-003		0.0293	0.0293		0.0293	0.0293	0.0000	420.3168	420.3168	8.0600e-003	7.7100e-003	422.8146
Supermarket	3.90955e+006	0.0211	0.1916	0.1610	1.1500e-003		0.0146	0.0146		0.0146	0.0146	0.0000	208.6286	208.6286	4.0000e-003	3.8200e-003	209.8683
Total		**0.2870**	**2.5728**	**1.9261**	**0.0157**		**0.1983**	**0.1983**		**0.1983**	**0.1983**	**0.0000**	**2,840.2493**	**2,840.2493**	**0.0544**	**0.0521**	**2,857.1275**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	1.23099e+007	0.0664	0.5672	0.2414	3.6200e-003		0.0459	0.0459		0.0459	0.0459	0.0000	656.9035	656.9035	0.0126	0.0120	660.8071
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	1.11474e+006	6.0100e-003	0.0546	0.0459	3.3000e-004		4.1500e-003	4.1500e-003		4.1500e-003	4.1500e-003	0.0000	59.4868	59.4868	1.1400e-003	1.0900e-003	59.8403
General Office Building	1.46119e+007	0.0788	0.7163	0.6017	4.3000e-003		0.0544	0.0544		0.0544	0.0544	0.0000	779.7484	779.7484	0.0150	0.0143	784.3821
Health Club	383823	2.0700e-003	0.0188	0.0158	1.1000e-004		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003	0.0000	20.4823	20.4823	3.9000e-004	3.8000e-004	20.6040
High Turnover (Sit Down Restaurant)	4.198e+006	0.0226	0.2058	0.1729	1.2300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	224.0213	224.0213	4.2900e-003	4.1100e-003	225.3525
Hotel	8.81987e+006	0.0476	0.4324	0.3632	2.5900e-003		0.0329	0.0329		0.0329	0.0329	0.0000	470.6617	470.6617	9.0200e-003	8.6300e-003	473.4586
Research & Development	7.87644e+006	0.0425	0.3861	0.3243	2.3200e-003		0.0293	0.0293		0.0293	0.0293	0.0000	420.3168	420.3168	8.0600e-003	7.7100e-003	422.8146
Supermarket	3.90955e+006	0.0211	0.1916	0.1610	1.1500e-003		0.0146	0.0146		0.0146	0.0146	0.0000	208.6286	208.6286	4.0000e-003	3.8200e-003	209.8683
Total		**0.2870**	**2.5728**	**1.9261**	**0.0157**		**0.1983**	**0.1983**		**0.1983**	**0.1983**	**0.0000**	**2,840.2493**	**2,840.2493**	**0.0544**	**0.0521**	**2,857.1275**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	6.31913e+006	1,838.3064	0.0831	0.0172	1,845.5094
Enclosed Parking with Elevator	3.87053e+006	1,125.9816	0.0509	0.0105	1,130.3935
General Light Industry	340502	99.0561	4.4800e-003	9.3000e-004	99.4442
General Office Building	9.43388e+006	2,744.4243	0.1241	0.0257	2,755.1778
Health Club	117240	34.1066	1.5400e-003	3.2000e-004	34.2402
High Turnover (Sit Down Restaurant)	724500	210.7654	9.5300e-003	1.9700e-003	211.5912
Hotel	1.97366e+006	574.1602	0.0260	5.3700e-003	576.4099
Research & Development	2.40589e+006	699.9023	0.0317	6.5500e-003	702.6447
Supermarket	3.92636e+006	1,142.2225	0.0517	0.0107	1,146.6981
Total		**8,468.9252**	**0.3829**	**0.0792**	**8,502.1090**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	6.31913e+006	1,838.3064	0.0831	0.0172	1,845.5094
Enclosed Parking with Elevator	3.87053e+006	1,125.9816	0.0509	0.0105	1,130.3935
General Light Industry	340502	99.0561	4.4800e-003	9.3000e-004	99.4442
General Office Building	9.43388e+006	2,744.4243	0.1241	0.0257	2,755.1778
Health Club	117240	34.1066	1.5400e-003	3.2000e-004	34.2402
High Turnover (Sit Down Restaurant)	724500	210.7654	9.5300e-003	1.9700e-003	211.5912
Hotel	1.97366e+006	574.1602	0.0260	5.3700e-003	576.4099
Research & Development	2.40589e+006	699.9023	0.0317	6.5500e-003	702.6447
Supermarket	3.92636e+006	1,142.2225	0.0517	0.0107	1,146.6981
Total		**8,468.9252**	**0.3829**	**0.0792**	**8,502.1090**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	10.3550	0.1856	11.4888	4.1500e-003		0.2263	0.2263		0.2263	0.2263	21.9914	73.4674	95.4588	0.1203	1.0300e-003	98.7735
Unmitigated	10.3550	0.1856	11.4888	4.1500e-003		0.2263	0.2263		0.2263	0.2263	21.9914	73.4674	95.4588	0.1203	1.0300e-003	98.7735

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.7918					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.1326					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1166	0.0651	1.0275	3.6000e-003		0.1682	0.1682		0.1682	0.1682	21.9914	56.3275	78.3189	0.1039	1.0300e-003	81.2237
Landscaping	0.3141	0.1206	10.4614	5.5000e-004		0.0581	0.0581		0.0581	0.0581	0.0000	17.1399	17.1399	0.0164	0.0000	17.5497
Total	**10.3550**	**0.1856**	**11.4888**	**4.1500e-003**		**0.2263**	**0.2263**		**0.2263**	**0.2263**	**21.9914**	**73.4674**	**95.4588**	**0.1203**	**1.0300e-003**	**98.7735**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.7918					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.1326					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1166	0.0651	1.0275	3.6000e-003		0.1682	0.1682		0.1682	0.1682	21.9914	56.3275	78.3189	0.1039	1.0300e-003	81.2237
Landscaping	0.3141	0.1206	10.4614	5.5000e-004		0.0581	0.0581		0.0581	0.0581	0.0000	17.1399	17.1399	0.0164	0.0000	17.5497
Total	**10.3550**	**0.1856**	**11.4888**	**4.1500e-003**		**0.2263**	**0.2263**		**0.2263**	**0.2263**	**21.9914**	**73.4674**	**95.4588**	**0.1203**	**1.0300e-003**	**98.7735**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	939.5720	13.7269	0.3308	1,381.325 0
Unmitigated	939.5720	13.7269	0.3308	1,381.325 0

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	91.8672 / 57.9163	232.7251	3.0027	0.0726	329.4236
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	10.4155 / 0	19.6996	0.3401	8.1700e-003	30.6367
General Office Building	134.352 / 82.3451	337.9540	4.3912	0.1061	479.3628
Health Club	0.91731 / 0.562222	2.3074	0.0300	7.2000e-004	3.2729
High Turnover (Sit Down Restaurant)	7.58834 / 0.484362	14.8456	0.2478	5.9500e-003	22.8158
Hotel	5.58069 / 0.620077	11.1865	0.1823	4.3800e-003	17.0492
Research & Development	156.477 / 0	295.9562	5.1099	0.1227	460.2685
Supermarket	12.9481 / 0.400456	24.8975	0.4229	0.0102	38.4955
Total		**939.5720**	**13.7269**	**0.3308**	**1,381.3250**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	91.8672 / 57.9163	232.7251	3.0027	0.0726	329.4236
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	10.4155 / 0	19.6996	0.3401	8.1700e-003	30.6367
General Office Building	134.352 / 82.3451	337.9540	4.3912	0.1061	479.3628
Health Club	0.91731 / 0.562222	2.3074	0.0300	7.2000e-004	3.2729
High Turnover (Sit Down Restaurant)	7.58834 / 0.484362	14.8456	0.2478	5.9500e-003	22.8158
Hotel	5.58069 / 0.620077	11.1865	0.1823	4.3800e-003	17.0492
Research & Development	156.477 / 0	295.9562	5.1099	0.1227	460.2685
Supermarket	12.9481 / 0.400456	24.8975	0.4229	0.0102	38.4955
Total		**939.5720**	**13.7269**	**0.3308**	**1,381.3250**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	513.6544	30.3561	0.0000	1,272.557 1
Unmitigated	513.6544	30.3561	0.0000	1,272.557 1

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	648.6	131.6599	7.7809	0.0000	326.1819
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	55.85	11.3371	0.6700	0.0000	28.0871
General Office Building	703.01	142.7047	8.4336	0.0000	353.5448
Health Club	88.41	17.9464	1.0606	0.0000	44.4615
High Turnover (Sit Down Restaurant)	297.5	60.3898	3.5689	0.0000	149.6132
Hotel	120.45	24.4503	1.4450	0.0000	60.5745
Research & Development	24.18	4.9083	0.2901	0.0000	12.1602
Supermarket	592.43	120.2579	7.1070	0.0000	297.9340
Total		**513.6544**	**30.3561**	**0.0000**	**1,272.5571**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	648.6	131.6599	7.7809	0.0000	326.1819
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	55.85	11.3371	0.6700	0.0000	28.0871
General Office Building	703.01	142.7047	8.4336	0.0000	353.5448
Health Club	88.41	17.9464	1.0606	0.0000	44.4615
High Turnover (Sit Down Restaurant)	297.5	60.3898	3.5689	0.0000	149.6132
Hotel	120.45	24.4503	1.4450	0.0000	60.5745
Research & Development	24.18	4.9083	0.2901	0.0000	12.1602
Supermarket	592.43	120.2579	7.1070	0.0000	297.9340
Total		**513.6544**	**30.3561**	**0.0000**	**1,272.5571**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CALEEMOD OUTPUTS

Potrero Power Station Operational Emissions
Phase 1, 2, 3, 4 and 5 (2032)

PPP P1 P2 P3 P4 P5 - 2032

San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	814.24	1000sqft	18.69	814,240.00	0
Research & Development	645.74	1000sqft	14.82	645,738.00	0
General Light Industry	45.04	1000sqft	1.03	45,040.00	0
Enclosed Parking with Elevator	755.16	1000sqft	17.34	755,160.00	0
Health Club	50.14	1000sqft	1.15	50,143.00	0
High Turnover (Sit Down Restaurant)	25.00	1000sqft	0.57	25,000.00	0
Hotel	220.00	Room	7.33	241,574.00	0
Condo/Townhouse High Rise	1,796.00	Dwelling Unit	28.06	1,796,000.00	5137
Supermarket	107.44	1000sqft	2.47	107,440.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	4.6	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2032
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use based on project information

Off-road Equipment -

Vehicle Trips - Trip rates based on project specific information

Road Dust - Composite silt loading based on project specific information

Woodstoves - All NG fireplaces

Consumer Products - Derived based on on ARB inventory

Energy Use -

Water And Wastewater -

Solid Waste -

Table Name	Column Name	Default Value	New Value
tblConsumerProducts	ROG_EF	2.14E-05	1.52E-05
tblFireplaces	NumberGas	269.40	574.72
tblFireplaces	NumberWood	305.32	0.00
tblLandUse	LandUseSquareFeet	645,740.00	645,738.00
tblLandUse	LandUseSquareFeet	50,140.00	50,143.00
tblLandUse	LandUseSquareFeet	319,440.00	241,574.00
tblRoadDust	RoadSiltLoading	0.1	0.041
tblVehicleTrips	ST_TR	4.31	2.19
tblVehicleTrips	ST_TR	1.32	0.84
tblVehicleTrips	ST_TR	2.46	0.99
tblVehicleTrips	ST_TR	20.87	7.53
tblVehicleTrips	ST_TR	158.37	274.72
tblVehicleTrips	ST_TR	8.19	1.15
tblVehicleTrips	ST_TR	1.90	0.46
tblVehicleTrips	ST_TR	177.59	46.37

tblVehicleTrips	SU_TR	3.43	1.74
tblVehicleTrips	SU_TR	0.68	0.43
tblVehicleTrips	SU_TR	1.05	0.42
tblVehicleTrips	SU_TR	26.73	9.64
tblVehicleTrips	SU_TR	131.84	228.70
tblVehicleTrips	SU_TR	5.95	0.83
tblVehicleTrips	SU_TR	1.11	0.27
tblVehicleTrips	SU_TR	166.44	43.46
tblVehicleTrips	WD_TR	4.18	2.12
tblVehicleTrips	WD_TR	6.97	4.44
tblVehicleTrips	WD_TR	11.03	4.45
tblVehicleTrips	WD_TR	32.93	11.88
tblVehicleTrips	WD_TR	127.15	220.56
tblVehicleTrips	WD_TR	8.17	1.15
tblVehicleTrips	WD_TR	8.11	1.97
tblVehicleTrips	WD_TR	102.24	26.69

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	13.2169	0.2364	14.6334	5.2900e-003		0.2883	0.2883		0.2883	0.2883	28.0117	93.5785	121.5903	0.1532	1.3200e-003	125.8123
Energy	0.3601	3.2271	2.4113	0.0196		0.2488	0.2488		0.2488	0.2488	0.0000	13,731.1271	13,731.1271	0.5281	0.1605	13,792.1426
Mobile	2.2938	10.3521	23.5190	0.1016	5.9319	0.0766	6.0085	1.7200	0.0714	1.7914	0.0000	9,428.4002	9,428.4002	0.3746	0.0000	9,437.7643
Waste						0.0000	0.0000		0.0000	0.0000	608.5730	0.0000	608.5730	35.9656	0.0000	1,507.7138
Water						0.0000	0.0000		0.0000	0.0000	196.3912	1,143.2534	1,339.6446	20.2230	0.4870	1,990.3393
Total	**15.8707**	**13.8157**	**40.5636**	**0.1265**	**5.9319**	**0.6137**	**6.5455**	**1.7200**	**0.6084**	**2.3284**	**832.9759**	**24,396.3592**	**25,229.3351**	**57.2444**	**0.6488**	**26,853.7723**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	13.2169	0.2364	14.6334	5.2900e-003		0.2883	0.2883		0.2883	0.2883	28.0117	93.5785	121.5903	0.1532	1.3200e-003	125.8123
Energy	0.3601	3.2271	2.4113	0.0196		0.2488	0.2488		0.2488	0.2488	0.0000	13,731.1271	13,731.1271	0.5281	0.1605	13,792.1426
Mobile	2.2938	10.3521	23.5190	0.1016	5.9319	0.0766	6.0085	1.7200	0.0714	1.7914	0.0000	9,428.4002	9,428.4002	0.3746	0.0000	9,437.7643
Waste						0.0000	0.0000		0.0000	0.0000	608.5730	0.0000	608.5730	35.9656	0.0000	1,507.7138
Water						0.0000	0.0000		0.0000	0.0000	196.3912	1,143.2534	1,339.6446	20.2230	0.4870	1,990.3393
Total	**15.8707**	**13.8157**	**40.5636**	**0.1265**	**5.9319**	**0.6137**	**6.5455**	**1.7200**	**0.6084**	**2.3284**	**832.9759**	**24,396.3592**	**25,229.3351**	**57.2444**	**0.6488**	**26,853.7723**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Construction emissions were calculated outside CalEEMod using CalEEMod equivalent method.

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.2938	10.3521	23.5190	0.1016	5.9319	0.0766	6.0085	1.7200	0.0714	1.7914	0.0000	9,428.4002	9,428.4002	0.3746	0.0000	9,437.7643
Unmitigated	2.2938	10.3521	23.5190	0.1016	5.9319	0.0766	6.0085	1.7200	0.0714	1.7914	0.0000	9,428.4002	9,428.4002	0.3746	0.0000	9,437.7643

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse High Rise	3,807.52	3,933.24	3125.04	8,610,176	8,610,176
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Light Industry	199.98	37.83	19.37	440,883	440,883
General Office Building	3,623.37	806.10	341.98	6,576,913	6,576,913
Health Club	595.66	377.55	483.35	947,556	947,556
High Turnover (Sit Down Restaurant)	5,514.00	6,868.00	5717.50	6,655,858	6,655,858
Hotel	253.00	253.00	182.60	461,575	461,575
Research & Development	1,272.11	297.04	174.35	2,446,072	2,446,072
Supermarket	2,867.57	4,981.99	4669.34	3,898,052	3,898,052
Total	18,133.21	17,554.76	14,713.53	30,037,085	30,037,085

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Hotel	9.50	7.30	7.30	19.40	61.60	19.00	58	38	4
Research & Development	9.50	7.30	7.30	33.00	48.00	19.00	82	15	3
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse High Rise	0.601538	0.036054	0.193096	0.092568	0.012113	0.005314	0.035718	0.009816	0.004313	0.002228	0.005671	0.000957	0.000615
Enclosed Parking with Elevator	0.601538	0.036054	0.193096	0.092568	0.012113	0.005314	0.035718	0.009816	0.004313	0.002228	0.005671	0.000957	0.000615
General Light Industry	0.601538	0.036054	0.193096	0.092568	0.012113	0.005314	0.035718	0.009816	0.004313	0.002228	0.005671	0.000957	0.000615
General Office Building	0.601538	0.036054	0.193096	0.092568	0.012113	0.005314	0.035718	0.009816	0.004313	0.002228	0.005671	0.000957	0.000615
Health Club	0.601538	0.036054	0.193096	0.092568	0.012113	0.005314	0.035718	0.009816	0.004313	0.002228	0.005671	0.000957	0.000615
High Turnover (Sit Down Restaurant)	0.601538	0.036054	0.193096	0.092568	0.012113	0.005314	0.035718	0.009816	0.004313	0.002228	0.005671	0.000957	0.000615
Hotel	0.601538	0.036054	0.193096	0.092568	0.012113	0.005314	0.035718	0.009816	0.004313	0.002228	0.005671	0.000957	0.000615
Research & Development	0.601538	0.036054	0.193096	0.092568	0.012113	0.005314	0.035718	0.009816	0.004313	0.002228	0.005671	0.000957	0.000615
Supermarket	0.601538	0.036054	0.193096	0.092568	0.012113	0.005314	0.035718	0.009816	0.004313	0.002228	0.005671	0.000957	0.000615

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	10,167.82 87	10,167.82 87	0.4598	0.0951	10,207.66 93
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	10,167.82 87	10,167.82 87	0.4598	0.0951	10,207.66 93
NaturalGas Mitigated	0.3601	3.2271	2.4113	0.0196		0.2488	0.2488		0.2488	0.2488	0.0000	3,563.298 4	3,563.298 4	0.0683	0.0653	3,584.473 3
NaturalGas Unmitigated	0.3601	3.2271	2.4113	0.0196		0.2488	0.2488		0.2488	0.2488	0.0000	3,563.298 4	3,563.298 4	0.0683	0.0653	3,584.473 3

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	1.56799e+007	0.0846	0.7225	0.3075	4.6100e-003		0.0584	0.0584		0.0584	0.0584	0.0000	836.7366	836.7366	0.0160	0.0153	841.7089
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	1.11474e+006	6.0100e-003	0.0546	0.0459	3.3000e-004		4.1500e-003	4.1500e-003		4.1500e-003	4.1500e-003	0.0000	59.4868	59.4868	1.1400e-003	1.0900e-003	59.8403
General Office Building	1.57393e+007	0.0849	0.7715	0.6481	4.6300e-003		0.0586	0.0586		0.0586	0.0586	0.0000	839.9068	839.9068	0.0161	0.0154	844.8980
Health Club	1.24104e+006	6.6900e-003	0.0608	0.0511	3.7000e-004		4.6200e-003	4.6200e-003		4.6200e-003	4.6200e-003	0.0000	66.2266	66.2266	1.2700e-003	1.2100e-003	66.6201
High Turnover (Sit Down Restaurant)	4.198e+006	0.0226	0.2058	0.1729	1.2300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	224.0213	224.0213	4.2900e-003	4.1100e-003	225.3525
Hotel	8.81987e+006	0.0476	0.4324	0.3632	2.5900e-003		0.0329	0.0329		0.0329	0.0329	0.0000	470.6617	470.6617	9.0200e-003	8.6300e-003	473.4586
Research & Development	1.5982e+007	0.0862	0.7834	0.6581	4.7000e-003		0.0595	0.0595		0.0595	0.0595	0.0000	852.8612	852.8612	0.0164	0.0156	857.9293
Supermarket	3.99892e+006	0.0216	0.1960	0.1647	1.1800e-003		0.0149	0.0149		0.0149	0.0149	0.0000	213.3974	213.3974	4.0900e-003	3.9100e-003	214.6655
Total		**0.3601**	**3.2271**	**2.4113**	**0.0196**		**0.2488**	**0.2488**		**0.2488**	**0.2488**	**0.0000**	**3,563.2984**	**3,563.2984**	**0.0683**	**0.0653**	**3,584.4733**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	1.56799e+007	0.0846	0.7225	0.3075	4.6100e-003		0.0584	0.0584		0.0584	0.0584	0.0000	836.7366	836.7366	0.0160	0.0153	841.7089
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	1.11474e+006	6.0100e-003	0.0546	0.0459	3.3000e-004		4.1500e-003	4.1500e-003		4.1500e-003	4.1500e-003	0.0000	59.4868	59.4868	1.1400e-003	1.0900e-003	59.8403
General Office Building	1.57393e+007	0.0849	0.7715	0.6481	4.6300e-003		0.0586	0.0586		0.0586	0.0586	0.0000	839.9068	839.9068	0.0161	0.0154	844.8980
Health Club	1.24104e+006	6.6900e-003	0.0608	0.0511	3.7000e-004		4.6200e-003	4.6200e-003		4.6200e-003	4.6200e-003	0.0000	66.2266	66.2266	1.2700e-003	1.2100e-003	66.6201
High Turnover (Sit Down Restaurant)	4.198e+006	0.0226	0.2058	0.1729	1.2300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	224.0213	224.0213	4.2900e-003	4.1100e-003	225.3525
Hotel	8.81987e+006	0.0476	0.4324	0.3632	2.5900e-003		0.0329	0.0329		0.0329	0.0329	0.0000	470.6617	470.6617	9.0200e-003	8.6300e-003	473.4586
Research & Development	1.5982e+007	0.0862	0.7834	0.6581	4.7000e-003		0.0595	0.0595		0.0595	0.0595	0.0000	852.8612	852.8612	0.0164	0.0156	857.9293
Supermarket	3.99892e+006	0.0216	0.1960	0.1647	1.1800e-003		0.0149	0.0149		0.0149	0.0149	0.0000	213.3974	213.3974	4.0900e-003	3.9100e-003	214.6655
Total		**0.3601**	**3.2271**	**2.4113**	**0.0196**		**0.2488**	**0.2488**		**0.2488**	**0.2488**	**0.0000**	**3,563.2984**	**3,563.2984**	**0.0683**	**0.0653**	**3,584.4733**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	8.04904e+006	2,341.5590	0.1059	0.0219	2,350.7339
Enclosed Parking with Elevator	4.42524e+006	1,287.3524	0.0582	0.0120	1,292.3966
General Light Industry	340502	99.0561	4.4800e-003	9.3000e-004	99.4442
General Office Building	1.01617e+007	2,956.1595	0.1337	0.0277	2,967.7426
Health Club	379081	110.2790	4.9900e-003	1.0300e-003	110.7111
High Turnover (Sit Down Restaurant)	724500	210.7654	9.5300e-003	1.9700e-003	211.5912
Hotel	1.97366e+006	574.1602	0.0260	5.3700e-003	576.4099
Research & Development	4.88178e+006	1,420.1656	0.0642	0.0133	1,425.7302
Supermarket	4.01611e+006	1,168.3316	0.0528	0.0109	1,172.9095
Total		**10,167.8287**	**0.4598**	**0.0951**	**10,207.6693**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	8.04904e+006	2,341.5590	0.1059	0.0219	2,350.7339
Enclosed Parking with Elevator	4.42524e+006	1,287.3524	0.0582	0.0120	1,292.3966
General Light Industry	340502	99.0561	4.4800e-003	9.3000e-004	99.4442
General Office Building	1.01617e+007	2,956.1595	0.1337	0.0277	2,967.7426
Health Club	379081	110.2790	4.9900e-003	1.0300e-003	110.7111
High Turnover (Sit Down Restaurant)	724500	210.7654	9.5300e-003	1.9700e-003	211.5912
Hotel	1.97366e+006	574.1602	0.0260	5.3700e-003	576.4099
Research & Development	4.88178e+006	1,420.1656	0.0642	0.0133	1,425.7302
Supermarket	4.01611e+006	1,168.3316	0.0528	0.0109	1,172.9095
Total		**10,167.8287**	**0.4598**	**0.0951**	**10,207.6693**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	13.2169	0.2364	14.6334	5.2900e-003		0.2883	0.2883		0.2883	0.2883	28.0117	93.5785	121.5903	0.1532	1.3200e-003	125.8123
Unmitigated	13.2169	0.2364	14.6334	5.2900e-003		0.2883	0.2883		0.2883	0.2883	28.0117	93.5785	121.5903	0.1532	1.3200e-003	125.8123

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.2860					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	10.3825					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1485	0.0829	1.3088	4.5800e-003		0.2142	0.2142		0.2142	0.2142	28.0117	71.7476	99.7594	0.1323	1.3200e-003	103.4595
Landscaping	0.4001	0.1536	13.3246	7.1000e-004		0.0740	0.0740		0.0740	0.0740	0.0000	21.8309	21.8309	0.0209	0.0000	22.3528
Total	**13.2169**	**0.2364**	**14.6334**	**5.2900e-003**		**0.2883**	**0.2883**		**0.2883**	**0.2883**	**28.0117**	**93.5785**	**121.5903**	**0.1532**	**1.3200e-003**	**125.8123**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.2860					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	10.3825					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1485	0.0829	1.3088	4.5800e-003		0.2142	0.2142		0.2142	0.2142	28.0117	71.7476	99.7594	0.1323	1.3200e-003	103.4595
Landscaping	0.4001	0.1536	13.3246	7.1000e-004		0.0740	0.0740		0.0740	0.0740	0.0000	21.8309	21.8309	0.0209	0.0000	22.3528
Total	**13.2169**	**0.2364**	**14.6334**	**5.2900e-003**		**0.2883**	**0.2883**		**0.2883**	**0.2883**	**28.0117**	**93.5785**	**121.5903**	**0.1532**	**1.3200e-003**	**125.8123**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,339.6446	20.2230	0.4870	1,990.3393
Unmitigated	1,339.6446	20.2230	0.4870	1,990.3393

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	117.017 / 73.7714	296.4357	3.8247	0.0925	419.6063
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	10.4155 / 0	19.6996	0.3401	8.1700e-003	30.6367
General Office Building	144.718 / 88.6981	364.0275	4.7300	0.1143	516.3461
Health Club	2.96544 / 1.81753	7.4593	0.0969	2.3400e-003	10.5805
High Turnover (Sit Down Restaurant)	7.58834 / 0.484362	14.8456	0.2478	5.9500e-003	22.8158
Hotel	5.58069 / 0.620077	11.1865	0.1823	4.3800e-003	17.0492
Research & Development	317.506 / 0	600.5240	10.3686	0.2490	933.9297
Supermarket	13.2439 / 0.409606	25.4663	0.4325	0.0104	39.3751
Total		**1,339.6446**	**20.2230**	**0.4870**	**1,990.3393**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	117.017 / 73.7714	296.4357	3.8247	0.0925	419.6063
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	10.4155 / 0	19.6996	0.3401	8.1700e-003	30.6367
General Office Building	144.718 / 88.6981	364.0275	4.7300	0.1143	516.3461
Health Club	2.96544 / 1.81753	7.4593	0.0969	2.3400e-003	10.5805
High Turnover (Sit Down Restaurant)	7.58834 / 0.484362	14.8456	0.2478	5.9500e-003	22.8158
Hotel	5.58069 / 0.620077	11.1865	0.1823	4.3800e-003	17.0492
Research & Development	317.506 / 0	600.5240	10.3686	0.2490	933.9297
Supermarket	13.2439 / 0.409606	25.4663	0.4325	0.0104	39.3751
Total		**1,339.6446**	**20.2230**	**0.4870**	**1,990.3393**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	608.5730	35.9656	0.0000	1,507.7138
Unmitigated	608.5730	35.9656	0.0000	1,507.7138

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	826.16	167.7030	9.9110	0.0000	415.4771
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	55.85	11.3371	0.6700	0.0000	28.0871
General Office Building	757.24	153.7129	9.0842	0.0000	380.8172
Health Club	285.8	58.0148	3.4286	0.0000	143.7293
High Turnover (Sit Down Restaurant)	297.5	60.3898	3.5689	0.0000	149.6132
Hotel	120.45	24.4503	1.4450	0.0000	60.5745
Research & Development	49.07	9.9608	0.5887	0.0000	24.6774
Supermarket	605.96	123.0044	7.2694	0.0000	304.7382
Total		**608.5730**	**35.9656**	**0.0000**	**1,507.7138**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse High Rise	826.16	167.7030	9.9110	0.0000	415.4771
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	55.85	11.3371	0.6700	0.0000	28.0871
General Office Building	757.24	153.7129	9.0842	0.0000	380.8172
Health Club	285.8	58.0148	3.4286	0.0000	143.7293
High Turnover (Sit Down Restaurant)	297.5	60.3898	3.5689	0.0000	149.6132
Hotel	120.45	24.4503	1.4450	0.0000	60.5745
Research & Development	49.07	9.9608	0.5887	0.0000	24.6774
Supermarket	605.96	123.0044	7.2694	0.0000	304.7382
Total		**608.5730**	**35.9656**	**0.0000**	**1,507.7138**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

D. EIR AIR QUALITY SCOPE OF WORK (SOW)

Prepared for
San Francisco Planning Department
San Francisco, California

Prepared by
Ramboll Environ US Corporation
San Francisco, California

Project Number
1690001653

Date
December 7, 2017

CEQA AIR QUALITY AND HEALTH RISK ASSESSMENT METHODOLOGY

POTRERO POWER STATION MIXED-USE DEVELOPMENT PROJECT
1201A ILLINOIS STREET
SAN FRANCISCO, CALIFORNIA

RAMBOLL ENVIRON

CONTENTS

TABLES

FIGURES

ACRONYMS AND ABBREVIATIONS

ADT	Average Daily Traffic
AERMOD	USEPA's atmospheric dispersion modeling system
APEZ	Air Pollution Exposure Zone
ARB	(California) Air Resources Board
ASF	Age Sensitivity Factor
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technologies
Cal/EPA	California Environmental Protection Agency
CalEEMod®	California Emissions Estimator Model
CAP	Criteria Air Pollutant
CEQA	California Environmental Quality Act
CPF	Cancer Potency Factor
CRRP	Community Risk Reduction Plan
CRRP-HRA	Community Risk Reduction Plan Health Risk Analysis database
DPM	Diesel Particulate Matter
EIR	Environmental Impact Report
gsf	gross square feet
g/s	gram per second
HRA	Health Risk Analysis
m	meter
MESIR	Maximally Exposed Individual Sensitive Receptor
OEHHA	Office of Environmental Health Hazard Assessment
OFFROAD2011	(ARB) In-Use Off-Road Equipment model
PM	Fine Particulate Matter
$PM_{2.5}$	Fine Particulate Matter Less than 2.5 Micrometers in Aerodynamic Diameter
PM_{10}	Particulate Matter Less than 10 Micrometers in Aerodynamic Diameter
Ramboll Environ	Ramboll Environ US Corporation
SF DPH	San Francisco Department of Public Health
SF EP	San Francisco Planning Department Environmental Planning Division
SF Planning	San Francisco Planning Department
TAC	Toxic Air Contaminant
$\mu g/m^3$	microgram per cubic meter
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VDECS	Verified Diesel Emissions Control Strategy

1. INTRODUCTION

At the request of Environmental Science Associates, Inc. (ESA), Ramboll Environ US Corporation (Ramboll Environ) will conduct a California Environmental Quality Act (CEQA) analysis of criteria air pollutants and precursors and local air quality and health impacts associated with the construction and operation of the proposed Potrero Power Station Mixed-Use Development Project at 1201A Illinois Street in San Francisco (referred to hereafter as "the Proposed Project" or "Project") at on-site and adjacent off-site sensitive receptors. This emissions and Health Risk Assessment (HRA) Methodology describes the scope and methodology for evaluation of air quality and health impacts from construction sources, operational sources, and cumulative off-site sources at on-site and adjacent off-site sensitive receptors. This analysis will be performed to support the Project's CEQA documentation at the request of the San Francisco Planning Department's (SF Planning) Environmental Planning (SF EP) Division.

Based on the preliminary trip generation estimates based on the size of the Proposed Project, the project will likely generate more than 10,000 vehicles per day on nearby roadways; therefore, operational traffic-generated impacts may not be considered "minor, low-impact sources" according to the Bay Area Air Quality Management District ([BAAQMD] 2012). Therefore, this methodology also includes an analysis of Project traffic impacts to health risk using screening tools (BAAQMD 2011). The Proposed Project includes 15 emergency generators, which will be included in a more refined analysis of Project operational impacts, as discussed below.

1.1 Project Understanding

The Proposed Project would be located at 1201A Illinois Street in San Francisco, California, just south of the area known as Pier 70 and east of the Potrero Hill and Dogpatch neighborhoods. It is the former Potrero Power Plant, bordered by 22nd Street to the north, the San Francisco Bay to the east, 23rd Street to the south and Illinois Street to the west in the Potrero Hill neighborhood. **Figure 1** shows the site extent and the location of the Proposed Project within San Francisco. The site is approximately 29 acres. The Proposed Project is not located within an Air Pollution Exposure Zone (APEZ), which is an area designated by the San Francisco Department of Public Health (SF DPH) as an area with poor air quality (SF DPH & SF Planning 2014). The Project site is comprised of a 21-acre Power Station site, a 4.8-acre site owned by Pacific Gas & Electric Company (PG&E), a 2.9-acre site owned by the Port of San Francisco (Port), a 0.18-acre site owned by a private party, and a less than 0.1-acre site owned by the City and County of San Francisco. Currently, the Power Station Site contains approximately 107,000 gross square feet (gsf) of vacant buildings and facilities that were used as warehouses, parking, vehicle storage, and office spaces. The PG&E site is currently used as a staging area for construction equipment and houses power transmission equipment.

The Power Station closed in 2011, and PG&E is currently in the process of performing remediation of soil and groundwater contaminants (e.g., petroleum constituents and metals) at the Project Site. It is noted that the ongoing and planned future remediation activities are independent of the Proposed Project.

The Proposed Project is proposed to occur in eight phases, including seven overlapping phases and a start-up phase over an approximate 16-year period. Thus, it is assumed that the proposed residential buildings constructed in earlier phases would be occupied during the construction activities associated with the subsequent construction phases, and future residents on the project site would therefore be considered on-site sensitive receptors for purposes of the air quality analysis. For purposes of the air quality analysis the project site is surrounded by sensitive receptors, i.e., residential land uses. Residential buildings anticipated to be built on the neighboring Pier 70 Mixed-Use District project site will also be considered as sensitive receptors.

In total, the Project would include 2,400–3,000 dwelling units totaling 2.4-3.0 million gsf of residential uses, between approximately 1.2 and 1.9 million gsf of commercial uses (including office, research & development [R&D], retail, hotel and Production, Distribution and Repair [PDR] facilities), approximately 925,000 gsf of parking and 100,000 gsf of community facilities. Approximately 6.3 acres of publicly-accessible open area would also be included in the Proposed Project. The Proposed Project will retain 7,368 gsf of existing building square footage from Unit 3, the former electric power generation facility, if the site is to be converted into a hotel and preserve the 300-foot steam exhaust (known as "The Stack"). However, if the site is developed for residential use under the flexible land use program, the Unit 3 power block would be demolished. In addition, seventeen new buildings are proposed to be constructed. We understand that the Project would include 15 new diesel emergency generators, as well as equip at least 15% of the roof area of residential and commercial buildings with roof-mounted or building integrated solar photovoltaic (PV) systems and/or solar hot water systems. Proposed shorework includes the construction of a fixed pier and floating dock to provide access to the bay for fishing and recreational watercraft, as well as the construction of berms, seawalls or rip rap replacement that elevate the shoreline by 3 to 7 feet to address the potential hazard of future sea level rise and stormy/high-tide conditions. Other in-water construction activities could include demolition of existing intake and outlet structures associated with Unit 3. If the Proposed Project includes a separated stormwater drainage system, it will also include construction of a stormwater discharge structure along the shoreline.

According to the Preliminary Project Assessment (PPA)[1] and schedule update addendum,[2] the proposed plan for the Project is assumed to occur in eight phases, include seven overlapping construction phases and a start-up phase, with each phase constructing 2-3 blocks and associated streets and open spaces. Construction is expected to begin in 2020 and each phase is expected to last 3-6 years, with the final phase anticipated to end in 2036. Construction Phase 0 will include demolition (with the exception of Unit 3), site preparation and rough grading work for all development phases and will also include interim surface parking improvements, and each subsequent construction phase includes building construction, paving and architectural coating.

- The first phase, Phase 0, is expected to last 3 years.
- Phase 1 is anticipated to last 6 years, and consists of the construction of the Blocks 8, 9, and 12. This phase is proposed to include 361 residential units (361,142 gsf), 15,934 gsf of retail space, 175,771 gsf of office space, 14,571 gsf of PDR space, 241,574 gsf of hotel space and 176,316 gsf of parking space, as well as portions of the parks and outdoor

[1] Preliminary Project Assessment. Potrero Power Station Mixed-Use Development Project. Dated September 15, 2017.

[2] Data received via email from Paul Mitchell (ESA) to David Kim (Ramboll Environ) on 10/23/2017 (171023_Schedule_PPS.pdf).

spaces. Building 9 is designated as flexible hotel/residential land use, and as such the 241,574 gsf of hotel space could be converted into 146,808 gsf of residential space and 9,633 gsf of additional parking.[3] Block 12 is also designated as flexible commercial/residential land use, meaning 185,141 gsf of residential space could be built instead of 175,771 gsf of office space.[3]

- Phase 2 would last approximately 5 years and would overlap with the previous phase for approximately 4 years. It would include the construction of Blocks 7 and 11, which would consist of approximately 407 residential units (406,527 gsf), 196,730 gsf of office space, 19,088 gsf of retail area, 14,315 gsf of PDR space, 15,508 gsf of Community Facilities, and 62,566 gsf of parking.
- Blocks 3 and 4 would be constructed in Phase 3, which is anticipated to last 5 years and overlaps with the previous phase for 3 years. This phase would develop 163 residential units (163,000 gsf), 318,240 gsf of laboratory space, 10,157 gsf of retail area, and 106,353 gsf of parking. Block 4 is designated as flexible land use, and 158,197 gsf of office space could be built instead of the residential space in that building (163,000 gsf).[3]
- Phase 4 is expected to last 6 years, overlapping with the previous phase for 3 years. In this phase, Blocks 5, 6, and 10 are expected to be constructed with 642 residential units (641,776 gsf), 225,222 gsf of office space, 59,860 gsf of retail area, 16,154 gsf of PDR space and 359,360 gsf of parking.
- Phase 5 is anticipated to last 5 years, overlapping with Phase 4 for 4 years. Blocks 1, 2, and 14 would be built in this phase, with 464 residential units (464,331 gsf), 327,498 gsf of laboratory space, 2,400 gsf of retail, 34,635 gsf of community facilities and 94,660 gsf of parking. Block 14 is designated as flexible residential/commercial land use, and 77,760 gsf of residential area in that building could be converted into 58,320 gsf of retail space.[3]
- In Phase 6, Block 13A would be built which contains 256 residential units (256,160 gsf of area), and 20,037 gsf of parking. This phase is expected to last 5 years and overlaps with Phase 5 for 4 years.
- Phase 7 is expected to last 6 years, overlapping with Phase 6 for 4 years. Block 13B is anticipated to be built in this phase, containing 389 residential units (389,491 gsf), 50,795 gsf of community facilities and 127,659 gsf of parking. Because Phases 6 and 7 are located in the PG&E Site, construction is subject to PG&E authorization and therefore the estimated timeframes for these phases is uncertain.

1.2 Objective and Methodology

The purpose of the air quality analysis is to assess potential criteria air pollutant and health risks and hazards that would result from the construction and operation of the Proposed Project consistent with guidelines and methodologies from air quality agencies, specifically, the BAAQMD, the California Air Resources Board (ARB), the California Office of Environmental Health Hazard Assessment (OEHHA), and the US Environmental Protection Agency (USEPA). Consistent with guidelines and recommended methods from these agencies, the HRA will evaluate the estimated incremental increase in cancer risk from diesel particulate matter (DPM) and fine particulate matter (PM) concentrations (specifically

[3] Data received via email from Joyce Hsiao (Orion) to David Kim (Ramboll Environ) on 11/1/2017 (171014_Program Range - Flex Blocks_PPS).

particulate matter less than 2.5 microns in aerodynamic diameter [$PM_{2.5}$]) associated with exhaust that would be emitted by construction and operational activities. The construction and operational emission sources for the Proposed Project include diesel-powered equipment (including emergency generators) and Project-related traffic.

The San Francisco City-wide HRA evaluates the cumulative cancer risks and $PM_{2.5}$ concentrations from existing known sources of air pollution as part of the development of a Community Risk Reduction Plan (CRRP). For the purposes of this report, the database developed for that effort is referred to as the Community Risk Reduction Plan Health Risk Analysis database (CRRP-HRA). The modeling is documented in *The San Francisco Community Risk Reduction Plan: Technical Support Documentation* (BAAQMD, SF DPH & SF Planning 2012). The cumulative health risk analysis for the Proposed Project will estimate excess lifetime cancer risks and $PM_{2.5}$ concentrations that are attributable to other mobile and stationary sources as calculated in the CRRP-HRA, in addition to effects from the Proposed Project and other nearby sources that are not included in the CRRP-HRA. The CRRP-HRA was completed before the OEHHA updated its Air Toxics Hot Spots Program Risk Assessment Guidelines in 2015, so the CRRP-HRA results will be adjusted to use the 2015 OEHHA Guidance (OEHHA 2015). Ramboll Environ understands that SF EP is updating this database; if the updated version is available sufficiently prior to the completion of the Air Quality Analysis, Ramboll Environ will use the updated version.

In accordance with CEQA requirements (BAAQMD 2017) and consistent with the CRRP-HRA, which was developed in consultation with the BAAQMD, the proposed Air Quality Analysis will include:

1. Mass emissions of criteria air pollutants (CAPs) from both construction and operational sources;
2. Excess lifetime cancer risks, and $PM_{2.5}$ concentrations from both construction and operational emissions (generator) to sensitive off-site and on-site populations;
3. Screening-level HRA of cancer risk and $PM_{2.5}$ concentrations from operational traffic on on-site and off-site populations;
4. Cumulative HRA of cancer risk and $PM_{2.5}$ concentrations (to both on-site and off-site receptors) resulting from other sources of stationary, area, and mobile emissions as calculated in the CRRP-HRA in addition to health impacts from the Proposed Project construction and operational sources and other nearby off-site sources not included in the CRRP-HRA; and
5. Cumulative 2040 conditions, based on a qualitative assessment of the 2040 CRRP-HRA modeling, which shows that $PM_{2.5}$ and excess cancer risk generally decrease for receptor points within 1,000 feet under 2040 conditions without the project.

The results of the analysis will be documented in the draft Environmental Impact Report (EIR) for the Proposed Project, with technical documentation included as part of the EIR appendix or the Project's Administrative Record. The technical documentation will undergo two rounds of review by SF EP prior to finalization.

1.3 Document Organization

This scope of work is divided into seven sections as follows:

Section 1.0 – Introduction: describes the purpose and scope of the air quality analysis, the objectives and methodology used, and outlines the document organization.

Section 2.0 – Emission Estimates: describes the methods used to estimate CAP and toxic air contaminant (TAC) emissions from the Project;

Section 3.0 – Estimated Air Concentrations: discusses the air dispersion modeling, the selection of the dispersion models, the data to be used in the dispersion models (*e.g.*, terrain, meteorology, source characterization), and the identification of receptor locations evaluated in the HRA.

Section 4.0 – Risk Characterization Methods: provides an overview of the methodology for conducting the HRA.

Section 5.0 – Cumulative Analysis: summarizes the approach used in the HRA cumulative analysis.

Section 6.0 – References: includes a listing of all references cited in this report.

2. EMISSION ESTIMATES

Ramboll Environ will estimate the Project and net incremental (Project minus Existing) CAP and toxic air contaminant (TAC) emissions from Proposed Project construction and operational sources. Methodologies to be used to calculate CAP and TAC emissions are summarized below.

2.1 Calculation Methodologies for Construction Emissions

On September 15, 2017, the Project sponsor provided a detailed construction equipment list, which includes the type, quantity, construction schedule and hours of operation anticipated for each piece of equipment for each construction phase; prior to commencing calculations for construction emissions, Ramboll Environ will confirm with ESA and the Project Sponsor if this list is still appropriate or if a more refined, updated list is available. This data will be used to estimate construction emissions using the California Emissions Estimator Model version 2016.3.1 (CalEEMod®) or equivalent methods. It is assumed that all construction off-road equipment is diesel powered. Ramboll Environ will assume that all off-road equipment emissions of PM with an aerodynamic diameter less than 10 microns (PM_{10}) is DPM, which is a TAC.

Construction emission calculation methodologies cover off-road equipment (primarily diesel-fueled) and on-road vehicles. The Proposed Project construction would span 17 years and would be continuous. As discussed in Section 1.1, the site will be divided into eight phases, including seven overlapping construction phases and a start-up phase. The analysis described here does not rely on the default construction phasing data from CalEEMod®, as the actual schedule and equipment list are known.

Ramboll Environ will use the methodology for each emissions category presented in Table 1. Ramboll Environ will use specific construction inputs for the Proposed Project where available such as schedule, the equipment list, and the count of on-road vehicle trips.

2.1.1 Off-road Equipment

For diesel-powered off-road construction equipment, Ramboll Environ will use CalEEMod® and methodologies consistent with CalEEMod® to estimate emissions. The CalEEMod® emissions methodology for off-road construction equipment relies on the ARB In-Use Off-Road Equipment model (OFFROAD2011), which incorporates statewide survey data to develop emission factors based on the fleet average for each year of construction. The OFFROAD2011 model also identifies average horsepower and load factor for each type of equipment. Where Project-specific equipment information is not available, CalEEMod® default values from OFFROAD2011 are used. Load factors for each piece of equipment are based on the default load factor in OFFROAD2011, which are included in CalEEMod®. The methodology to be used to calculate emissions from off-road equipment is presented in Table 1.

Emissions from barges and tugs used for shorework and dock construction will be estimated using the ARB Commercial Harborcraft (CHC) inventory methodology that was developed in support of the Proposed Regulation for Diesel Engines on Commercial Harbor Craft.[4] The inventory contains emissions factors for tug/tow boats, barges and associated barge equipment based on a survey and other data sets of all crew and supply vessels operated in

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[4] "Emissions Estimation Methodology for Commercial Harbor Craft Operating in California". California ARB (2007). https://www.arb.ca.gov/regact/2010/chc10/appc.pdf.

California. Statewide averages for parameters such as engine load factor, engine useful life and brake-specific fuel consumption will be used where Project-specific equipment information is not available. Engine model year, horsepower, and hours of operation per day for each vessel engine will be provided by the Project Sponsor. The methodology used to calculate emissions from barges and tugs is also shown in Table 1.

The use of Tier 4 Final, Tier 4 Interim, or Tier 2 engines equipped with an ARB Level 3 Verified Diesel Emissions Control Strategy (VDECS) would reduce diesel emissions and, thus, reduce the potential health impacts from the Proposed Project on sensitive receptors. Emissions without mitigation measures are calculated assuming fleet average equipment, meaning the emission factors used reflect the fleet predicted to be in use in the OFFROAD2011 model. If the Proposed Project construction exceeds BAAQMD thresholds, a scenario incorporating control measures will also be calculated. The mitigated scenario will be based on a defined reduction in diesel emissions that could be accomplished by different combinations of Tier 4 Final, Tier 4 Interim, or Tier 2 or higher engines with Level 3 VDECS on equipment. The mitigated scenario will not define specific engine tiers and/or VDECS on equipment as the availability of Tier 4 (Final and Interim) and Level 3 VDECS will evolve over the estimated timespan of construction. However, Ramboll Environ will analyze and present potential combinations of higher-tiered engines to achieve the required reduction. SF EP also requires equipment idling to be limited to 2 minutes, although emissions reductions due to this mitigation measure are not quantified.

2.1.2 Construction On-road Mobile Sources

The Project sponsor will provide estimated worker, vendor, and demolition hauling trip generation rates for construction of the Proposed Project. Alternatively, Ramboll Environ could determine the count of hauling trips based on the total offhaul amount in cubic yards for the Proposed Project.

The emission factors for running emissions of criteria pollutants in CalEEMod® are from EMFAC2014, the ARB Emission Factors model for on-road emissions. The emission factors used for construction of the Proposed Project cover the years 2020 through 2036, the anticipated years of construction. EMFAC2014 incorporates the Pavley Clean Car Standards and the Advanced Clean Cars program.

The methodology used to calculate emissions from on-road sources is presented in Table 1.

2.2 Calculation Methodologies for Operational Emissions

As discussed above, Ramboll Environ will evaluate the Project and net (Project minus Existing Condition) CAP and TAC operational emissions. Since the existing site is mostly vacant, we will conservatively evaluate the Project impacts, assuming the Existing Conditions have *de minimis* or no operational emissions (note that ongoing remediation activities are temporary and anticipated to cease prior to Project operations, so emissions from remediation activities are not included in the Existing Conditions). Confirmed sources of operational emissions from the Proposed Project include on-road vehicles and stationary sources such as new emergency generators to support buildings of greater than 75 feet during power outages. Operational emissions that are concurrent with construction activities will be presented by construction phase in order to determine the combined construction and operational emissions for each year of construction. If mitigation is required, Ramboll Environ will evaluate a scenario that incorporates higher tiered engines and/or diesel particulate filters to achieve the required emissions reduction.

2.2.1 Operational On-road Mobile Sources

Vehicles on the roadway emit CAPs and TACs in their exhaust and through evaporation and thus must be evaluated in an off-site risk evaluation. To estimate baseline on-road vehicle emissions, Ramboll Environ will work with the CEQA transportation team to get baseline trip rates. Ramboll Environ will use CalEEMod® version 2016.3.1 or equivalent methods to obtain emissions from the vehicle travel.

Project traffic will include residential and employee trips as well as service vehicle and vendor trips, and retail and commercial trips. Ramboll Environ assumes that the CEQA transportation team will provide project-specific Average Daily Traffic (ADT) (vehicle trips per day). Based on the BAAQMD CEQA Guidance, traffic of less than 10,000 vehicles per day is considered a minor, low-impact source of TACs (BAAQMD 2017). Project operational emissions, including mobile emissions, will be estimated using CalEEMod®.

2.2.2 On-site Generators and Other Operational Sources

2.2.2.1 Emergency Generators

Project operational emissions for the proposed emergency generator will be calculated using the BAAQMD rule limiting the hours of non-emergency operation for emergency standby diesel engines to a maximum of 50 hours per year. All emergency generators are EPA Tier 2 diesel engine generator sets and the size ranges from 300 kilowatts (kW) to 2,000 kW as per information provided by the Project Sponsor. CAP emissions will be calculated assuming the engine complies with BAAQMD Best Available Control Technology (BACT) limits, unless project-specific emission factors are available.

2.2.2.2 District Energy System

The project sponsor has proposed a potential District Energy System, which is still under development. Under one proposed configuration of a District Energy System which would have the highest air quality impacts, the main source of emissions would be from natural gas combustion from a boiler(s) or hot water heater(s). The project sponsor will provide the maximum size of the boilers or hot water heaters (in millions of British Thermal Units per hour [MMBtu/hr]) and Ramboll Environ will calculate the CAP emissions associated with combustion. TAC emissions will not be calculated as the TACs associated with natural gas combustion in boilers and hot water heaters have generally negligible contributions to cancer risk and $PM_{2.5}$ concentration.

2.2.2.3 Laboratories

Life sciences laboratory space has been proposed as part of the development. Emissions from life sciences laboratories can include reactive organic gases (ROGs) and TACs. However, emissions of ROGs and TACs are typically small for life science laboratories as chemicals tend towards aqueous based solutions. Moreover, the BAAQMD regulates emissions from laboratories. Laboratories with fewer than 50 fume hoods or less than 25,000 square feet of laboratory space are exempted from permitting as air quality impacts are expected to be *de minimis*. Laboratories that exceed this fume hood count and the square footage threshold can also be exempt from permitting if it can be demonstrated that emissions of volatile organic compounds (VOCs) do not exceed 5 tons per year, cancer risk does not exceed 10 in a million, and chronic and acute health indices do not exceed 1.0. Laboratories of the sizes proposed for this development are not expected to come close to exceeding these emissions and health risk thresholds and estimation of emissions from future laboratory uses would only be speculative at this point. Therefore, emissions from laboratories are not included in this assessment.

2.2.2.4 PDR Sources

PDR space has been proposed as part of the development. While exact types of PDR activities have not specified for the development, PDR can include a wide range of light industrial activity. Oftentimes, these activities may require the use of stationary sources of air emissions such as, but not limited to, boilers, engines, and generators. Emissions may include products of combustion, particulate matter, and TACs. The exact types and quantities of stationary sources cannot be identified at this time as specific PDR activities have not yet been identified. It is expected that the impacts to air quality from these miscellaneous stationary sources would be *de minimis*. In fact, the BAAQMD has permit exemptions for certain small equipment it deems to have a negligible impact to air quality such as natural gas boilers rated at less than 10 MMBtu/hr. If the level of air emissions from these sources rises to a level of concern, then the BAAQMD would require permitting to manage emissions. Therefore, emissions from potential stationary sources from PDR land use are not included in this assessment.

2.2.3 Net Operational CAP

As discussed above, the Project would replace the former Potrero Power Plant, which consists of mostly vacant buildings and facilities used for warehousing, parking, vehicle storage and office space. For purposes of this CEQA analysis, we assume that the Existing Conditions have *de minimis* or no operational emissions, and as such net operational emissions are conservatively taken to be the total Proposed Project operational emissions.

3. ESTIMATED AIR CONCENTRATIONS

Consistent with the CRRP-HRA, the air toxics analysis will evaluate health risks and $PM_{2.5}$ concentrations resulting from the Proposed Project upon the surrounding community. For the Proposed Project, this would include construction emissions over the course of build-out, operational traffic (which will not be modeled in a refined HRA, but will be assessed using the BAAQMD screening tables discussed in Section 4.1 below), and stationary sources (the 15 emergency generators). The methodologies used to evaluate emissions for the Proposed Project and cumulative HRA are based on the most recent BAAQMD CEQA Guidelines (BAAQMD 2012, 2017) and the most recent Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA 2015).

According to the land use plan in the PPA, some on-site parcels are designated as flexible land uses (i.e., those that could potentially serve as residential or commercial buildings). In this analysis, we adopt a conservative approach and estimate the worst-case air concentrations from the Project by assuming the higher emissions among all the land use scenarios, as well as designating potential residential buildings as sensitive land parcels.

3.1 Chemical Selection

The cancer risk analysis in the HRA for the Project is based on DPM concentrations from construction on- and off-road equipment, as well as the operational DPM concentrations from the emergency generators. Diesel exhaust, a complex mixture that includes hundreds of individual constituents (California Environmental Protection Agency [Cal/EPA] 1998), is identified by the State of California as a known carcinogen (Cal/EPA 2016). Under California regulatory guidelines, DPM is used as a surrogate measure of exposure for the mixture of chemicals that make up diesel exhaust as a whole. Cal/EPA and other proponents of using the surrogate approach to quantifying cancer risks associated with the diesel mixture indicate that this method is preferable to use of a component-based approach. A component-based approach involves estimating risks for each of the individual components of a mixture. Critics of the component-based approach believe it will underestimate the risks associated with diesel as a whole mixture because the identity of all chemicals in the mixture may not be known and/or exposure and health effects information for all chemicals identified within the mixture may not be available. Furthermore, Cal/EPA has concluded that “potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the multi-pathway cancer risk from the speciated components” (OEHHA 2003).

3.2 Sources

As discussed in the next section, concentrations of TACs from the Proposed Project construction emissions will be estimated using the USEPA’s preferred atmospheric dispersion modeling system (AERMOD). Concentrations of TACs from the Project-related operational stationary sources (emergency generators) will also be estimated using AERMOD. Concentrations of TACs from the Project-related operational traffic will not be estimated using AERMOD because the health risks and hazards attributed to Project-related traffic will be calculated using the BAAQMD Roadway Screening Analysis Calculator and adjusted by a BAAQMD-approved scaling factor to account for the updated OEHHA risk assessment guidelines (2015).

3.3 AERMOD Modeling

Ramboll Environ will use the most recent version of the American Meteorological Society/Environmental Protection Agency regulatory air dispersion model (AERMOD Version

16216r) to evaluate ambient air concentrations of DPM and $PM_{2.5}$ at on- and off-site receptors (USEPA 2015). For each receptor location, the model generates air concentrations (or air dispersion factors as unit emissions will be modeled) that result from emissions from multiple sources.

Air dispersion models such as AERMOD require a variety of inputs such as source parameters, meteorological data, topographical data, and receptor parameters. When site-specific information is unknown, Ramboll Environ will use default parameter sets that are designed to produce conservative (i.e., overestimates of) air concentrations (USEPA 2015).

3.3.1 Meteorological Data

Air dispersion modeling applications require the use of meteorological data that ideally are spatially and temporally representative of conditions in the immediate vicinity of the site under consideration. For this HRA, BAAQMD's Mission Bay meteorological data for the year 2008 will be used, which aligns with the San Francisco CRRP-HRA Methodology (BAAQMD, SF DPH & SF Planning 2012).

3.3.2 Terrain and Land Use Considerations

Elevation for all emissions sources will be imported from the National Elevation Dataset maintained by the United States Geological Survey ([USGS] 2013). Elevations for all receptors are consistent with the CRRP-HRA modeling.

An important consideration in an air dispersion modeling analysis is whether or not to model an area as urban. Due to the urban nature of San Francisco, the site will be modeled with the urban population of 805,235, corresponding to the 2010 US Census (US Census Bureau 2010). The urban option in AERMOD accounts for increased turbulence associated with the urban heat island effect.

3.3.3 Emission Rates

Emissions will be modeled using the χ/Q ("chi over q") method, such that each source has a unit emission rate (i.e., 1 gram per second [g/s]), and the model estimates dispersion factors (with units of [$\mu g/m^3$]/[g/s]). Actual emissions will be multiplied by the dispersion factors to obtain concentrations.

For annual average ambient air concentrations, the estimated annual average dispersion factors are multiplied by the annual average emission rates. The emission rates will vary day to day, with some days having no emissions. For simplicity, the model will assume a constant emission rate during the entire year.

3.3.4 Source Parameters

Source location and parameters are necessary to model the dispersion of air emissions. For construction, area sources will be used to represent the on-site activity in AERMOD. The on-site construction area sources will be modeled with the same release parameters used in the CRRP-HRA: a release height of 5 meters and an initial vertical dimension of 1.4 meters, (BAAQMD, SF DPH & SF Planning 2012). Roadways will be modeled to represent heavy-duty haul trucks, using a series of volume sources. The volume source width will correspond to the roadway, while the modeled release height will be 2.5 meter (m) and the initial vertical dimension will be 2.3 m, consistent with the CRRP-HRA modeling and USEPA haul road guidance. On-road construction worker trips are expected to be negligible and will therefore not be included in the HRA analysis. This assumption will be verified based on consultation with the CEQA transportation team. For operational emissions, all installed emergency generators will be modeled as point sources located at grade level adjacent to loading areas with exhaust stacks located at 15 feet above grade and 30 feet from the property line. Ramboll Environ will use project-specific source parameters including stack height, diameter, temperature, and velocity, if available. Otherwise, Ramboll Environ will use default stationary source modeling parameters as provided in the CRRP-HRA. **Table 2** summarizes the modeling parameters used in AERMOD.

3.3.5 Receptors

In order to evaluate health impacts to on-site and off-site receptors, receptors will be placed at locations collocated with the receptors used in the CRRP-HRA and within 1,000 m of the Project site, including the future residents on the Pier 70 mixed-use development project, as shown in Figure 2. Receptors will be modeled at a height of 1.8 m, above terrain height, a default breathing height for ground-floor receptors, consistent with the CRRP-HRA analysis. As discussed previously, maximum average annual dispersion factors will be estimated for each receptor location.

Sensitive receptors will be identified based on residential land use and/or zoning, and field confirmation. Figure 3 outlines the parcels that are characterized as “residential” using data from SF OpenData, the City and County of San Francisco’s official open data portal (SF County 2016) as well as on-site locations categorized as Residential or those that could potentially be used for residential housing. Off-site daycare facilities and schools will also be identified and modeled as residential receptors. On-site sensitive daycare receptors will also be placed on non-residential blocks to model exposures at potential daycare sites on the Project property. Ramboll Environ proposes to work with ESA to identify the sensitive receptors within 1,000 meters of the project, based on a combination of latest available geographic information systems data and nearby information on existing and future projects provided by ESA, including field confirmation if necessary. Figure 4 includes a map of on-site sensitive receptor locations for use in the phased construction HRA. Ramboll Environ will work with ESA and the Project sponsor to finalize the map of sensitive receptor locations prior to modeling.

4. RISK CHARACTERIZATION METHODS

In February 2015, OEHHA released the updated Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015), which combines information from previously-released and adopted technical support documents to delineate OEHHA's revised risk assessment methodologies based on current science. This updated Guidance Manual supersedes the 2003 Hot Spots Guidance Manual (OEHHA 2003) that previously provided methodologies for conducting HRAs under the Air Toxics Hot Spots Program (AB2588). The BAAQMD has issued Guidelines on adopting the OEHHA 2015 Guidance Manual. This evaluation will utilize the 2015 methodology; details of this methodology are discussed below.

4.1 Project Sources Evaluated

As discussed in **Section 1.2**, Ramboll Environ will evaluate excess lifetime cancer risk and $PM_{2.5}$ concentration for on-site and off-site sensitive receptor exposure to emissions from Proposed Project construction, as well as the operation of the Proposed Project emergency generators. Project construction risk and Project operational risk will be added together to conservatively estimate the combined cancer risk effect of construction activities and Project operation. The health risks from construction activity (construction equipment and nearby off-site haul trucks) and the new emergency generators will be calculated using the methodology explained in the following sections. Because the Proposed Project will be completed in eight phases of construction activity (seven phases plus start-up phase), analyses will be completed for on-site residents to conservatively estimate a worst-case exposure, as discussed below.

The health risks and hazards from the Proposed Project operation-related traffic will be calculated using the BAAQMD Roadway Screening Analysis Calculator (2011). The BAAQMD Roadway Screening Analysis Calculator uses several inputs to calculate cancer risk and $PM_{2.5}$ concentration from traffic. Inputs include ADT, distance of roadway from the potential receptors, and location of the roadway in relation to the receptor. In 2015, OEHHA released new guidance on how to evaluate cancer risk (OEHHA 2015). The BAAQMD screening tools were developed under the old guidance. Thus, Ramboll Environ will use scaling factors approved by BAAQMD to convert risks from the roadway screening tool to be consistent with new guidance.

4.2 Exposure Assessment

Ramboll Environ will conservatively model all existing CRRP-HRA grid (20-meter spacing) receptors on-site and within 1 kilometer of the Proposed Project boundary. Consistent with the CRRP-HRA, all off-site sensitive receptors will be analyzed as residents. As shown in **Figure 2**, not all surrounding receptors are residential; only those within sensitive receptor parcels (e.g., such as those shown in **Figure 3**) are categorized as residential. Only those receptors on-site that are residential receptors living on site will be included in the health risk assessment results and used to identify the maximally exposed receptors. A conservative approach is adopted where on-site parcels with flexible land use designations (i.e., those that could potentially serve as residential housing, "Flex Block") are assumed to be sensitive parcels as well. On-site sensitive receptors will be determined with refined site plans and through discussion with SF EP.

Because the existing buildings on the Project Site are mostly vacant, there will be no on-site receptors during the start-up (Phase 0) and first phase of construction (Phase 1). During the subsequent six phases of construction, the on-site receptors in the new residential units will not be age restricted, so the on-site receptor will be analyzed as a residential receptor.

Potentially Exposed Populations: This analysis will evaluate on- and off-site resident based on OEHHA 2015 Hot Spots Guidelines. Off-site residents will be evaluated, based on an analysis of a fetus at the beginning of its third trimester, being exposed to emissions in thirteen scenarios: 1) Phase 0 of construction commences; 2) Phase 1 of construction commences; 3) Phase 2 of construction commences and Phase 0 construction ends; 4) Phase 3 construction commences; 5) Phase 1 construction ends and operational emissions begin, and Phase 4 of construction begins; 6) Phase 2 construction ends and operational emissions begin; 7) Phase 5 construction commences; 8) Phase 6 construction commences, and Phase 3 construction ends and operational emissions begin; 9) Phase 7 construction begins; 10) Phase 4 construction ends and operational emissions begin; 11) Phase 5 construction ends and operational emissions begin; 12) Phase 6 construction ends and operational emissions begin; 13) Phase 7 construction ends and operational emissions begin. This information is depicted graphically in **Table 3**. The analysis will identify which of these scenarios results in the highest risk and $PM_{2.5}$ values. A conservative approach of considering all off-site sensitive receptors as residential receptors will be used in this analysis. Residential exposure assumptions are more conservative than those made for other sensitive receptor types as residential uses have the longest exposure duration, the highest breathing rate by applicable age group, and the highest exposure frequency and exposure time.

There will be on-site receptors during Phases 2-7 of construction; when one phase of construction is completed, it is assumed that the site occupants will immediately use the portion of the completed site. On-site residents will be analyzed commencing with Phase 2 of construction, during which residential receptors will have moved onto the site in residential facilities completed during Phase 1. We also assume that daycare facilities could potentially exist in non-residential buildings. Because the first non-residential building is constructed during Phase 2, on-site daycare receptors could be exposed to construction emissions from Phases 3-7. A similar scenario approach to that described above for off-site resident will be used to determine the most conservative scenario to evaluate the on-site resident and daycare child. Again, the analysis will identify which of these scenarios results in the highest risk and $PM_{2.5}$ values.

Exposure Assumptions: The exposure parameters used to estimate excess lifetime cancer risks for all potentially exposed populations for the construction evaluation for this analysis will be obtained using risk assessment guidelines from OEHHA (2015) and BAAQMD (2016). **Table 5** shows the proposed exposure parameters that will be used for the HRA.

As discussed above, Project operational parameters will be provided by the Project sponsor for the full operation of the Project generators in Phase 1 in 2026, following completion of Phase 2. The emissions from the emergency generator will be calculated based on the BAAQMD rule limiting the hours of non-emergency operation for emergency standby diesel engines to a maximum of 50 hours per year; therefore, calculated emissions are not expected to change over time.

Calculation of Intake: The dose estimated for each exposure pathway is a function of the concentration of a chemical and the intake of that chemical. The intake factor for inhalation, IF_{inh}, can be calculated as follows.

$$IF_{inh} = \frac{DBR * FAH * EF * ED * CF}{AT}$$

Where:

IF_{inh}	=	Intake Factor for Inhalation (m^3/kg-day)
DBR	=	Daily Breathing Rate (L/kg-day)
FAH	=	Frequency of time at Home (unitless)
EF	=	Exposure Frequency (days/year)
ED	=	Exposure Duration (years)
AT	=	Averaging Time (days)
CF	=	Conversion Factor, 0.001 (m^3/L)

The chemical intake or dose is estimated by multiplying the inhalation intake factor, IF_{inh}, by the chemical concentration in air, C_i. When coupled with the chemical concentration, this calculation is mathematically equivalent to the dose algorithm given in the current OEHHA Hot Spots guidance (OEHHA 2015).

4.2.1 Toxicity Assessment

The toxicity assessment characterizes the relationship between the magnitude of exposure and the nature and magnitude of adverse health effects that may result from such exposure. For purposes of calculating exposure criteria to be used in risk assessments, adverse health effects are classified into two broad categories – cancer and non-cancer endpoints. Toxicity values that are used to estimate the likelihood of adverse effects occurring in humans at different exposure levels are identified as part of the toxicity assessment component of a risk assessment.

As discussed in **Section 1.2**, only the carcinogenic effects of DPM will be evaluated in this HRA analysis. Ramboll Environ will utilize the Cal/EPA-approved (2017) inhalation cancer potency factor for DPM to evaluate DPM emitted from construction sources. **Table 6** shows the cancer potency factor (CPF) for DPM that will be used for the HRA.

4.2.2 Age Sensitivity Factors

The estimated excess lifetime cancer risks for a resident will be adjusted using age sensitivity factors (ASFs) that account for an "anticipated special sensitivity to carcinogens" of infants and children as recommended in the OEHHA Technical Support Document (OEHHA 2009) and OEHHA 2015 Guidance (2015). Cancer risk estimates will be weighted by a factor of 10 for exposures that occur from the third trimester of pregnancy to two years of age and by a factor of three for exposures that occur from two years through 15 years of age. No weighting factor (i.e., an ASF of one, which is equivalent to no adjustment) is applied to ages 16 and older. **Table 7** presents the ASF values that will be used for the HRA.

4.3 Risk Characterization

4.3.1 Estimation of Cancer Risk

Excess lifetime cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a unitless probability. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific CPF.

The equation used to calculate the potential excess lifetime cancer risk for the inhalation pathway is as follows:

$$Risk_{inh} = C_i \times CF \times IF_{inh} \times CPF \times ASF$$

Where:

$Risk_{inh}$	=	Cancer risk; the incremental probability of an individual developing cancer as a result of inhalation exposure to a particular potential carcinogen (unitless)
C_i	=	Annual average air concentration for $chemical_i$ (µg/m^3)
CF	=	Conversion factor (mg/µg)
IF_{inh}	=	Intake factor for inhalation (m^3/kg-day)
CPF_i	=	Cancer potency factor for $chemical_i$ (mg chemical/kg body weight-day)$^{-1}$
ASF	=	Age sensitivity factor (unitless)

5. CUMULATIVE ANALYSIS

Using the Project risks determined in the Section above, Ramboll Environ will then calculate the cumulative risks and $PM_{2.5}$ concentrations from the Proposed Project and the background sources in the surrounding area at the on- and off-site sensitive receptor locations within the modeling domain. Since the Proposed Project and nearby sensitive receptors are not in an APEZ, the Proposed Project will directly assess its impacts on the Maximally Exposed Individual Sensitive Receptor (MEISR) against the cumulative APEZ standards for this area, which are: a cancer risk of 100 in a million from all modeled sources and/or a $PM_{2.5}$ concentration of 10 $\mu g/m^3$ from all modeled sources, and including background ambient $PM_{2.5}$ concentrations. Ramboll Environ will evaluate the cumulative impacts at all modeled sensitive receptors in order to determine the Project's impact. Additionally, Ramboll Environ will integrate the calculated Project risk and $PM_{2.5}$ concentration results into the CRRP-HRA in coordination with SF EP. Ramboll Environ will provide a geodatabase of these results for use in GIS.

Although Ramboll Environ will rely on the 2014 CRRP-HRA for background data, the background cancer risk in the 2014 CRRP-HRA will need to be adjusted to implement the 2015 OEHHA guidance. Ramboll Environ will use scaling factors approved by the BAAQMD to convert risks from the CRRP-HRA to be consistent with the 2015 OEHHA guidance. Furthermore, Ramboll Environ will utilize the latest available modeled $PM_{2.5}$ concentrations for permitted sources from BAAQMD to supplant the CRRP-HRA. This will enable the cumulative analysis to be as accurate as possible using publicly available data. The CRRP-HRA includes stationary sources (such as diesel-fueled standby emergency generators) and roadways with traffic greater than 1,000 vehicles per day. Ramboll Environ will include construction-related emissions from nearby occurring or reasonably foreseeable Projects (within 1,000 feet), if known, or will include a qualitative discussion of those Projects and their likely impact on the MEISR as part of the cumulative analysis. Based on discussions with SF EP, one of the known nearby sources of emissions not already included in the CRRP-HRA is the construction of Pier 70 Mixed-Use District Project to the north of the Project Site; Ramboll Environ will work with the Planning Department to get additional details regarding this construction activity, and will estimate impacts from Pier 70 Mixed-Use District project on nearby sensitive receptors to the Project. The Pier 70 analysis modeled exposures from two land use scenarios (one assuming a maximum residential development and the other a maximum commercial development). As a conservative approach, Ramboll Environ will include the larger of the two exposures from Pier 70 when evaluating cumulative impacts. Ramboll Environ assumes no additional modeling will be required in the cumulative analysis. However, if under cumulative conditions, construction activity from the Pier 70 project or other nearby projects not already included in the CRRP-HRA could result in sensitive receptor locations that exceed the APEZ criteria, additional quantitative modeling of the construction impact of these projects may be required by SF EP. By incorporating the impacts from the Pier 70 project in the cumulative impact analysis, this conservatively assumes that the Pier 70 Mixed-Use District Project is not part of baseline conditions.

To assess the cumulative risks and hazards, Ramboll Environ will conservatively sum the impacts from the maximum construction scenario, the operational scenario, the CRRP background results, and the construction-related emissions from nearby occurring or reasonably foreseeable projects.

The CRRP-HRA has been evaluated for 2040, assuming changes to the on-road vehicle fleet. Ramboll Environ will review the changes in CRRP-HRA background levels between 2014 and 2040 and will qualitatively discuss any trends. Ramboll Environ will qualitatively discuss the cumulative impacts of the 2040 CRRP-HRA background plus the Proposed Project and any known new projects since the 2014 CRRP-HRA modeling was conducted.

6. REFERENCES

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TABLES

Table 1
Emissions Calculation Methodology
Petrero Power Station Mixed-Use Development Project
San Francisco, California

Type	Source	Methodology and Formula	Reference
Construction Equipment	Off-Road Equipment[1]	$Ec = \Sigma(EFc * HP * LF * Hr * C)$	OFFROAD2011 and ARB/USEPA Engine Standards
	Harbor Craft (barges and tugs)[2]	$E_b = EF_0 * F * (1+D*A/UL) * HP * LF * Hr$	ARB Commercial Harbourcraft (CHC) Inventory
Construction On-Road Mobile Sources[3]	Exhaust – Running	$E_R = \Sigma(EF_R * VMT * C)$, where VMT = Trip Length * Trip Number	EMFAC2014
	Exhaust - Idling	$E_I = \Sigma(EF_I * \text{Trip Number} * T_I * C)$	EMFAC2014
Operational Generator Emissions[4]	Stationary Source	$E_{SS} = EF_{SS} * Hr * C$	--
Operational On-Road Mobile Sources[3]	Exhaust - Running	$E_R = \Sigma(EF_R * VMT * C)$, where VMT = Trip Length * Trip Number	EMFAC2014

Notes:

1. E_c: off-road equipment exhaust emissions (lb).
   EFc: emission factor (g/hp-hr) CalEEMod 201122 default emission factors used
   HP: equipment horsepower OFFROAD2011
   LF: equipment load factor OFFROAD2011
   Hr: equipment hours
   C: unit conversion factor
2. Eb: harbor craft exhaust emissions (lb)
   EF_0: Engine-specific zero-hour emission factor (g/hp-hr) from the CHC Inventory
   F: fuel correction factor from the CHC Inventory
   D: engine deterioration factor from the CHC Inventory
   A: engine age provided by the construction contractor
   UL: engine useful life from the CHC Inventory
   HP: equipment horsepower provided by the construction contractor
   LF: equipment load factor from the CHC Inventory
   Hr: hours of operation per day provided by the construction contractor

Table 1
Emissions Calculation Methodology
Petrero Power Station Mixed-Use Development Project
San Francisco, California

3. On-road mobile sources include truck and passenger vehicle trips. Emissions associated with mobile sources were calculated using the following formulas.

E_R: running exhaust and running losses emissions (lb).

EF_R: running emission factor (g/mile). From EMFAC2014.

VMT: vehicle miles traveled

C: unit conversion factor

The calculation involves the following assumptions:

a. All material transporting and soil hauling trucks are heavy-heavy duty trucks.

b. Trip Length: The one-way trip length as calculated based on the truck route or the default length from CalEEMod or construction contractor.

c. Trip Number: provided by the construction contractor or estimated in CalEEMod.

E_I: vehicle idling emissions (lb).

EF_I: vehicle idling emission factor (g/hr-trip). From EMFAC2014.

T_I: idling time.

C: unit conversion factor.

4. Operational emissions from the generator were calculated using the following formulas:

E_{SS}: Stationary Source emissions.

EF_{SS}: Stationary Source emission factor

Hr: hours of operation per year (hr)

C: unit conversion factor

Abbreviations:

ARB: California Air Resources Board
CHC: Commercial Harbourcraft
EF: Emission Factor
EMFAC: EMission FACtor Model
g: gram
HP: horsepower
lb: pound
LF: Load Factor
mi: mile
USEPA: United States Environmental Protection Agency
VMT: vehicle miles traveled

References:

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Table 2
Modeling Parameters
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Construction Sources

Source	Source Type[1]	Source Dimension	Number of Sources[2]	Release Height[3]	Initial Vertical Dimension[4]	Initial Lateral Dimension[5,6]
		[m]		[m]	[m]	[m]
Construction Equipment	Area	Project Area	8	5	1.4	
On-Road Trucks	Volume	Variable	---	2.5	2.3	Variable

Operational Sources

Source[7]	Source Type	Engine Size	Quantity	Stack Height	Stack Diameter	Stack Velocity	Stack Temperature
		(kW)		[m]	[m]	[m/s]	°F
Generators	Point	300	1	4.57	0.183	45.300	1025
		500	3	4.57	0.183	45.300	901
		550	1	4.57	0.183	45.300	969
		750	6	4.57	0.183	45.300	888
		2000	4	4.57	0.183	45.300	900

Notes:

1. Construction off-road equipment is modeled as an area source covering the project site, consistent with the CRRP-HRA (BAAQMD 2012).
2. The number of on-road sources is based on the geometry of the truck or traffic routes, and is subject to change based on updated information from the Project Sponsor.
3. According to the CRRP-HRA methodology, release height of a modeled area source representing construction equipment was set to 5 meters. On-road truck release height based on CRRP modeling and USEPA haul road guidance.
4. According to the CRRP-HRA methodology, initial vertical dimension of the modeled construction equipment volume sources was set to 1.4 meters. On-road truck initial vertical dimension based on previous CRRP modeling and USEPA haul road guidance.
5. According to USEPA AERMOD User's Guide, for a line source modeled as adjacent volume sources, the initial lateral dimension is the length of the side divided by 2.15.
6. Shaded cells indicate that those parameters are not applicable.
7. 15 emergency generators with five different engine sizes will be installed. Engine-specific stack heights and temperatures are provided by the Project Sponsor. If provided by the Project Sponsor, engine-specific stack diameter and velocity parameters will be used to model emissions instead of the default values provided in the table.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
°F - Fahrenheit
m - meter
s - second
USEPA - United States Environmental Protection Agency

References:

BAAQMD. 2012. The San Francisco Community Risk Reduction Plan: Technical Support Documentation. December. Available at: http://www.gsweventcenter.com/Draft_SEIR_References%5C2012_12_BAAQMD_SF_CRRP_Methods_and_Findings_v9.pdf

Table 3
Construction Phasing Schedule and Scenarios
Potrero Power Station Mixed-Use Development Project
San Francisco, California

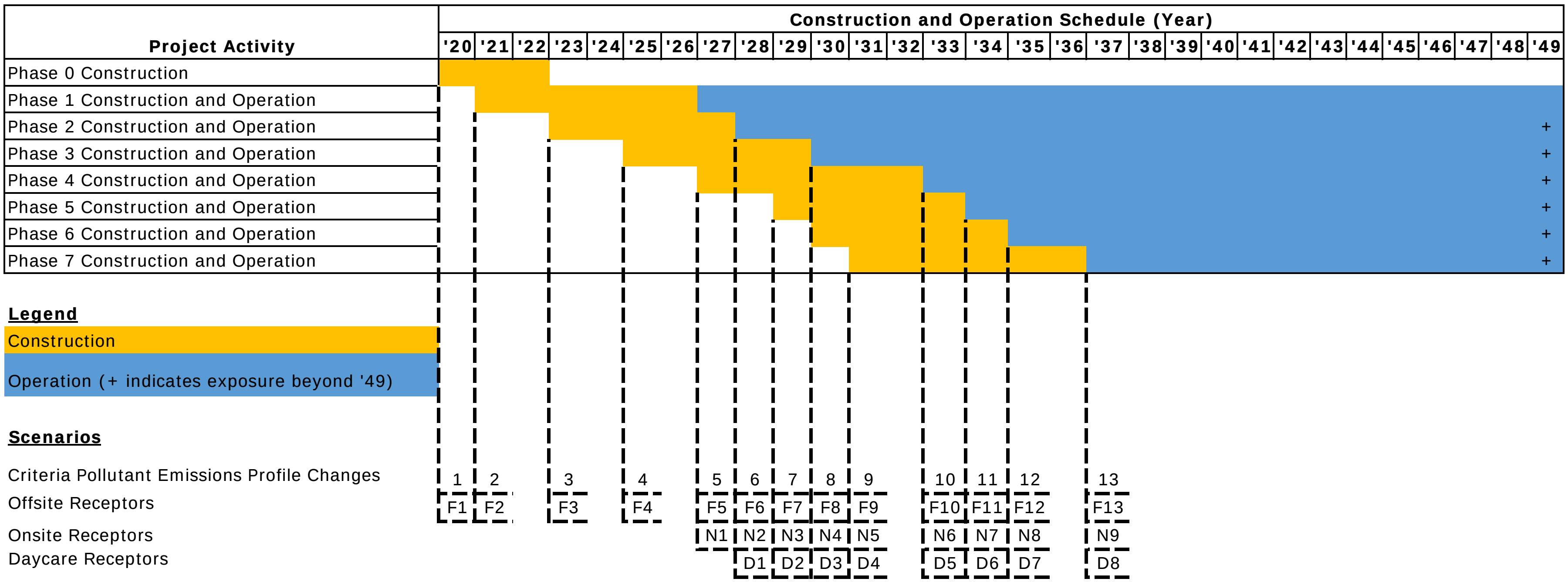


Table 4
Exposure Durations
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Receptor	Analysis Scenario	Project Activity	Start Date	End Date
Off-Site Resident	F1	Construction Phase 0 - 7	1/1/20	12/31/36
		Operation Phase 1 - 7	1/1/27	12/31/49
	F2	Construction Phase 0 - 7	1/1/21	12/31/36
		Operation Phase 1 - 7	1/1/27	12/31/50
	F3	Construction Phase 1 - 7	1/1/23	12/31/36
		Operation Phase 1 - 7	1/1/27	12/31/52
	F4	Construction Phase 1 - 7	1/1/25	12/31/36
		Operation Phase 1 - 7	1/1/27	12/31/54
	F5	Construction Phase 2 - 7	1/1/27	12/31/36
		Operation Phase 1 - 7	1/1/27	12/31/56
	F6	Construction Phase 3 - 7	1/1/28	12/31/36
		Operation Phase 1 - 7	1/1/28	12/31/57
	F7	Construction Phase 3 - 7	1/1/29	12/31/36
		Operation Phase 1 - 7	1/1/29	12/31/58
	F8	Construction Phase 4 - 7	1/1/30	12/31/36
		Operation Phase 1 - 7	1/1/30	12/31/59
	F9	Construction Phase 4 - 7	1/1/31	12/31/36
		Operation Phase 1 - 7	1/1/31	12/31/60
	F10	Construction Phase 5 - 7	1/1/33	12/31/36
		Operation Phase 1 - 7	1/1/33	12/31/62
	F11	Construction Phase 6 - 7	1/1/34	12/31/36
		Operation Phase 1 - 7	1/1/34	12/31/63
	F12	Construction Phase 7	1/1/35	12/31/36
		Operation Phase 1 - 7	1/1/35	12/31/64
	F13	Operation Phase 1 - 7	1/1/37	12/31/65
On-Site Resident[1]	N1	Construction Phase 2 - 7	1/1/27	12/31/36
		Operation Phase 1 - 7	1/1/27	12/31/56
	N2	Construction Phase 3- 7	1/1/28	12/31/36
		Operation Phase 1 - 7	1/1/28	12/31/57
	N3	Construction Phase 3- 7	1/1/29	12/31/36
		Operation Phase 1 - 7	1/1/29	12/31/58
	N4	Construction Phase 4- 7	1/1/30	12/31/36
		Operation Phase 1 - 7	1/1/30	12/31/59
	N5	Construction Phase 4- 7	1/1/31	12/31/36
		Operation Phase 1 - 7	1/1/31	12/31/60
	N6	Construction Phase 5- 7	1/1/33	12/31/36
		Operation Phase 1 - 7	1/1/33	12/31/62
	N7	Construction Phase 6- 7	1/1/34	12/31/36
		Operation Phase 1 - 7	1/1/34	12/31/63
	N8	Construction Phase 7	1/1/35	12/31/36
		Operation Phase 1 - 7	1/1/35	12/31/64
	N9	Operation Phase 1 - 7	1/1/37	12/31/65

Exposure Duration (Year)

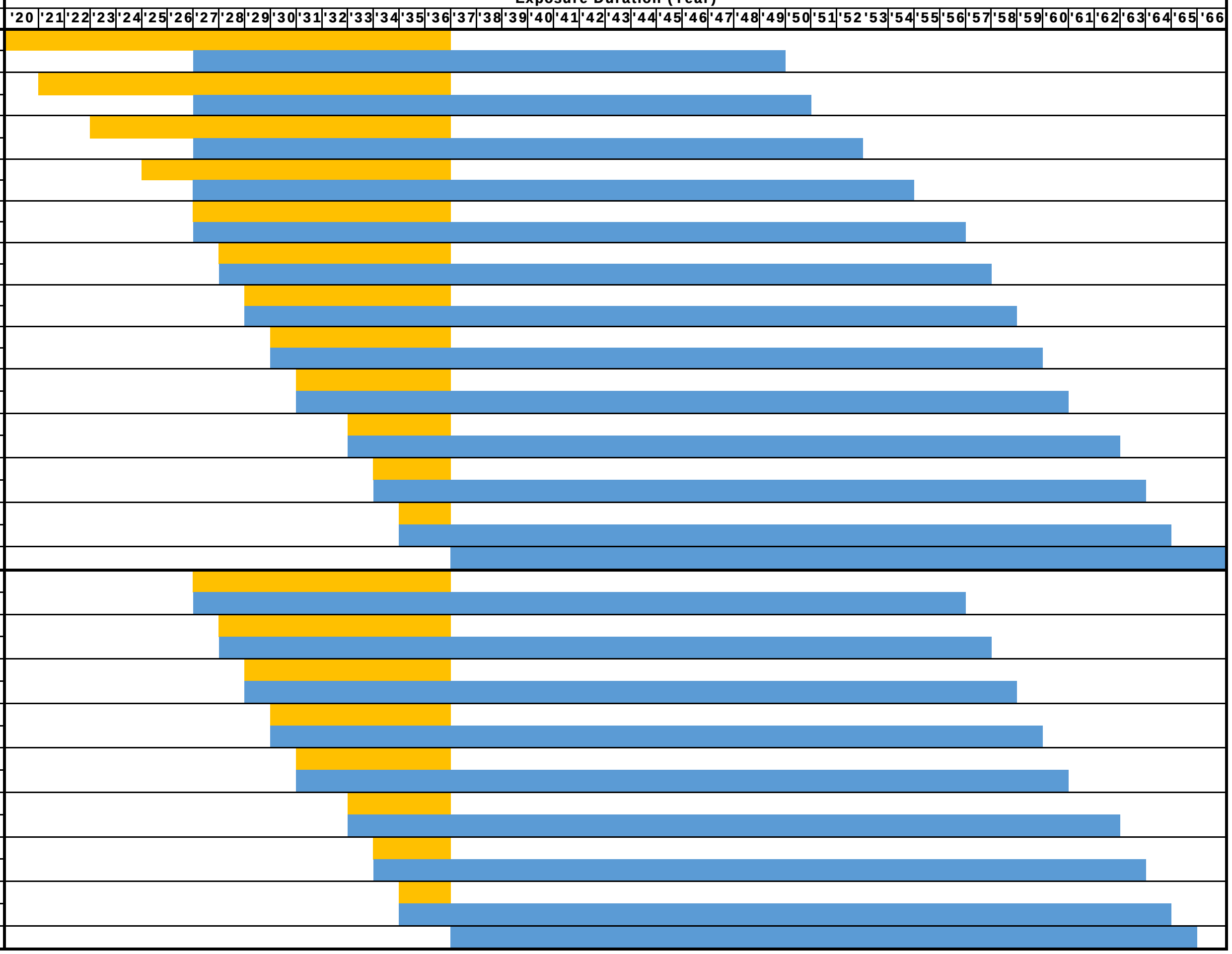


Table 4
Exposure Durations
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Receptor	Analysis Scenario	Project Activity	Start Date	End Date	Exposure Duration (Year) '20 '21 '22 '23 '24 '25 '26 '27 '28 '29 '30 '31 '32 '33 '34 '35 '36 '37 '38 '39 '40 '41 '42 '43 '44 '45 '46 '47 '48 '49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 '60 '61 '62 '63 '64 '65 '66
On-site Daycare[2]	D1	Construction Phase 3- 7	1/1/28	12/31/33	
		Operation Phase 1 - 4	1/1/28	12/31/33	
	D2	Construction Phase 3- 7	1/1/29	12/31/34	
		Operation Phase 1 - 5	1/1/29	12/31/34	
	D3	Construction Phase 4- 7	1/1/30	12/31/35	
		Operation Phase 1 - 6	1/1/30	12/31/35	
	D4	Construction Phase 4- 7	1/1/31	12/31/36	
		Operation Phase 1 - 6	1/1/31	12/31/36	
	D5	Construction Phase 5- 7	1/1/33	12/31/36	
		Operation Phase 1 - 7	1/1/33	12/31/38	
	D6	Construction Phase 6- 7	1/1/34	12/31/36	
		Operation Phase 1 - 7	1/1/34	12/31/39	
	D7	Construction Phase 7	1/1/35	12/31/36	
		Operation Phase 1 - 7	1/1/35	12/31/40	
	D8	Operation Phase 1 - 7	1/1/37	12/31/42	

Legend

Construction

Operation

Notes:

[1] Exposure durations are shown for Phase 1 on-site residents. On-site residents from subsequent phases will be exposed to a subset of the listed scenarios (i.e., Phase 2 residents will not be exposed to Construction Phase 2 emissions).

[2] Exposure durations are shown for children in daycare units built in Phase 2. Children in daycare units from subsequent phases will be exposed to a subset of the listed scenarios (i.e., Phase 3 daycare children will not be exposed to Construction Phase 2 emissions).

Table 5
Exposure Parameters
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Receptor Type	Period	Receptor Age Group	Exposure Parameters					
			Daily Breathing Rate (DBR)[1] [L/kg-day]	Exposure Duration (ED)[2,3] [years]	Fraction of Time at Home (FAH)[4] [unitless]	Exposure Frequency (EF)[5] [days/year]	Averaging Time (AT) [days]	Intake Factor, Inhalation (IF_{inh}) [m^3/kg-day]
Off-Site Resident[2]	Construction Phase 0-7, Operation Phase 1-7	3rd Trimester	361	0.25	1	350	25,550	0.0012
		Age 0-<2 Years	1,090	2.00	1			0.0299
		Age 2-<16 Years	572	14.00	1			0.1097
		Age 16-30 Years	261	14.00	0.73			0.0365
On-Site Resident[3]	Construction Phase 1-7, Operation Phase 1-7	3rd Trimester	361	0.25	1	350	25,550	0.0012
		Age 0-<2 Years	1,090	2.00	1			0.0299
		Age 2-<16 Years	572	14.00	1			0.1097
		Age 16-30 Years	261	14	0.73			0.0365
Daycare[6]	Construction Phase 3-7, Operation Phase 1-7	Age 0-<2 Years	1,200	2	NA	250	25,500	0.0329
		Age 2-<9 Years	640	4				0.0351

Notes:

1. Daily breathing rates for residents reflect default breathing rates from OEHHA 2015 and BAAQMD 2016 as follows: 95th percentile 24-hour daily breathing rate for 3rd trimester and age 0-<2 years; 80th percentile for ages 2 years and older (per BAAQMD 2016 guidance). Daily breathing rates for the daycare children reflect default 8-hour breathing rates for moderate intensity activities from OEHHA 2015.

2. The exposure duration for the off-site resident is based on an analysis of a fetus at the beginning of its third trimester and reflects thirteen emission scenarios due to the phasing of the construction activities and commencement of building operation: Scenario 1) Phase 0 of construction commences; Scenario 2) Phase 1 of construction commences; Scenario 3) Phase 2 of construction commences and Phase 0 construction ends; Scenario 4) Phase 3 construction commences; Scenario 5) Phase 1 construction ends and operational emissions begin, and Phase 4 of construction begins; Scenario 6) Phase 2 construction ends and operational emissions begin; Scenario 7) Phase 5 construction commences; Scenario 8) Phase 6 construction commences, and Phase 3 construction ends and operational emissions begin; Scenario 9) Phase 7 construction begins; Scenario 10) Phase 4 construction ends and operational emissions begin; Scenario 11) Phase 5 construction ends and operational emissions begin; Scenario 12) Phase 6 construction ends and operational emissions begin; Scenario 13) Phase 7 construction ends and operational emissions begin.

   Note that the total duration of exposure is calculated out to 30 years for all thirteen scenarios listed above. Due to the phasing of the construction activities, the off-site resident will be exposed to different durations of construction and operation emissions in each of the thirteen scenarios as outlined in Table 4.

Table 5
Exposure Parameters
Potrero Power Station Mixed-Use Development Project
San Francisco, California

[3] The exposure duration for the on-site resident is based on an analysis of a fetus at the beginning of its third trimester and reflects nine emission scenarios due to the phasing of the construction activities and commencement of building operation: Scenario 1) Phase 1 construction ends and residents move into Phase 1 units, and Phase 4 of construction begins; Scenario 2) Phase 2 construction ends and residents move into Phase 2 units; Scenario 3) Phase 5 construction commences; Scenario 4) Phase 6 construction commences, and Phase 3 construction ends and residents move into Phase 3 units; Scenario 5) Phase 7 construction begins; Scenario 6) Phase 4 construction ends and residents move into Phase 4 units; Scenario 7) Phase 5 construction ends and residents move into Phase 5 units; Scenario 8) Phase 6 construction ends and residents move into Phase 6 units; Scenario 9) Phase 7 construction ends and residents move into Phase 7 units.

Note that the total duration of exposure is calculated out to 30 years for all nine scenarios listed above. Due to the phasing of the construction activities, the on-site resident will be exposed to different durations of construction and operation emissions in each of the nine scenarios as outlined in Table 4.

[4] Fraction of time spent at home is conservatively assumed to be 1 (i.e., 24 hours/day) for age groups from the third trimester to less than 16 years old based on the recommendation from BAAQMD (BAAQMD 2016) and OEHHA (OEHHA 2015). The fraction of time at home for adults age 16-30 reflects default OEHHA guidance (OEHHA 2015) as recommended by BAAQMD (2016). FAH is not applicable for the daycare children.

[5] Exposure frequency for residents reflects default residential exposure frequency from OEHHA 2015. Exposure frequency for daycare children reflect the default exposure frequency for workers from OEHHA 2015 assuming the children are at the daycare center when their parents are at work.

[6] The exposure duration for a hypothetical on-site daycare child is based on an analysis of a fetus at the beginning of its third trimester and reflects eight emission scenarios due to the phasing of the construction activities and commencement of building operation: Scenario 1) Phase 2 construction ends and children attend Phase 2 daycare units; Scenario 2) Phase 5 construction commences; Scenario 3) Phase 6 construction commences, and Phase 3 construction ends and children attend Phase 3 daycare units; Scenario 4) Phase 7 construction begins; Scenario 5) Phase 4 construction ends and and children attend Phase 4 daycare units; Scenario 6) Phase 5 construction ends and children attend Phase 5 daycare units; Scenario 7) Phase 6 construction ends and operational emissions begin; Scenario 8) Phase 7 construction ends and operational emissions begin.

Note that the total duration of exposure is calculated out to 6 years for all eight scenarios listed above. Due to the phasing of the construction activities, the on-site daycare child will be exposed to different durations of construction and operation emissions in each of the eight scenarios as outlined in Table 4.

Calculation:

IF_{inh} = DBR * FAH * EF * ED * CF / AT

CF = 0.001 (m^3/L)

Abbreviations:

AT - averaging time
BAAQMD - Bay Area Air Quality Management District
DBR - daily breathing rate
ED - exposure duration
EF - exposure frequency
FAH - fraction of time at home
IF_{inh} - intake factor
kg - kilogram
L - liter
m^3 - cubic meter
OEHHA - Office of Environmental Health Hazard Assessment

References:

BAAQMD. 2016. Air Toxics NSR ProgramHealth Risk Assessment (HRA) Guidelines. January.

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Table 6
Carcinogenic Toxicity Value for Diesel Particulate Matter
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Chemical	CAS Number	Cancer Potency Factor
		$[mg/kg\text{-}day]^{-1}$
Diesel particulate matter	9901	1.1

Abbreviations:

ARB - Air Resources Board

Cal/EPA - California Environmental Protection Agency

CAS - chemical abstract services

mg/kg-day - milligrams per kilogram per day

OEHHA - Office of Environmental Health Hazard Assessment

Reference:

Cal/EPA. 2016. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. March. Available at: http://www.arb.ca.gov/toxics/healthval/contable.pdf.

Table 7
Age Sensitivity Factors[1]
Potrero Power Station Mixed-Use Development Project
San Francisco, California

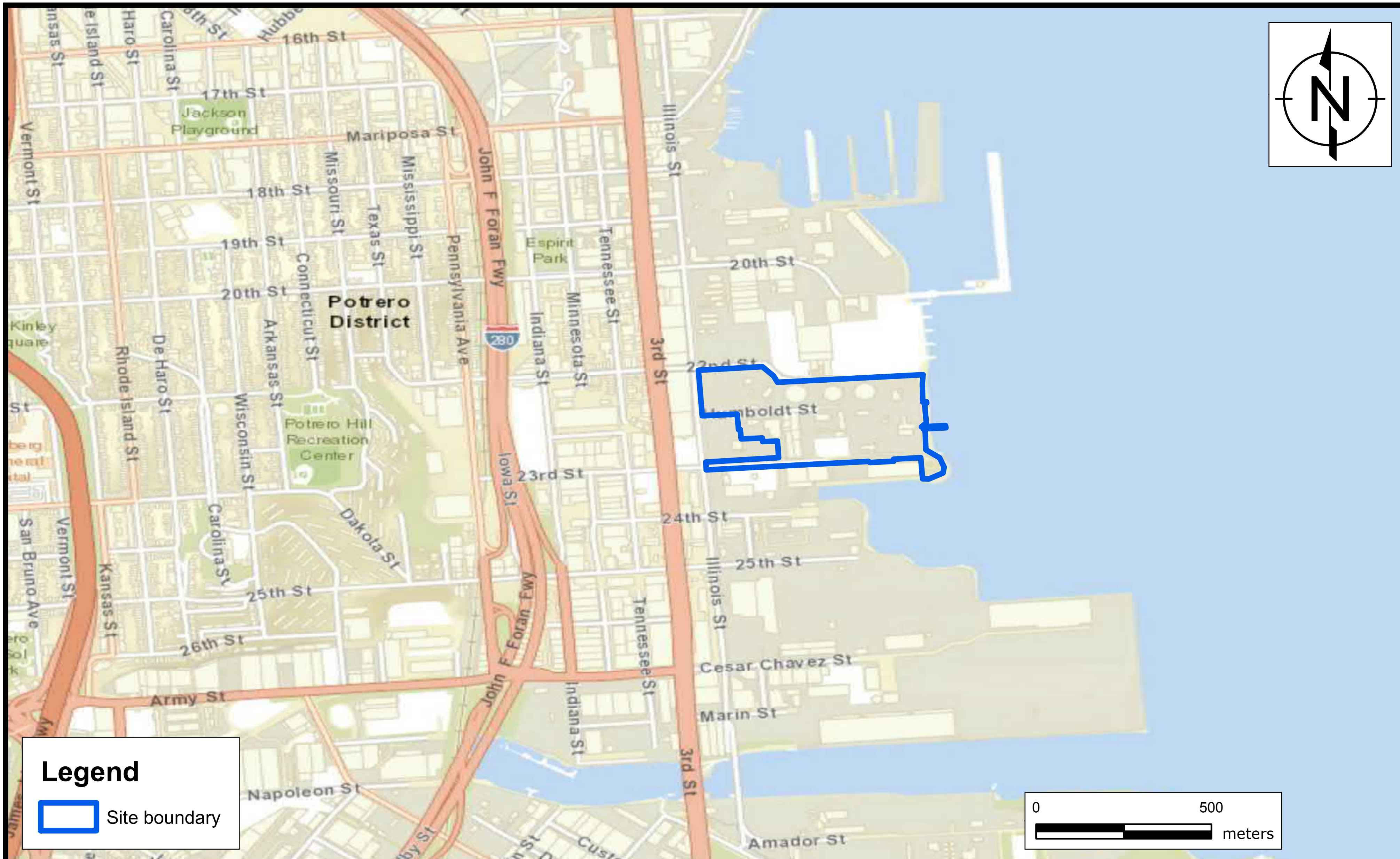
Receptor Age Group	Value
3rd Trimester	10
Age 0-<2 Years	10
Age 2-<9 Years	3
Age 2-<16 Years	3
Age >16 Years	1

Note:
1. Based on OEHHA 2015. Age sensitivity factors are unitless.

Abbreviation:
OEHHA - Office of Environmental Health Hazard Assessment

Source:
OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

FIGURES



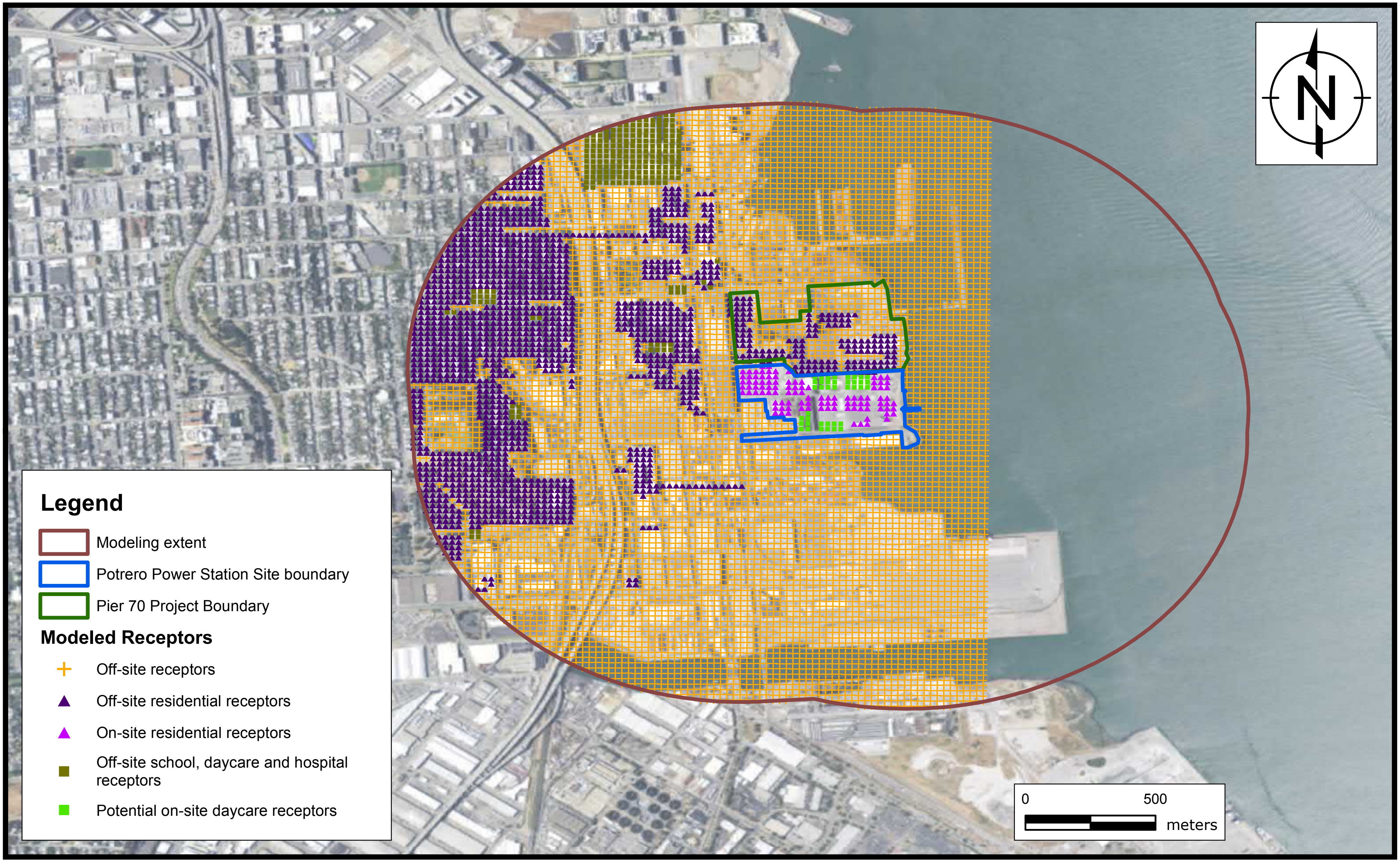
RAMBOLL ENVIRON

DRAFTED BY: AA | DATE: 11/1/2017

Project Location
Potrero Power Station Mixed-Use Development Project
San Francisco, California

FIGURE
1

PROJECT: 03-43667A



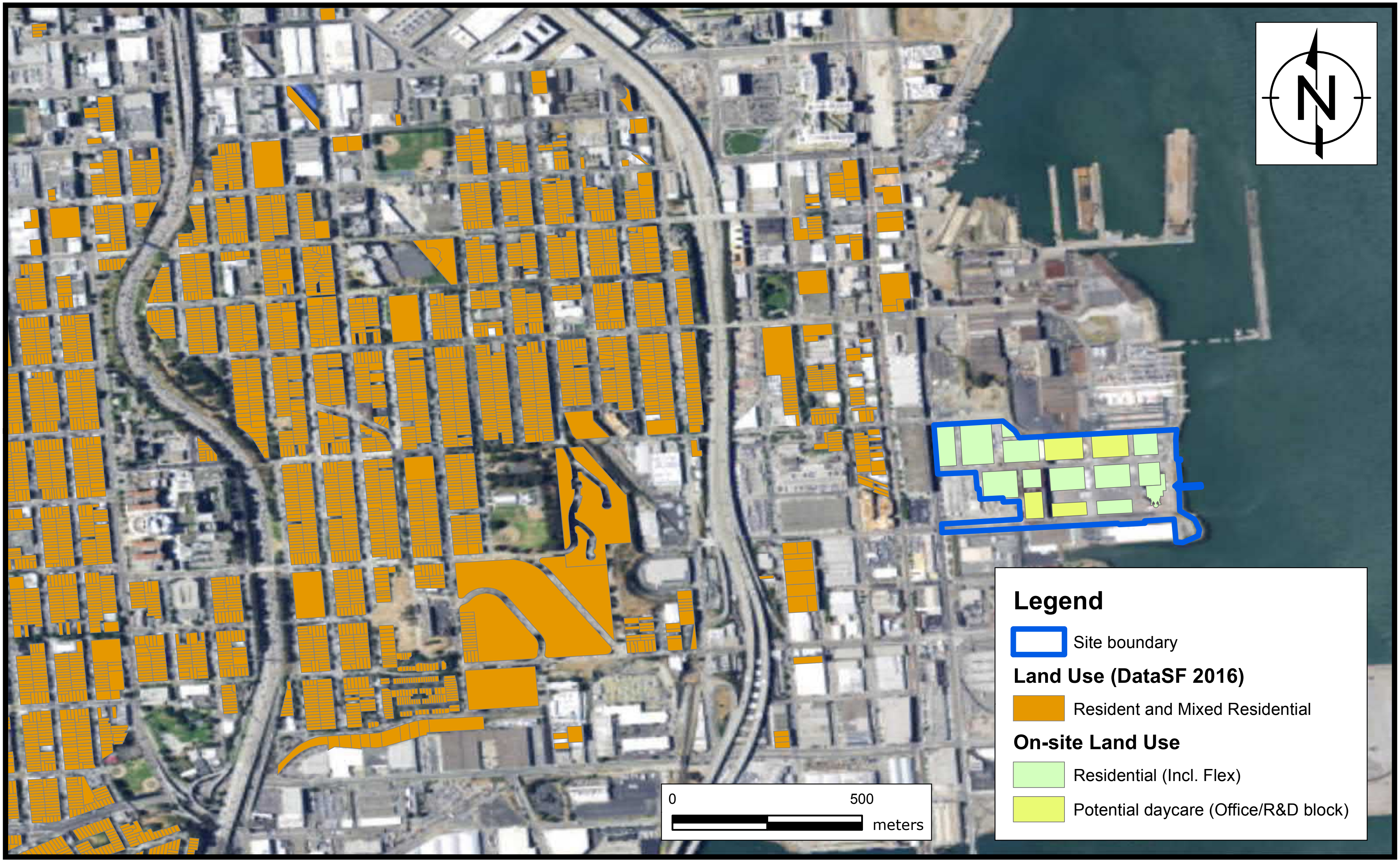
RAMBOLL ENVIRON

Project Boundary and Modeling Extent
Potrero Power Station Mixed-Use Development Project
San Francisco, California

FIGURE
2

DRAFTED BY: AA | DATE: 11/1/2017

PROJECT: 03-43667A

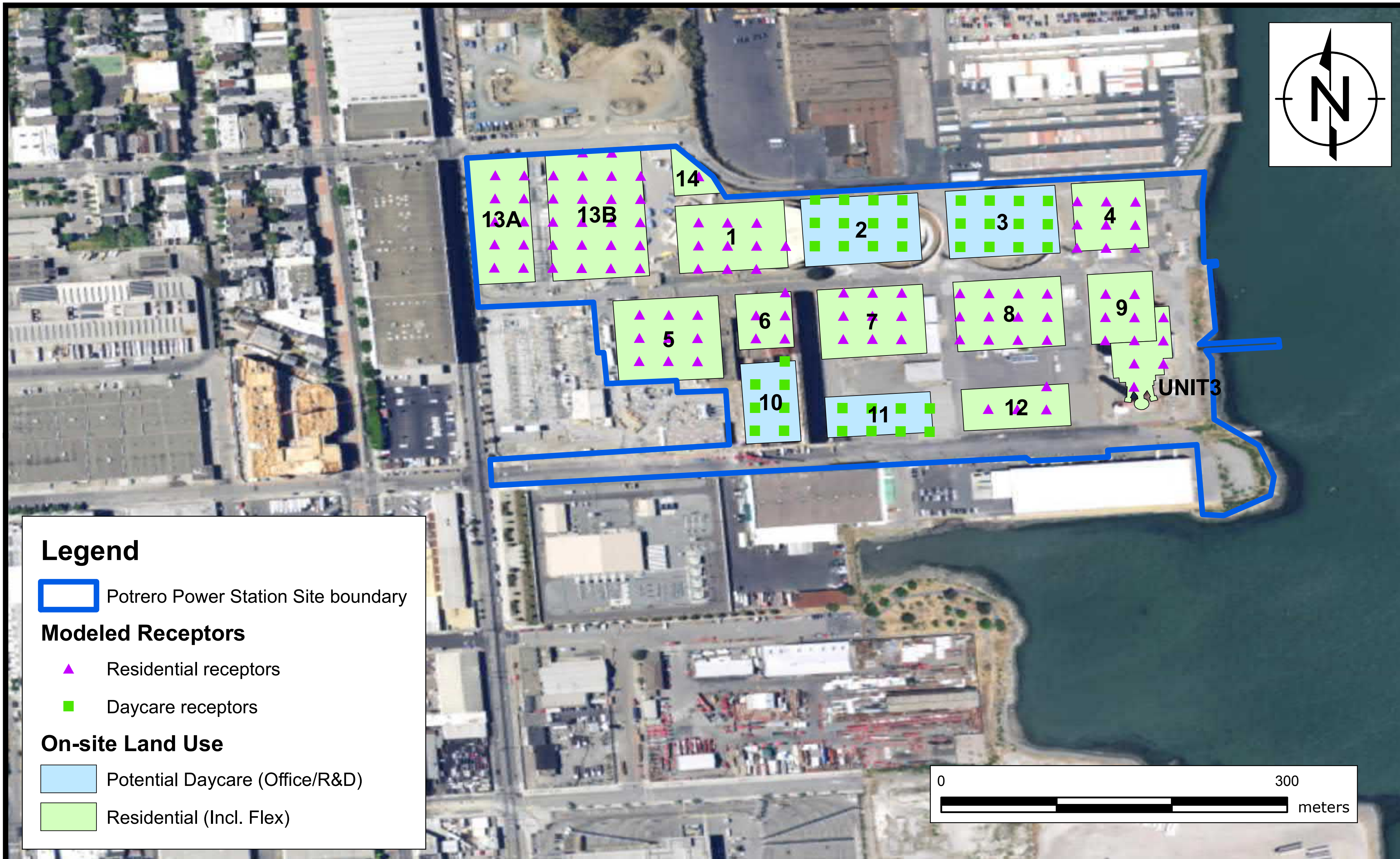


RAMBOLL ENVIRON

Sensitive Receptor Parcels
Potrero Power Station Mixed-Use Development Project
San Francisco, California

FIGURE 3

DRAFTED BY: AA | DATE: 11/1/2017 | PROJECT: 03-43667A



RAMBOLL ENVIRON

On-site Sensitive Receptor Locations
Potrero Power Station Mixed-Use Development Project
San Francisco, California

FIGURE 4

DRAFTED BY: AA | DATE: 11/1/2017 | PROJECT: 03-43667A

E. MODIFICATIONS TO THE APPROVED SCOPE OF WORK

The following section contains a list of modifications that were made to the approved Scope of Work (SOW).

- Construction phasing
    - The Air Quality (AQ) analysis is based on the latest phasing schedule from the Project sponsor dated March 14, 2018. This schedule is different from the phasing schedule described in the approved SOW. A revised construction schedule is included in the AQ appendix table AQ-1a.

- CalEEMod version
    - A newer version of California Emissions Estimator Model version 2016.3.2 (CalEEMod®) was used instead of version 2016.3.1 that was stated in the approved SOW.

- Modeled Receptors
    - On-site receptors located on Block 4 were modeled at 4.8 meters (m) (i.e., second floor) as sensitive uses are restricted on the ground level. All the other receptors were modeled at a height of 1.8 m as described in the approved SOW.

    - Per the Project sponsor, on-site daycare locations can potentially be on any block (not limited to non-residential buildings as mentioned in the original SOW). Therefore, daycare sensitive receptors were conservatively modeled using residential exposure assumptions.

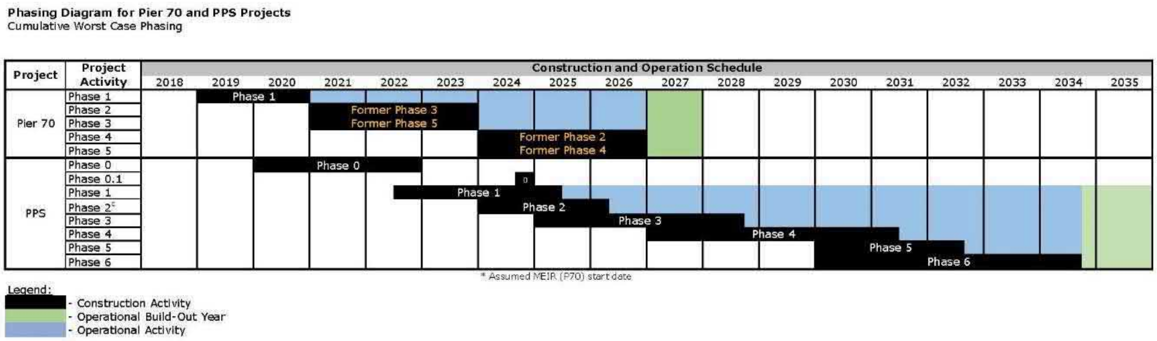
    - Additional off-site sensitive receptors (residential and school properties) were identified based on a survey of the neighborhood and included in the Health Risk Assessment (HRA).

- Construction Generator Sets
    - The construction HRA assumes Tier 4 engines for all off-road equipment, including generators, for the mitigated (controlled) scenario. As required by Mitigation Measure M-AQ-1a, all diesel portable engines would be prohibited, and they would instead be plugged into the grid instead of utilizing diesel-fueled generator sets. Therefore, the AQ operational mass emissions for the mitigated (controlled) scenario excludes CAP emissions from the generator sets. This specific mitigation was conservatively not accounted for in the health risk analysis. (i.e., the mitigated (controlled) scenario includes the use of diesel-fueled generator sets). If accounted for, the cancer risk and $PM_{2.5}$ concentration impacts, resulting from the this mitigation, would be further reduced.

- Transport Refrigeration Units (TRUs)
    - While quantification of Transport Refrigeration Unit (TRU) emissions was not included in the original SOW, the AQ operational mass emissions now include CAP emissions from the TRUs. This is because one of the project land uses is anticipated to be a supermarket.
    - While we estimated the potential TRU mass emissions, we did not explicitly calculate cancer risk and $PM_{2.5}$ concentrations associated with TRUs. DPM emissions from TRUs were compared to those from on-road construction trucks to evaluate the potential risks from TRUs.
        - On-road construction trucks are chosen because they have similar spatial allocation to TRUs (i.e., likely to travel on the similar routes)., meaning that they would have similar dispersion characteristics. This allows a comparison of their emissions to be used as an indicator of the potential risk.
        - The comparison indicates that TRU DPM emissions are similar to those of on-road construction trucks on an annual average basis. While the exposure duration for construction on-road sources are shorter relative to the TRU operational emissions, the risk resulting from construction on-road trucks is

small (i.e., <0.05 in a million) which suggests risks associated with TRUs would be very small as well.

- Cumulative analysis
  - o A modified Pier 70 phasing schedule was used to represent a reasonable worst-case scenario for the cumulative analysis with Potrero Power Station (PPS) Project.
  - o The phasing for Pier 70 used in the cumulative analysis is presented in the table below.



  - o Details are also provided in the footnotes of Tables AQ-17 and AQ-18.

RAMBOLL

ENVIRONMENT
& HEALTH

MEMORANDUM

To: **Paul Mitchell, ESA**

From: **David Kim, PhD, Ramboll**
Michael Keinath, PE, Ramboll

Subject: **Anticipated Changes in Project Emissions and Health Risk Results when Updating from EMFAC2014 to EMFAC2017**

Date September 20, 2018

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Criteria air pollutants (CAPs) from mobile sources in the Potrero Power Station Mixed-Use Development Draft Environmental Impact Report (DEIR) were estimated using the EMission FACtors 2014 (EMFAC2014) model.[1] Construction emissions from on-road mobile vehicle trips associated with workers, vendors and hauling were calculated using vehicle trips provided by the Project Sponsor and fleet-average emission factors from EMFAC2014. This methodology is consistent with that used by the California Emissions Estimator Model (CalEEMod) (version 2016.3.2), an emissions estimation/evaluation model that was developed in collaboration with the air quality management districts of California. Operational on-road mobile emissions were estimated using CalEEMod 2016.3.2, which relies on emission factors for mobile sources from EMFAC2014.

In December 2017, after the Notice of Preparation (NOP) (dated November 1, 2017), the California Air Resources Board (ARB) published updated emission factors in EMFAC2017. These updated factors have not yet been approved by the United States Environmental Protection Agency (US EPA). At the time the NOP was released EMFAC2014 was the current model and that because the US EPA has not yet approved the updated EMFAC2017 emission factors, it remains the current approved model for deriving emissions factors. As such, the mass emissions and health risk estimates in the DEIR are based on EMFAC2014. Based on previous evaluations of on-road vehicle emissions, using EMFAC2017 would generally lead to a small increase (~5-10%) in NOx and PM emissions relative to EMFAC2014 for Medium-Heavy Duty Trucks (MHDT) and Heavy-Heavy Duty Trucks (HHDT). EMFAC2017 would also result in a moderate decrease (~10-25%) in NOx, PM, and ROG emissions relative to EMFAC2014 for light duty vehicles during project operation.

This memorandum outlines the potential impact of using EMFAC2017 to estimate on- road emissions on the mass emission and health risk results presented in the DEIR. First, the impacts of a 10% increase in NOx and PM emissions from on-road construction vehicles (MHDT and HHDT) are shown, followed by the impacts of a 10% reduction in operational vehicle NOx, PM and ROG emissions. Based on the estimates of percentage change in emissions, these represent a conservative worst-case scenario (i.e., highest increase and lowest decrease).

[1] California Air Resources Board. 2014. *EMFAC2014.* Version 1.0.7. Available: https://www.arb.ca.gov/msei/categories.htm

CONSTRUCTION EMISSIONS

Table 1 shows controlled construction NOx and PM emissions from off-road equipment and on-road construction vehicles for each phase, calculated using the EMFAC2014 model (as reported in the DEIR Appendix Table AQ-5b) and EMFAC2017 model (estimated by applying a 10% increase in emissions for MHDT and HHDT vehicles). A 10% increase in MHDT and HHDT NOx and PM emissions results in 3-10% increase in on-road vehicle emissions for each Phase. Total Project construction NOx and PM emissions increase by 1.0% and 0.2%, respectively. Of all the construction phases, Phase 1 and Phase 0 generate the largest amount of NOx and PM emissions, respectively. Total NOx and PM emissions in these phases increase by 0.23 lb/day and ~0.0011 lb/day respectively (1.0% and 0.2% of the total emissions for each phase, respectively). These additional emissions do not change the conclusions regarding the significance determination of average daily and maximum annual NOx and PM emission presented in Tables 4.G-6 and 4.G-7 of the DEIR.

Table 2 shows the effect of a 10% increase in MHDT and HHDT DPM (PM_{10}) emissions on resulting health risks at the off-site, school and on-site MEISRs. Though the construction on-road vehicle contribution to health risks increases by 10%, the change in total risks is between 0.0017% - 0.014% since this source is not a dominant contributor to overall health risks. Further, the significance determination of health risks is not altered.

Table 3 shows the effect of a 10% increase in MHDT and HHDT $PM_{2.5}$ emissions on resulting $PM_{2.5}$ concentrations at the off-site, school and on-site MEISRs. Though the construction on-road vehicle contribution to $PM_{2.5}$ concentrations increases by 10%, the change in total $PM_{2.5}$ concentrations is between 0.018% - 0.084% since this source is not a dominant contributor to $PM_{2.5}$ concentrations. Further, the significance determination of $PM_{2.5}$ concentrations is not altered.

OPERATIONAL EMISSIONS

Table 4 shows the resulting changes in controlled Project operational emissions at full build-out with 10% lower on-road exhaust emissions of ROG, NOx and PM. ROG emissions are reduced by 0.21 tons/year, NOx emissions are lowered by 1.0 tons/year, PM_{10} emissions are lowered by 0.0065 tons/year, and $PM_{2.5}$ emissions are lowered by 0.0060 tons/year. The use of EMFAC2017 results in Project operational NOx emissions of 14 tons/year, which still exceeds the BAAQMD operational NOx emissions threshold. Operational ROG emissions are driven by consumer product use and the use of EMFAC2017 did not change Project operational ROG emissions of 18 tons/year, and therefore it does not change the significance determination for Project operational ROG emissions.

Use of EMFAC2017 would result in a minor decrease in PM emissions as discussed above. PM emissions are used to evaluate cancer risks and $PM_{2.5}$ concentrations. Therefore, the minor reduction in PM emissions would result in a slight decrease from operational traffic health risks presented in the DEIR (as shown in Table 2 and Table 3), but would not substantially change the health risk conclusions.

TABLES

Table 1
Construction CAP Emissions - Controlled[1]
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Total Construction NOx and PM Emissions				
Phase	**Source**	**Emissions[2]**		
		NO_x	**PM_{10}**	**$PM_{2.5}$**
		lbs		
0	Off-road Equipment[3]	12,149	389	389
0.1		264	6.3	6.3
1		17,069	264	264
2		6,417	77	77
3		11,136	161	161
4		18,571	210	210
5		9,368	105	105
6		6,314	79	79
0	On-road Trucks and Vehicles (EMFAC2014)[4]	2,690	14	13
0.1		686	2.2	2.1
1		2,083	17	16
2		655	5.6	5.2
3		886	8.3	7.7
4		1,296	12	11
5		941	6.5	6.1
6		601	4.3	4.0
Total Emissions (incl. EMFAC2014) (lbs)		**91,126**	**1,361**	**1,357**
0	On-road Trucks and Vehicles (EMFAC2017)[4]	2,942	15	14
0.1		754	2.4	2.3
1		2,261	18	17
2		712	5.7	5.4
3		962	8.5	7.9
4		1,408	12	11
5		1,027	6.8	6.4
6		656	4.4	4.1
Total Emissions (incl. EMFAC2017) (lbs)		**92,011**	**1,364**	**1,360**
Percent Change from EMFAC2014 to EMFAC2017		**1.0%**	**0.2%**	**0.2%**

Table 1
Construction CAP Emissions - Controlled[1]
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Average Daily Construction Emissions (incl. EMFAC2014 On-road emissions)				
Phase	**Days of Construction per Phase[5]**	**Emissions[2]**		
		NO_x	**PM_{10}**	**$PM_{2.5}$**
		lbs/day		
0	782	19.0	0.52	0.51
0.1	87	10.9	0.10	0.10
1	782	24.5	0.36	0.36
2	607	11.6	0.14	0.14
3	977	12.3	0.17	0.17
4	1,194	16.6	0.19	0.18
5	695	14.8	0.16	0.16
6	1,238	5.6	0.068	0.067

Average Daily Construction Emissions (incl. EMFAC2017 On-road emissions)				
Phase	**Days of Construction per Phase[5]**	**Emissions[2]**		
		NO_x	**PM_{10}**	**$PM_{2.5}$**
		lbs/day		
0	782	19.3	0.52	0.52
0.1	87	11.7	0.10	0.10
1	782	24.7	0.36	0.36
2	607	11.7	0.14	0.14
3	977	12.4	0.17	0.17
4	1,194	16.7	0.19	0.19
5	695	15.0	0.16	0.16
6	1,238	5.6	0.068	0.068

Notes:

1. Mitigated emissions are calculated based on Tier 4 emission factors for off-road construction equipment and Tier 3 for in-water equipment.
2. Emissions were estimated using methodology consistent with CalEEMod® and Table AQ-2. Note that totals may not match sums of intermediate values presented in this table due to rounding.
3. A construction equipment list and hours of operation for each piece of equipment for each phase were provided by the Project Sponsor.
4. Total number of worker, vendor and hauling trips was provided by the Project Sponsor for each Phase. Trip distances for worker, vendor and hauling trips were assumed to be CalEEMod defaults. Mitigated emissions are calculated assuming 2010 or newer haul trucks are used.
5. Days of construction per phase shown are the number of work days for each phase and were provided by the Project Sponsor. Total length of construction for the Project does not equal the sum of the total of days in each phase since there are overlapping phases.

Abbreviations:

CAP - criteria air pollutant
CalEEMod® - California Emissions Estimate Mod
CAPCOA - California Air Pollution Control Officers
CEQA - California Environmental Quality Act
lb - pound
NOx - nitrogen oxide compounds ($NO + NO_2$)
PM_{10} - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - reactive organic gas

References:

California Air Pollution Control Officers Association (CAPCOA). 2016. CalEEMod. Available at: http://www.caleemod.com.

Table 2
Modeled Excess Lifetime Cancer Risk at Project Off-Site and On-Site MEISR (Controlled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Source Category	**Lifetime Excess Cancer Risk[2]** [in a million]			
	Off-Site Resident (Pier 70)[3]	**Off-Site Resident (non-Pier 70)[4]**	**School Receptor**	**On-Site Resident[5]**
Construction Off-Road Equipment[1]	32	4.2	1.0	36
Construction On-Road Vehicles (EMFAC2014)[1]	0.0057	0.012	0.0022	0.023
Emergency Generator[1]	0.38	0.053	0.0051	0.78
Operational Traffic[1]	0.49	4.4	1.5	3.2
Total (incl. EMFAC2014)[6]	**33**	**8.7**	**2.4**	**40**

Construction On-Road Vehicles (EMFAC2017)[1]	0.0062	0.013	0.0024	0.026
Total (incl. EMFAC2017)[6]	**33**	**8.7**	**2.4**	**40**
Percent change from EMFAC2014 to EMFAC2017	**0.0017%**	**0.014%**	**0.009%**	**0.0059%**

Notes:

1. Emissions are calculated based on Tier 4 emission factors for construction equipment and emergency generators, Tier 3 in-water equipment, and use of model year 2010 or newer haul trucks.

2. Lifetime excess cancer risk from construction and operations are combined since cancer risk is evaluated over a 30-year period. Thus, the risk takes into account a receptor living near the project site beginning during construction and continuing through operations. The cancer risks were estimated using the following equation:

$Risk_{inh} = C_i \times CF \times IF_{inh} \times CPF_i \times ASF$

Where:

$Risk_{inh}$ = Cancer Risk for the Inhalation Pathway (unitless)

C_i = Annual Average Air Concentration for Chemical "i" ($\mu g/m^3$)

CF = Conversion Factor (mg/μg)

IF_{inh} = Intake Factor for Inhalation (m^3/kg-day)

CPF_i = Cancer Potency Factor for Chemical "i" $(mg/kg\text{-}day)^{-1}$

ASF = Age Sensitivity Factor (unitless)

Table 2
Modeled Excess Lifetime Cancer Risk at Project Off-Site and On-Site MEISR (Controlled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

3. Off-site Resident (Pier 70) Project MEISR was identified as the off-site sensitive receptor location on the Pier 70 property located within residential blocks with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation. The analysis assumes Pier 70 resident will move in while construction of the Portero Power Plant (PPP) Project is ongoing. The cancer risk from PPP emissions for the Pier 70 resident assumes exposure to PPP emissions begins in 2024.

4. Off-site Resident (Non-Pier 70) MEISR was identified as the off-site sensitive receptor location on residential parcels with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation. The cancer risk from PPP emissions for non-Pier 70 populations assumes exposure to Potrero Power Plant (PPP) emissions begins in 2020.

5. On-site Resident MEISR is the receptor located on the Project site on residential blocks with the maximum health impact. Onsite sensitive receptors include residents and potential daycare centers. Residential exposure parameters were assumed for the daycare, as presented in Table AQ-13.

6. Note that totals may not match sums of intermediate values presented in this table due to rounding.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
kg - kilogram
m^3 = cubic meter
MEISR - Maximally Exposed Individual Sensitive Receptor
mg - milligram
$\mu g/m^3$ - microgram per cubic meter
UTM - Universal Transverse Mercator

Table 3
Modeled PM2.5 Concentration at Project Off-Site and On-Site MEISR (Controlled)
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Source Category	PM$_{2.5}$ Concentration [µg/m^3]			
	Off-Site Resident (Pier 70)[2]	Off-Site Resident (non-Pier 70)[3]	School Receptor	On-Site Resident[4]
Construction Off-Road Equipment[1]	0.10	0.010	0.0029	0.11
Construction On-Road Vehicles (EMFAC2014)[1]	5.5E-04	1.8E-03	1.1E-04	0.0012
Emergency Generator[1,6]	1.8E-04	0	0	4.9E-04
Operational Traffic[1]	0.16	0.21	0.055	0.062
Maximum Annual PM$_{2.5}$ Concentration (incl. EMFAC2014)[5]	**0.26**	**0.22**	**0.058**	**0.17**
Construction On-Road Vehicles (EMFAC2017)[1]	6.0E-04	2.0E-03	1.2E-04	0.0013
Maximum Annual PM$_{2.5}$ Concentration (incl. EMFAC2017)[5]	**0.26**	**0.22**	**0.058**	**0.17**
Percent change from EMFAC2014 to EMFAC2017	**0.021%**	**0.084%**	**0.018%**	**0.071%**

Notes:

1. Emissions are calculated based on Tier 4 emission factors for construction equipment, Tier 3 in-water equipment, and emergency generators, and use of model year 2010 or newer haul trucks.

2. Off-site Resident (Pier 70) Project MEISR was identified as the off-site sensitive receptor location on the Pier 70 property located within residential blocks with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation. The analysis assumes Pier 70 resident will move in while construction of the Potrero Power Plant (PPP) Project is ongoing.

3. Off-site Resident (Non-Pier 70) MEISR was identified as the off-site sensitive receptor location on residential parcels with the maximum total cancer risk attributed to the emissions associated with the Project construction and emergency generator operation.

4. On-site Resident MEISR is the receptor located on the Project site on residential blocks with the maximum health impact. Onsite sensitive receptors include residents and potential daycare centers. Residential exposure parameters were assumed for the daycare, as presented in Table AQ-13.

5. The Maximum Annual PM$_{2.5}$ Concentration occurred in the following years at the corresponding MEISRs: Off-Site Resident (Pier 70): 2030; Off-site Resident (Non-Pier 70): 2022; School Receptor: 2022; On-Site Resident: 2031-2032. Note that totals may not match sums of intermediate values presented in this table due to rounding.

6. The Annual PM$_{2.5}$ Concentrations from emergency generators for the Off-site Resident (non-Pier 70) and School Receptor MEISRs are zero because the maximum annual PM$_{2.5}$ concentrations occurred in years before the emergency generators would be operational.

Abbreviations:

CalEEMod® - California Emissions Estimator Model
m - meter
m^3 - cubic meter
µg - microgram
MEISR - Maximally Exposed Individual Sensitive Receptor
PM$_{2.5}$ - particulate matter 2.5 microns or less
UTM - Universal Transverse Mercator

Table 4
Project Operational CAP Annual Emissions (Controlled) for Build Out Year
Potrero Power Station Mixed-Use Development Project
San Francisco, California

Emissions Source	CAP Emissions[1,2] [ton/year]			
	ROG	**NO_x**	**PM_{10} Total**	**$PM_{2.5}$ Total[3]**
Net Generator Emissions	0.049	1.6	0.012	0.012
Architectural Coating	2.8	--	--	--
Consumer Products[4]	12	--	--	--
Hearths	0.20	0.11	0.29	0.29
Landscaping	0.54	0.21	0.10	0.10
Building Energy Use	0.40	3.5	0.27	0.27
On-Road Fugitive Dust[5]	--	--	6.0	1.7
On-Road Exhaust (EMFAC2014)[5]	2.1	9.9	0.065	0.060
TRUs[6]	0.0091	0.068	0.00041	0.00038
Total Project Emissions (incl. EMFAC2014)	**18**	**15**	**6.7**	**2.5**
On-Road Exhaust (EMFAC2017)	1.9	8.9	0.058	0.054
Total Project Emissions (incl. EMFAC2017)	**18**	**14**	**6.7**	**2.5**
Emission Reduction from EMFAC2014 to EMFAC2017	**0.21**	**1.0**	**0.0065**	**0.0060**

Notes:

1. Emissions estimated using CalEEMod version 2016.3.2. Emissions controls include Tier 4 emergency generators and TRUs plugged in during unloading. Note that totals may not match sums of intermediate values presented in this table due to rounding.
2. Operational CAP emissions were estimated for the full Project build-out in 2034. Operations during all other years (while construction is still taking place) will have less emissions than the full build-out year presented above.
3. $PM_{2.5}$ are assumed to be equivalent to PM_{10} emissions for the emergency generators.
4. San Francisco's ROG emissions from consumer products was 5.30 tons and San Francisco's assumed square footage was 703,541,231 square feet. Therefore, the emission factor would be (5.30 tons/day * 2,000 lbs/ton)/703,541,231 sq.ft = 1.51e-5 lbs/(sq.ft-day). This was used as the emission factor for ROG for the Project.
5. Mitigated on-road emissions included the Transportation Demand Management (TDM) program outlined in Mitigation Measure TR-5. The TDM program is expected to reduce trip generation (or vehicle miles traveled) by 11%, which is expected to result in a proportional reduction of on-road emissions.
6. TRU emissions were calculated using the engine operating hours multiplied by the engine size, load factor, and CAP emission factors from California Air Resources Board OFFROAD2017 model. Operating hours were estimated based on the truck travel time plus unloading time; truck travel time is calculated as distance based on CalEEMod default value of 7.3 miles per one way trip for a Commercial-NonWork Trip, divided by the travel speed of 10 miles per hour, assuming 5 trucks per day. Loading time is based on average delivery time of 27 minutes from McCormack et al. (2010) "Truck Trip Generation by Grocery Stores", prepared by University of Washington. In the mitigated case, TRUs are assumed to be plugged in while unloading.

Abbreviations:

BAAQMD: Bay Area Air Quality Management District
CalEEMod: California Emissions Estimator Model
CAP: criteria air pollutant
lb: pounds
TRU: Transport Refrigeration Unit
NO_x: nitrogen oxide compounds (NO + NO_2)
ROG: reactive organic gases
$PM_{2.5}$ - particulate matter < 2.5 μm
PM_{10} - particulate matter < 10 μm

References:

CalEEMod® 2016.3.2. Available Online at: http://www.caleemod.com

McCormack et al. (2010). "Truck Trip Generation by Grocery Stores", prepared by University of Washington for Transportation Northwest (TransNow) and Washington State Department of Transportation. Available online at: http://www.wsdot.wa.gov/NR/rdonlyres/E7164661-25E6-421B-B828-C2EF5F909180/0/TruckTripGenerationGroceryStoresreportAugust2010.pdf